

- 1) Please tell if building control in your townhall carry out double glazing inspections to residential properties that are replacing windows.

Property Maintenance are based at Makerfield Way Depot and are responsible for carrying out repairs and maintenance to social housing within the Borough. Within the Building and Associated Works Framework 2021 - 2025, The Property Maintenance service have a glazing contractor that will carry out double glazing inspections to social housing within the Wigan Borough if that is an instruction given by the Housing client who are based at Wigan Town Hall. No inspections are carried without an order from Housing.

- 2) Please say what double glazing standards are used by you with regards to for example, installation methods, window positioning, bolting, washers, rain ingress prevention, shape, size, measurement, extrusion and glass quality, beading, silicon, foaming, sill, stays, locks, accessories, spacers / shims, tools etc.

With reference to the replacement glazing all the work carried out by the contractor fall under the rules of glazing regulation 14. Copies of this regulation can be found online.

The contractor is also a FENSA Approved Installation Company and as such they follow and are vetted under their guidance, regulations and rules. This also ensures they are following all current legislation with regards to products and installation methods.

I have enclosed a copy of the Guide for compliance that details the methods the contractor must adopt.

GUIDE TO COMPLIANCE

The industry name you can trust



Compliance Guide with Building Regulations in England and Wales for Replacement Doors and Windows in Dwellings.



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fensa.org.uk/gtc

Foreword

This is an abridged version of the fourth edition of FENSA’s Guide to Compliance with Building Regulations, reflecting the changes made in the 2022 updates and replaces the third edition issued in 2014.

By following this guidance, referring to the relevant Approved Documents, and when necessary contacting the FENSA Technical Department, compliance should be achieved.

I do hope that you find this Guide useful.



Lis Clarke
Operations Director of FENSA

Please note: All regulations and guidance will change over time. This document has a version reference; please check with the FENSA website www.fensaonline.com or Technical Department techhelp@fensa.org.uk (0207 6453700) to ensure that you are using the latest version.

Disclaimer

While every attempt is made to present up to date information, this Guide is issued for guidance but without responsibility for any advice given therein or omission there from or for the consequences of acting in reliance thereon and all liability on the part of FENSA however arising in connection therewith is expressly disclaimed



Building Regulations

The Building Regulations exist to ensure the health and safety of people in and around all types of buildings. They also provide for energy conservation, access to and use of buildings. To download copies of the approved documents please refer to the Planning Portal in England and the Building regulations: approved documents in Wales.



<https://www.planningportal.co.uk/applications/building-control-applications/building-control/approved-documents>



<https://www.gov.wales/building-regulations-approved-documents>

The relevant Approved Documents are listed below.

Applicable in England	Applicable in Wales
Structure: Approved Document A	Part A: Structural Safety
Fire safety: Approved Document B	Part B: Fire Safety
Site preparation and resistance to contaminants and moisture: Approved Document C	Part C: Resistance to Contaminates and Moisture
Ventilation: Approved Document F	Part F: Ventilation
Combustion appliances and fuel storage systems: Approved Document J	Part J: Heat Producing Appliances
Protection from falling, collision and impact: Approved Document K *incorporates previous approved document N safety glass in England	Part K: Protection from falling, collision and impact
Conservation of fuel and power: Approved Document L	Part L: Conservation of Fuel and Power
Access to and use of buildings: Approved Document M	Part M: Access to and use of Buildings
	Part N: Safety Glazing

Information

FENSA, as a Competent Person Scheme provider enables registered companies that install replacement windows, replacement windows, roof lights, roof windows or doors in existing dwellings of under 18 metres in height to self-certify compliance to the Building Regulations in England and Wales.

Where windows and doors are to be replaced the replacement work should comply with the requirements of all applicable Approved Documents. This is only applicable to full replacement work as repair work (for example, sash or glass only replacement) does not fall within the scope of the FENSA competent person scheme.



There are some exceptions where after the work has been completed, the building should not have a lesser level of compliance (make no worse) with the other applicable parts of Schedule 1 of the Building Regulations. These will be detailed as we pass through each document in the guide.



The installation needs to comply to with all applicable building regulations **at the time of registration with FENSA**. Proposed subsequent upgrades or planned future works cannot be considered as a means of compliance.



A disclaimer cannot be recognised as an alternative to meeting building regulation compliance.



Purchasing an indemnity policy is also **NOT** a suitable alternative to meeting the requirements of the Building Regulations in full.



It should be noted that if, after the completion of an installation and the issuing of the FENSA certificate, if it is established by FENSA that the installation is not compliant, a retrospective non-conformity will be levied against the installation company even if weeks, months or years have elapsed. This will likely incur significant cost.



Manufacturers instructions should always be followed.



Habitable room definition: includes any room where individuals will sit or lie down and require a reasonably quiet environment in which to concentrate or rest. Such rooms are bedrooms, living rooms, dining rooms, studies, media/playrooms as well as kitchen-dining and kitchen-living rooms.



Installations carried out to dwellings located within conservation areas are permitted under the FENSA scheme providing they meet all the requirements of the building regulations below, should a conservation order be in place that provides exemption to a specific regulatory requirement confirmation should be sought prior to work taking place. FENSA shall ask for demonstration of such order as proof of any claimed exemption.



Work carried out on outbuildings, conservatories, listed buildings, commercial property and buildings more than 18 metres/6 storeys in height does not fall within the scope of the FENSA scheme.

Structure

Applies to all bay windows, flat windows and doors.

When replacing windows and doors it is vital that the building is fully supported both during and after installation. Most replacement window systems are not capable of carrying any load without additional support, eg proprietary bay poles. The system supplier may be able to offer technical advice.

It is important to note that in situations where uncertainty exists, e.g. when using new materials or construction methods, the services of a structural engineer or other competent person should be employed.



Adequate means of support

It's essential to maintain the integrity of the building

The necessity for an adequate means of support is dependent on the design of the structure. However, even if no such support is evident the Installation Company is responsible for assessing if one should be installed due to potential damage to the buildings structural integrity. If this additional work is required, the customer can be given the option to have it fitted by the installation company or independently.

The installation company cannot avoid the issue on the grounds that because there is no means of support over the existing window there is no requirement to fit one over the new. It is strongly recommended that the potential installation is thoroughly investigated before work commences.

A disclaimer cannot be recognised as an alternative to meeting building regulation compliance.

Every effort should be made at the time of survey to determine if an adequate means of support is either fitted or required. Please note an unsupported soldier, header or stretcher course is not a suitable means of support. If the situation is unclear a more intrusive survey method may need to be considered (for example removal of a section of render or trim).

There will be instances where a previously replaced window has been installed without a suitable means of support (for example a bay without jacking bay poles or window without a lintel). The new window must be installed with adequate means of support to comply with Approved Document A.

In the worst case the installation team may only recognise the need for a suitable support to be installed during the removal of the existing frame. It is the installing company's responsibility to inform the customer immediately advising that an adequate means of support must be installed before the replacement window or door can be fitted. This is a situation to be avoided where possible as this may incur additional time and cost not written into the original contract.

Structure

Bay windows

In order to maintain the structural integrity when replacing a bay window, it is essential that adequate temporary support(s) (for example Acrow Props) are used both during the removal and installation. Care should be taken to protect internal ceiling and floor finishes at support bearing points.

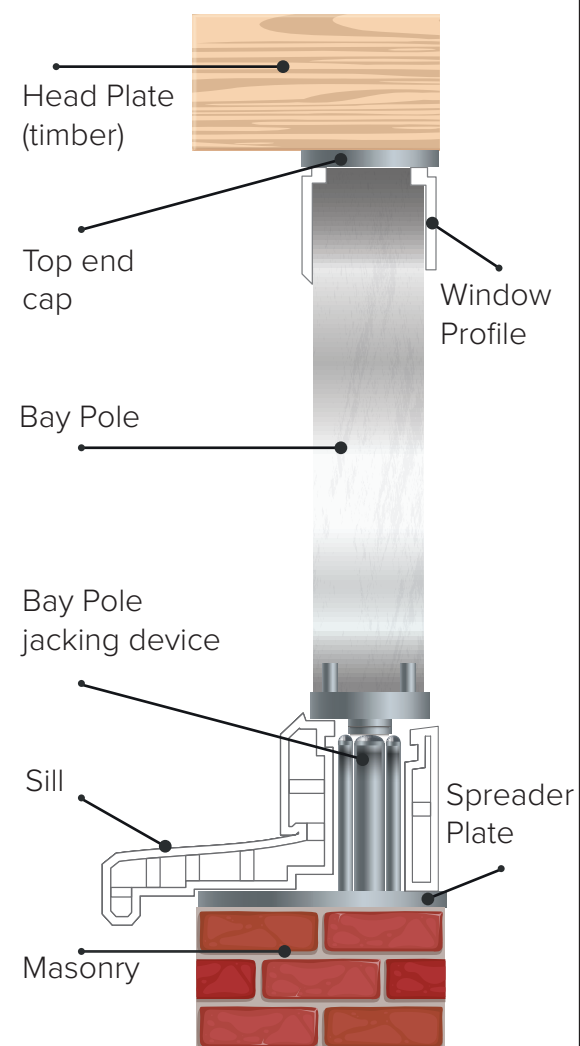
Depending upon the design of the structure at the head of the bay window, it may be necessary to leave the head of the frame in position providing that there is no rot present. If the condition of the aperture or the damp proof course (DPC) is not considered to be fit for purpose, or does not correspond with that described by the surveyor, the installer should refer back to the surveyor or the company for agreement to the proposed solution.

Installation of the replacement window assembly should not start until any defects in the structure have been rectified. The assembly of the bay window should follow the profile systems recommendations.

Care should be taken to ensure that no applied loads are carried by the individual segments of the window. Appropriate metal bearing plates/shims should be used on bay poles when loads are transferred from or to masonry or timber to increase contact area and spread the load. Where there is no danger of the bay pole damaging the fabric of the building with which it comes into contact, bearing plates/shims are not necessarily required e.g. where the bay pole bears directly onto a steel joist.

Care should be taken to ensure that the loads are transferred correctly from and to the structure of the building and the bay pole assembly. This is achieved either by having the bay pole pass directly through the sill, or by using a threaded jacking system. If the intention is to pass the pole through the sill the pole should be provided at a length long enough to pass through the sill and with the use of shims fit tightly between the masonry/timber fabric of the building. If the pole needs to be cut on site care must be taken to ensure a perfectly square cut.

Figure 1.
Bay Jacking System



Bow, Oriel and Dormer Windows

It is recommended that the structure of a Bow, Oriel or Dormer replacement should be constructed in such a way as to provide adequate means of support to a flat roof setup. This will take into account any loads imposed by heavy snow fall which could otherwise compromise the structure.

Ensure that exposed areas e.g. sills, external canopies or roofs are adequately insulated as this could incur a non-conformity against Approved Document L when inspected.

Note 1: If a structural opening is to be made wider, Local Authority consent is required. This is outside the scope of FENSA registration and should be referred to Local Authority Building Control.

Note 2: Where significant loads are being transferred (e.g. several storeys or a roof) it is advisable to consult a Structural Engineer.

Fixings

Wherever practicable all four sides of the window/door should be securely fixed. There are two main acceptable methods of fixing, through frame fixings and lug/strap fixings.

Through frame fixings can be either direct masonry or plugged/nylon sleeved fixings or when into timber by appropriately sized wood screw.

- Fixings for windows should securely penetrate at least 40mm into masonry and for doors 50mm.
- Fixings for windows and doors into a building timber frame should securely penetrate at least 25mm.
- There should be a minimum of 2 fixings per jamb with intermediary fixings at no more than 600mm centres and installed at 90 degrees to the frame.
- Jamb fixings should be packed to prevent frame twist.
- Lug/strap fixings should be securely fixed to the frame before installation.

Note: Manufactures instructions should always be followed.

Fire Safety

Means of Escape

A fire escape window is required on the ground floor in any habitable room that does not open onto a hall leading directly to an exit door e.g. an inner room.

A fire escape window is required on upper floors not more than 4.5m above ground level in every habitable room (unless the room has direct access to a “protected stairway”). This is usually the case for the upstairs of a conventional two-storey dwelling. This is measured from the point of escape to the ground directly below the window.

A habitable room does not include a kitchen or a bathroom, there is no requirement for a secondary fire egress from these rooms.

Upper floors more than 4.5m above ground level should be accessed by a “protected stairway” or an alternative escape route and therefore fire escape windows are not an appropriate means of escape. There is no requirement to have more than one escape opening in a room.

A fire escape window should have an unobstructed openable area that is at least 0.33m^2 and at least 450mm high or 450mm wide. If one of the dimensions is at the 450mm minimum then the other dimension will need to be at least 734mm to achieve 0.33m^2 . The route through the window may be at an angle rather than straight through (see Figure 2.).

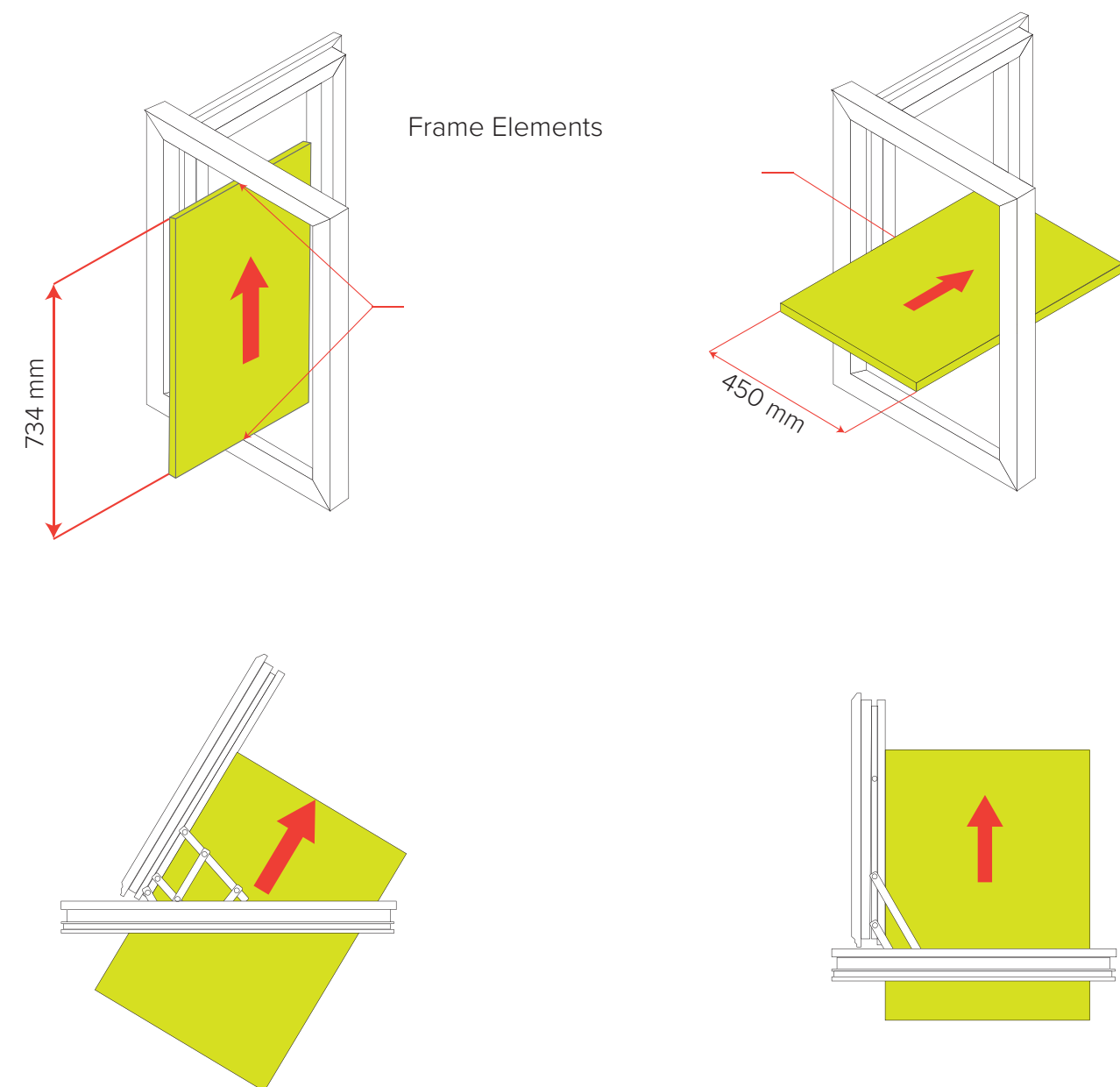
The bottom of the openable area should be no more than 1100mm above the finished floor level.

If the outgoing window meets the minimum openable area size of 0.33m^2 and 450mm dimension, then the replacement should meet these minimum requirements. However, if the outgoing openable area exceeds the minimum requirements, there is no obligation for the new window to meet this larger size, as long as it meets the minimum requirement of 0.33m^2 and 450mm.

Similarly, if the openable area complies by being less than 1100mm above floor level then the replacement should also comply by being less than 1100mm, but there is no obligation for it to be any lower than 1100mm above floor level even if the outgoing window is lower.

If the outgoing window does not meet the minimum openable area requirements, then the replacement window does not have to meet them, but the area, minimum dimension and height above floor level should not be made worse than the outgoing window. It is advisable to retain evidence of compliance such as survey/pre installation photographs in case of subsequent inspection. Figure 2 graphic shows an example of a compliant opening.

Figure 2.
Example of how to measure a clear path for fire egress.



Fire Safety

Fire Egress Supplemental Guidance

Replacement window hardware

In all windows identified as egress, suitable hardware should be installed to maximise the means of escape opportunity e.g. egress hinges and non-key locking handles.

Note: Although the Approved Document allows for both keyed and non-keyed locking handles, it is recommended that the non-key option is used.

Reducing Compliance

Although it is permissible to reduce compliance to the minimum required by Approved Document B, it is recommended that maximum escape opportunity is retained wherever possible, for example by retaining multiple escape windows in a room, particularly if they are on different sides of the building. If the outgoing window does not meet the minimum openable area requirements, then it is advisable to increase the size to improve the situation as far as is reasonably practicable.

Internal Fire Spread

Particular care must be taken when replacing windows and doors within a timber framed building. In most cases there will be a fire barrier between the window frame and cavity within the timber structure. If there is no fire barrier present the window may have been acting as the fire barrier and therefore a new fire barrier must be installed.

This fire barrier must be installed without exception in order to maintain the fire suppression properties as laid down in the Approved Document B3 section 5

Fire Door Provision

Although a rare occurrence when dealing with domestic replacements there are circumstances where a fire resistant door must be installed.

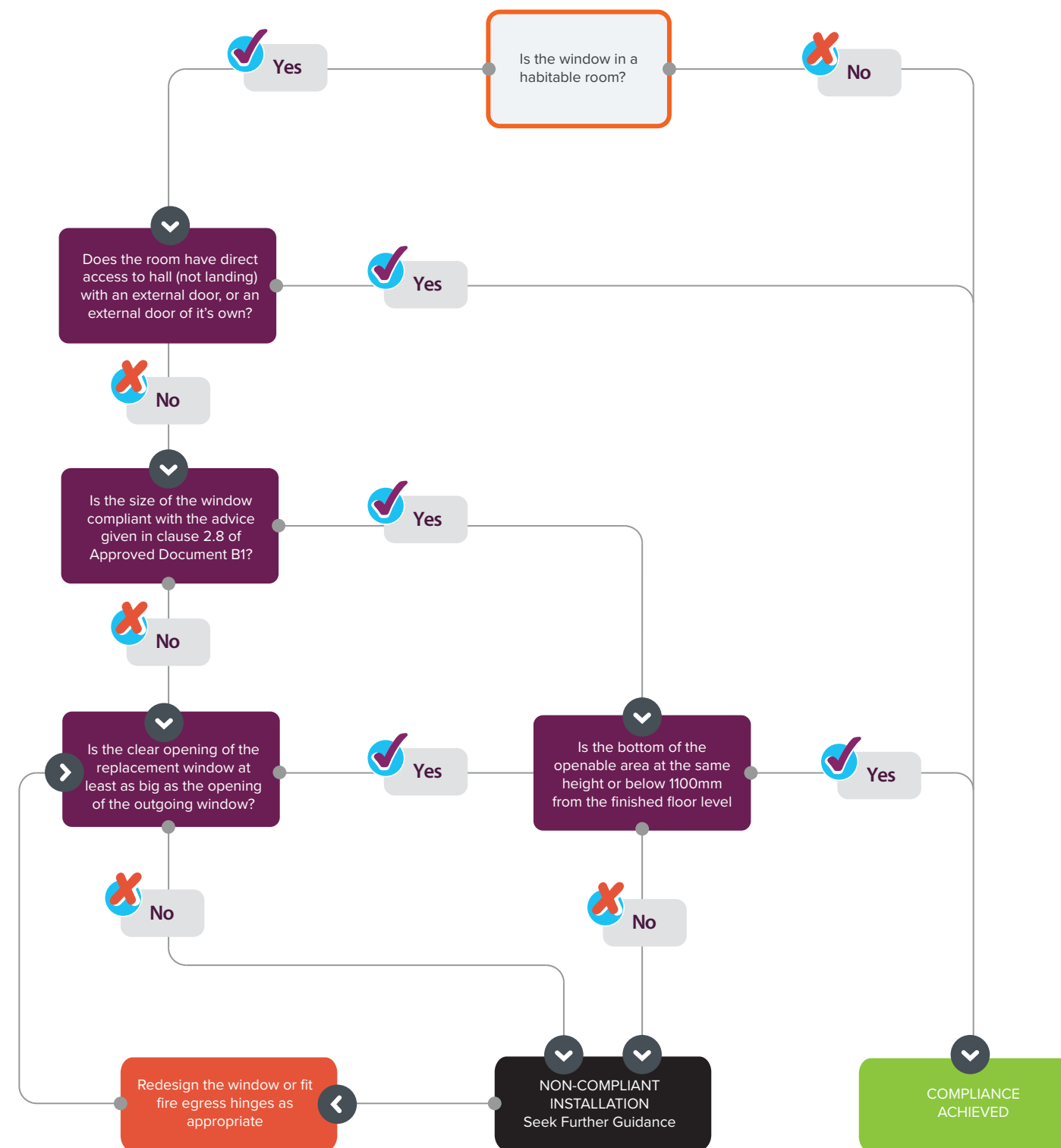
The two most common situations that will occur are:

- Door between an integral garage and a house;
- Entrance doors that open onto a space in common use (for example a flat/maisonette door onto corridor/lobby/balcony/landing)

In both of the situations a fire door that resists fire and smoke for minimum of 30 minutes is required.

Fire Egress Flow Chart

For ground and upper floors not more than 4.5 meters above ground level



Note: Installing a rated fire door set does not automatically result in a compliant installation. Evidence of correct specification and installation techniques will be required during inspection to evidence compliance. Manufacturer's instruction must be adhered to.

Sealing

Resistance to Contaminants and Moisture (Sealing)

When existing frames are removed from a cavity wall, the Damp Proof Membrane (DPM) or cavity closer should be inspected to ensure it is complete and un-damaged. Remedial works to ensure compliance should be completed prior to the installation of new frames.

When existing frames are removed from a wall built with a checked rebate, they should be re-fitted with a checked rebate to ensure compliance with Part C.



Frames should be coupled to sills with an adequate weather seal between them. It is common place for a bead of silicone to be used for this purpose. The seal should prevent water ingress both into the building and from entering the cavity, this is usually achieved by sealing along the back edge and damming the ends of the sill.

A full perimeter seal should be applied using an appropriate sealant all the way around the frames. Particular care should be taken under sills. Bedding of sills on foam is acceptable but a perimeter point seal should be applied afterwards. Bedding sills on silicone is acceptable where access is limited as long as the seal is continuous with no gaps and set towards the front of the aperture.

A suitable backing material such as closed cell foam or PU foam should be used in the gap between the window and wall to ensure the external sealant is set to the correct depth and will therefore adhere to the frame and aperture (but not the backing foam) when applied. Suitable external sealant should be applied to cover and form a water resistant joint between the frame and wall.

If a conventional sill is being installed, the door should be fitted in a similar way as described above. After installation the drainage should be free from blockage, debris and functioning correctly. Doors should be sealed externally as described above but care should be taken to ensure drainage holes in the external face of the threshold are not blocked.

The size of the sill should be such that there is a minimum overhang of at least 25 mm from the face of the building.



Ventilation

There are two different types of ventilation that are required within a building.

Purge Ventilation

Purge ventilation is the ventilation provided by an openable window or door. Purge ventilation is required to remove high levels of pollutants and water vapour. It may also improve thermal comfort and reduce overheating during the summer.

Requirements for purge ventilation via windows;

For hinged or pivot windows that open 30° or more, or for sliding sash windows, the area of the opening should be at least 1/20th of the floor area of the room.

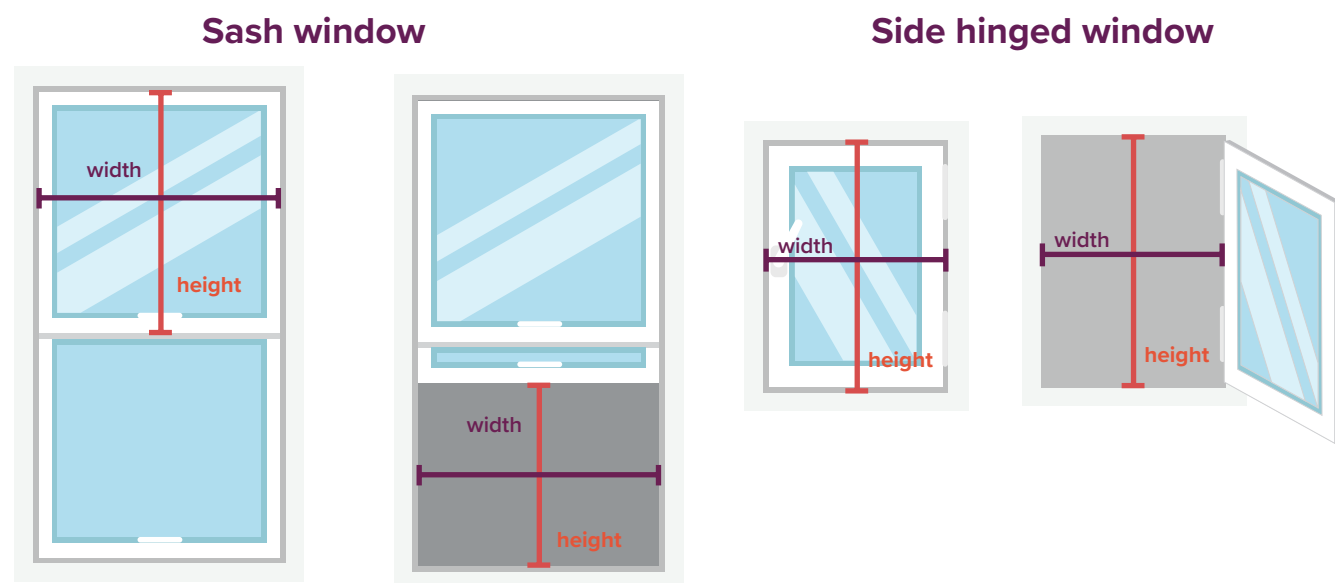
For a hinged or pivot window that opens between 15° and 30°, the area of the opening should be at least 1/10th of the floor area of the room.

Hinged or pivot windows with an opening angle of less than 15° are not suitable for purge ventilation.

Note 1: For this purpose the opening area of a hinged or pivot window can be taken as the overall width X height of the openable area. The opening areas for all windows in a room can be added together for the above purpose.

Figure 3. Area measurements for purge ventilation

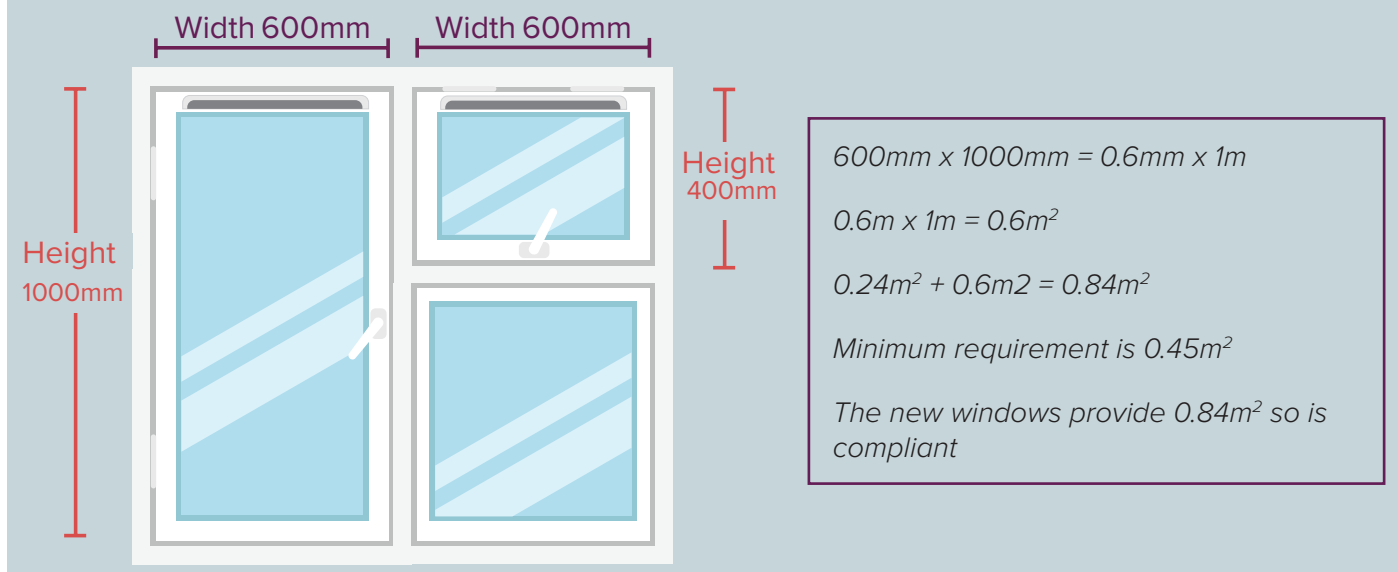
Window opening area = H x W
(H and W are the dimensions of the open area)



Example

The window below is in a room that measures 3m x 3m so has a total area of 9m². 1/20 (or 5%) of 9m² is 0.45m² so this is the minimum amount of openable area required for windows that open more than 30°.

The openable area is measured from the frame upstand, just imagine the sash has been removed, you are measuring that space. (Dependant on the profile this is usually between 50-100mm smaller than the break/drop. The window below is showing openable sizes not break and drop).



Ventilation

Background Ventilation

It is important that the dwelling can constantly breathe - good indoor air quality is important for health and also helps protect the fabric of the building from the harmful effects of condensation and mould etc. Background ventilation helps to achieve this.

The most common form of background ventilation is trickle ventilation.

Requirements for background ventilation;

In most cases replacement window installations will require some level of background ventilation to be provided. There is a difference in requirements for dwellings that already have background ventilation in the existing windows and those that do not.

It is important to note the background ventilation requirement is per room and not per window, not every window will require the addition of trickle vents.

Existing windows without trickle vents

Where the outgoing window does not already background ventilation, the replacement window must provide background ventilation equivalent to the following:

- Habitable rooms and kitchens – 8000 mm² equivalent area
- Bathroom (with or without a toilet) – 4000mm² equivalent area
- Hallways and Landings do not require background ventilation
- Where the dwelling has continuous mechanical extract ventilation*, you must install background ventilation with a minimum equivalent area of 4000mm² to habitable rooms and kitchens only. There is no requirement for background ventilation in wet rooms.

** Continuous mechanical extract ventilation is a continuously running fan that extracts the indoor air to outside. An intermittent extraction fan (such as one that turns on when with the light) is not continuous mechanical extract ventilation.*

If it is not technically feasible to achieve the minimum equivalent areas set out above then the background ventilators must be sized as close to the minimum value as is possible. A definition of technically feasible is detailed in the guidance notes below.

Note: An open fire place chimney is not considered to contribute to background ventilation.

Existing windows with trickle vents already installed

Where the outgoing window provided background ventilation, the replacement window must provide background ventilation of at least the same equivalent area. Where the existing ventilation rate is unknown use the guidance above.

Further Guidance

When specifying replacement windows, the current level of ventilation in each room should be assessed. If you consider that it is inadequate it is wise to advise the customer of the options available. Ensure that whichever method is chosen it meets the necessary level of compliance.

Where the existing purge ventilation area is in excess of the requirements, although it is acceptable to reduce this to the minimum level requirement in the Approved Document, consideration should be given to retaining the existing level.

Typically, background ventilation should be positioned at least 1.7 metres above finished floor level to avoid discomfort due to draughts.

Two stage locking mechanisms (night vents) are not an acceptable means of background ventilation. The size of the routed slot must conform to the manufacturer's guidelines.



Ventilation

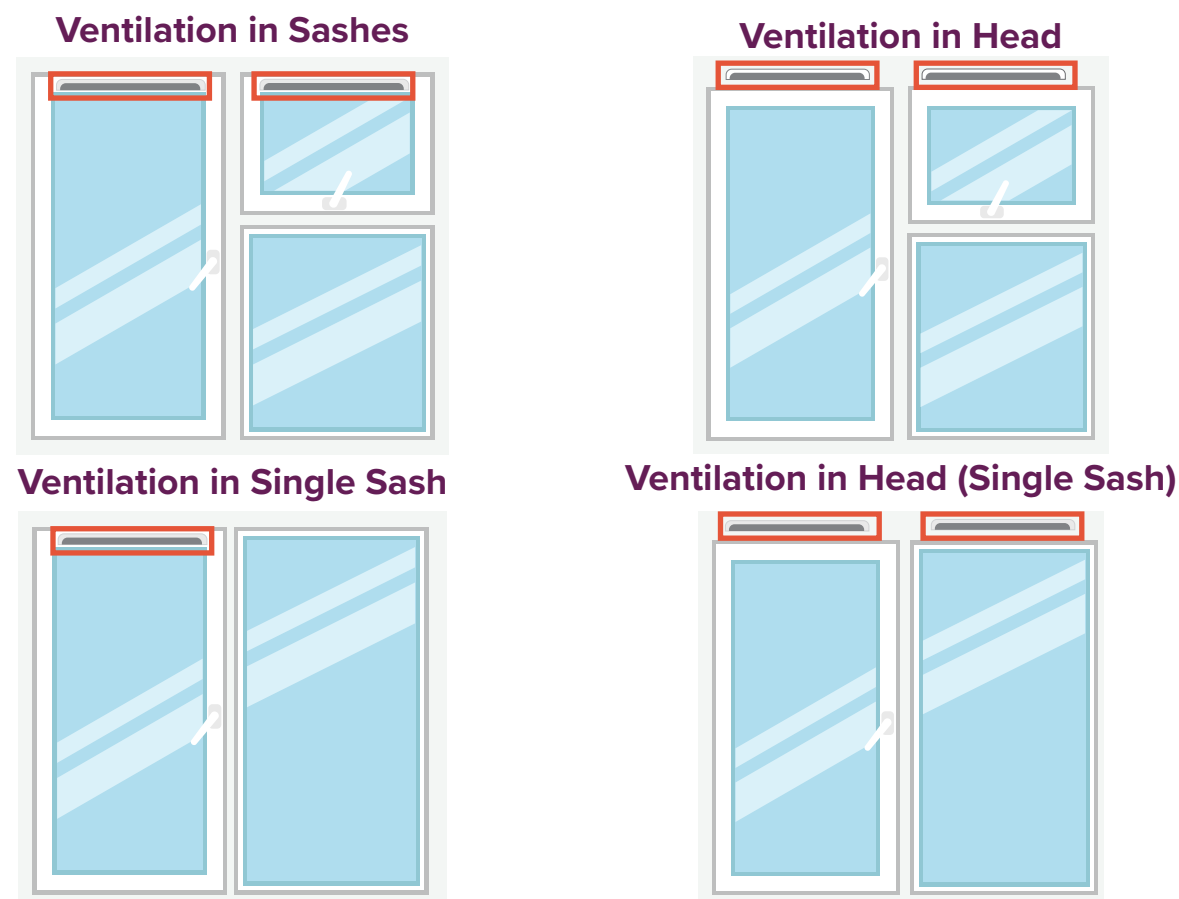
Technically Feasible

There are many ways to introduce background ventilation into windows, through sash, through head, via head packers or head boxes or over glass ventilators. It is understood that different solutions are used by different systems and fabricators based on their capability, machinery and processes. There is no prescribed way to install background ventilators into windows.

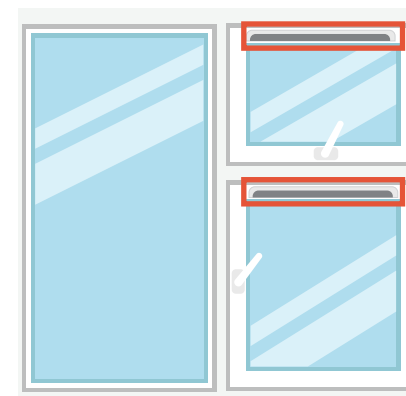
While every effort should be made to install the required amount of background ventilation, if the supplied window can only be ventilated via sash mounted vents then the maximum ventilation achievable using this method would be acceptable even if this is below the required equivalent area. Similarly, if the supplied window can only be ventilated via head mounted vents then the maximum ventilation achievable using this method would be acceptable even if this is below the required equivalent area.

It should be noted that if multiple sashes are present in a frame then all should be utilised to meet the required level of ventilation. If through head ventilation is used then it would be expected that the area be used to maximise the background ventilation potential.

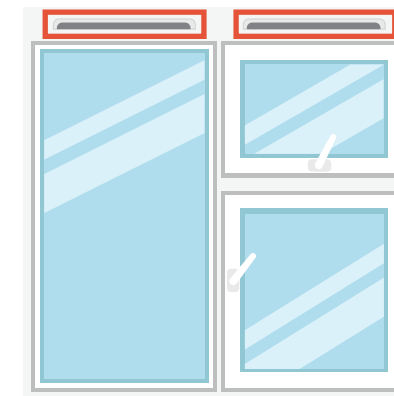
Figure 4.
Examples of technically feasible trickle vent locations



Ventilation in Sashes



Ventilation in Head



Potential Exemptions

Any exemptions should be established at point of survey prior to installation. In the presence of doubt FENSA will require evidence that exemptions have been considered at the survey stage.

Busy Urban Road – When the property is close to a busy urban road ventilators should not be positioned directly facing the road however vents should still be installed on the less polluted side of the building. There should be no permanent obstruction between the façade and the road (trees/hedgerows would not be deemed as permanent) and the façade should be within 50m of the road and satisfy the criteria below.

There is no official definition for “Busy Urban Roads” however as a starting point in FENSA’s opinion a busy urban road would include all of the below:

- Classified as an “A” road
- In an urban setting
- More than two lanes in any direction
- Carries sustained heavy traffic.

Mechanical Ventilation with Heat Recovery (MVHR) Systems

A MVHR system is a mechanically driven ventilation system that both continuously supplies outside air to the inside of the dwelling and continuously extracts indoor air and discharges it to the outside. When a property has a MVHR system installed (with or without the heat recovery element) then background ventilation should not be installed.

A Positive Input Ventilation System (PIV) is not a form of continuous mechanical extract ventilation or mechanical ventilation with heat recovery and as such is not a suitable alternative to background ventilation.

Ventilation

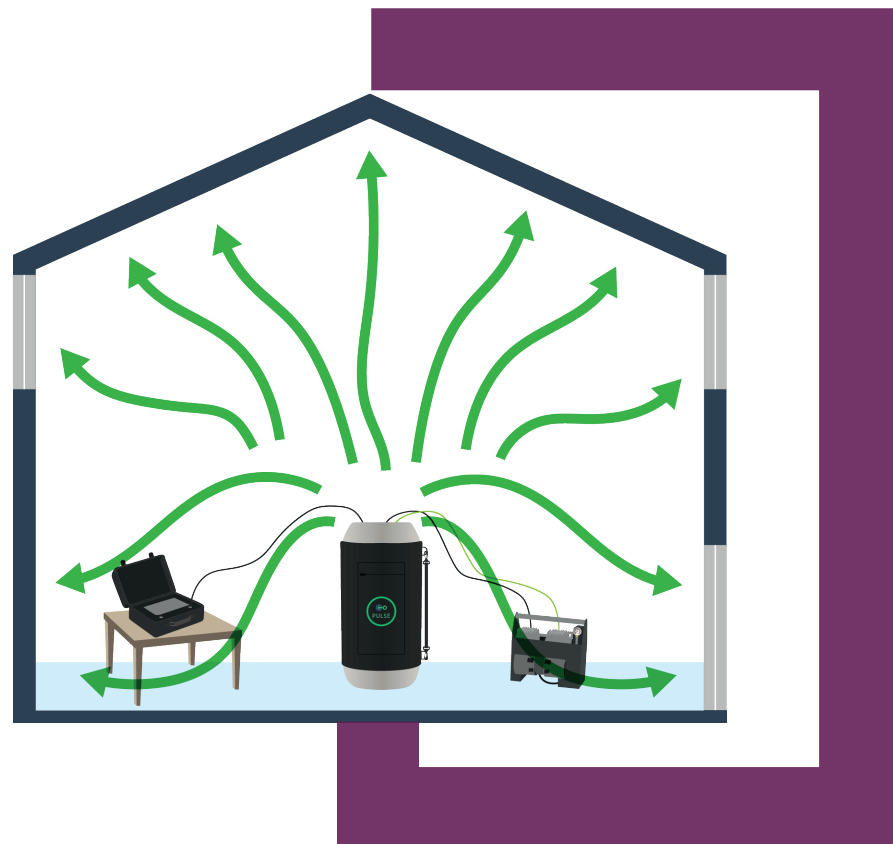
Air Pressure Testing

Where it can be proven that the level of air infiltration has not been reduced by the replacement of the windows/doors without background ventilation then additional background ventilation is not required. Proof must be provided by way of air pressure testing before and after the installation is completed by an accredited provider.

Below are some examples of how background ventilators could be installed to maximise ventilation. These examples assume several factors and are not intended for proof of compliance just as guidance of what the assessor could deem acceptable.

Assumptions are:

- The window is in a habitable room
- The room has one window
- There is no Mechanical Ventilation with Heat Recovery (MVHR) system in the property
- The bathroom does not have a continuous mechanical extract ventilation system
- The room requires 8000mm² Equivalent Area of background ventilation
- Vents installed are the maximum size capable of being installed in the given area (for example if a 4000mm² vent fits it should be used, a smaller vent is not acceptable)



Combustion Appliances

The replacement window should not make the ventilation requirements any worse for any combustion appliance which is using permanently open vents installed through the window. If a replacement window installer is not sure if a window vent is being used to ventilate a gas appliance, a “Gas Safe” registered gas fitter should be consulted to provide advice.

Particular care should be taken when installing replacement windows in rooms with a gas cooker, provision for a gas cooker or other flueless appliances such as water or space heaters.

Combustion ventilation

Some fuel burning appliances (back boilers, free standing boilers etc) take oxygen from inside the property for the combustion process. Often where these appliances are installed a permanently open vent is also present, sometimes in the window. These are usually circular, go directly through the glass, have a storm shield over the front but cannot be closed.

If a window is removed that has a permanently open combustion vent installed this should be replaced with a vent of equal or greater capacity unless the appliance that required the ventilation has been removed. If in doubt consult a “Gas Safe” registered gas fitter.

If there is any doubt regarding the amount and provision of permanently open ventilation, the issue should be referred to a “Gas Safe” registered gas fitter to provide advice.

Flues

When replacing a window near to a boiler flue care should be taken to ensure that opening windows are not installed any closer to the flue than previously unless the distance is still greater than the minimum requirement.

It is advisable to retain evidence of compliance such as pre installation photographs in case of subsequent inspection.

If there is any doubt regarding the position of opening windows near appliance flues, the issue should be referred to a “Gas Safe” registered gas fitter to provide advice.

Safety

Protection From Falling

This applies to windows and doors less than 800mm above floor level, where the floor adjacent to the frame is more than 600mm above the outside ground level. It usually means that low-level frames should have restricted openers and should be sufficiently robust to resist likely impact which could result into a fall of more than 600mm (from the floor level inside to the outside ground level).

Compliance can also be achieved by providing alternative guarding e.g. a guard rail or other fixed barrier, which should cover the zone up to 800mm above the floor.

For replacement windows and doors the obligation is to make compliance no worse. If the existing low level window is restricted then the replacement must also be restricted or guarded. If however the existing low level window is not restricted there is no requirement for a restrictor or guard to be installed however it should be encouraged.

If a new opening is created below 800mm from floor level with a drop of 600mm or more from inside floor level to outside ground level then a restrictor or guarding must be installed. For example a current top hung over fixed being replaced by a fixed over top hung or a vertical slider.

Restrictors should limit the opening to 100mm or less and have the ability to be disengaged.

Any fixed glazing less than 800mm above floor level which acts as a barrier to prevent people falling out should be replaced with glazing which meets the impact resistance requirements of BS 6262-4 taking into account Approved Document K for containment.

Balustrades

When installing a balustrade with a drop of 600mm or more from inside floor level to outside ground level (for example when creating a Juliet Balcony) then the top edge of the balustrade must be at least 1100mm from internal floor level to be compliant.

It should be noted if this is the only means of escape from a habitable room then the top of the balustrade must be no higher than 1100mm from finished floor level.

Further Guidance

If you are fitting restrictor hinges then it is advisable to only install on one side to enable easier release however the restrictor should still be capable of resisting forces applied to it.

Non locking restrictors are advisable on windows intended as a means for fire egress.

It is recommended that opening restrictor devices are always fitted to sashes less than 800mm above floor level.

Note 1: In areas where the window is situated above a fixture e.g. bath/shower tray or window seat, the finished floor level is taken from the point on which it is stood or sat upon and not the floor level where the item has been affixed.

Note 2: Similarly the drop on stairway is measured from the height of the highest tread within the span of the window.

Note 3: Finished floor level would be taken from the top of any floor furnishings that may or may not be in place at the time of the survey. In some cases the ground level outside may vary from inside the property. The smaller of the two dimensions should be used to determine if the window is in a critical location.

It is important to note that any part of a glass area affected should meet the requirements in its entirety and not just in the relevant section.

The Regulation applies to fixed glazing and opening lights less than 800mm above floor level, where the floor (or stairs or landing) adjacent to a window is more than 600mm above the outside ground level.

It usually means that low-level opening lights should have restricted openers and all low-level glazing should be sufficiently robust to resist likely impact.

Compliance can also be achieved by providing alternative guarding e.g. a guard rail or other fixed barrier, which should cover the zone 800mm above the floor.

For replacement windows and doors the obligation is to make compliance no worse. A replacement window with a qualifying low-level opening light should be fitted with a restrictor if the outgoing window was fitted with one. If a new qualifying low-level opening light is introduced into a replacement window then this should be restricted.

Approved Document K4 – Protection from impact with glazing. This has replaced A D N in England. However, the requirements for safety glazing are unchanged.

Note: Approved Document K (England) still refers to BS 6206 however, this standard has been withdrawn for glass. The Safe Breakage element has been replaced by EN 12600 and the Marking of Safety Glass by BS 6262-4: 2005

Safety

Safety Glazing

Any glazing below 800mm from finished floor level and any glazing within 300mm of a door and below 1500mm from floor level must be glazed with safety glass, these are classed as critical locations. The installed safety glass should be clearly and indelibly marked in such a position so that the marking is visible after installation with the following information:

- the name and trade mark of the manufacturer, merchant or installer
- the identifier of the product standard the safety glass conforms to; e.g. BE EN 12150; BS EN 14179; BS EN 14449;
- the classification according to BS EN 12600

A non-compliance will be recorded during an inspection if the mark is not both completely visible and clearly legible following installation.

Measurement is taken from finished floor level to the installed frame glass line. In some cases the outside floor level can be higher than inside, this would be where the measurement is taken from. Care should be taken around stairs and permanent fixtures. The measurement should be taken from the highest point directly below the glass. Examples are baths, window seats, fixed furniture etc. Sliding sash replacement: If any part of the top sash falls below 800 mm from finished floor when opened it must have safety glass installed.

Note: All glazing in buildings must comply with BS 6262-4 Glazing for Buildings –Part 4 – Code of Practice for Safety related to Human Impact - Clause 7 Marking for safety glazing.

Glazing in small panes

A small pane is an isolated pane or one of a number of panes held in glazing bars, traditional leaded lights or copper lights.

Small panes should be provided in accordance with all of the following.

- In a small annealed glass pane, use glass with a minimum 6mm nominal thickness except in the situation described in b.
- In traditional leaded or copper lights, when fire resistance is not important, you may use 4mm glass.
- Be a single pane with a maximum width of 250mm with a total area not exceeding 0.5m²

Polymeric backed safety film can be applied to certain glass types. The application of the film can provide the glass product with safety characteristics. A standard for filmed glass is currently being developed and is expected to be published during the anticipated life of this guide. On publication this Standard should be used. It is recommended that until such time that a standard does exist, the word 'Film' should be used in place of the alpha numeric referencing. The products classification to BS EN 12600 shall follow the word 'Film'.

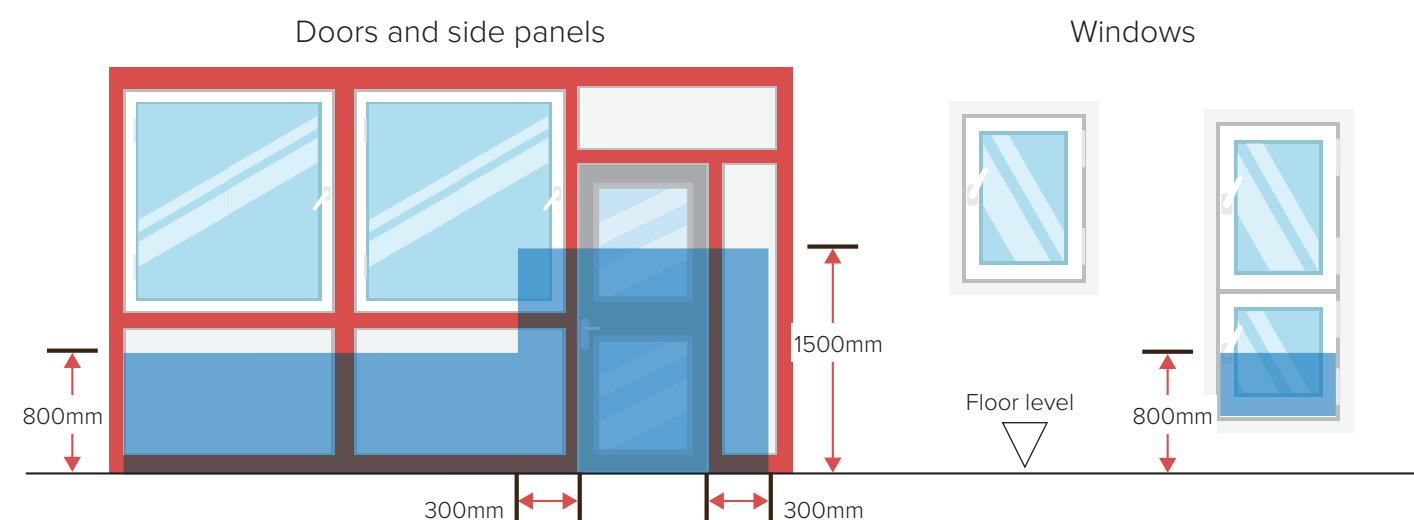
Further Guidance

The critical locations set out above for the positioning of safety glazing are minimum requirements. In certain circumstances and in consultation with the customer, it would be advantageous to supply and install safety glazing material in other situations which the surveyor considers hazardous following his risk assessment. Consideration should be given to the type of safety glazing material used. In certain environments the containment of broken safety glass is crucial.

Although not necessarily a permanent fixture, a bunk bed positioned next to a window could also be a significant risk.

For further information on the use of safety glazing in critical locations, please refer to the GGF publication 'The Right Glazing in the Right Place'.

Figure 5.
Glazing in critical locations



Permanent screen protection

If glazing in a critical location is protected by a permanent screen then the glazing itself does not need to be safety glass.

The permanent screen should comply with all of the following.

- Prevent a sphere of 75mm from coming into contact with the glazing.
- Be robust.
- If it protects glazing installed to help prevent people from falling, be difficult to climb (e.g. no horizontal rails).

Thermal Performance

Windows and Doors

For new and replacement windows, roof windows, rooflights and doors (controlled fittings) all the following apply.

Their performance should be no worse than the previous windows/doors, plus:

- Units should be draught-proofed.
- Insulated cavity closers should be installed where appropriate.
- Units should meet the minimum standards given below

Compliance will be achieved if using one of the methods below:

- Window Energy Rating (WER) minimum band “B”
- Doorset Energy Rating(DSER) greater than 60% glazed minimum band “C”
- Doorset Energy Rating(DSER) less than 60% glazed minimum band “B”
- Whole window/door U-Value maximum 1.4 W/m²·K
- Centre pane U-Value maximum 1.2 W/m²·K (For use in exceptional circumstances only where there is a need to maintain the character of the building for example listed buildings or conservation areas).

When replacement combination frames are installed, the glazed area immediately adjacent to the door should be treated as separate windows and registered accordingly. This would include sidelights, top lights and flag windows. For example a door with two side panels would equal one door and two windows.



Note 1: If work is being registered with FENSA that is undertaken in a conservation area then full documentation of approval would need to be presented on request.

Note 2: The means of compliance to Approved Document L should be established at point of survey prior to installation. In the presence of doubt FENSA will require evidence that this has been considered at the survey stage.

Note 3: Currently for registration of replacement doors through FENSA, only doors with a glazed area greater than 50% have to be registered, all doors should however comply with the requirements of the building regulations.

Note 4: There is a temporary derogation regarding timber windows and doors where the above requirements do not need to be met until June 15th 2023. This includes solid core composite doors no matter what framing material is used.



Thermal Performance

How to demonstrate compliance

There are several ways to prove compliance with Approved Document L.

Use of a WER/DSER

If you are using a genuine rated product this must be appropriately and permanently labelled with the following information:

- Product Rating
- Fabricator name or identifying number
- Product licence number

This label should be affixed in the rebate of an opening sash wherever possible.

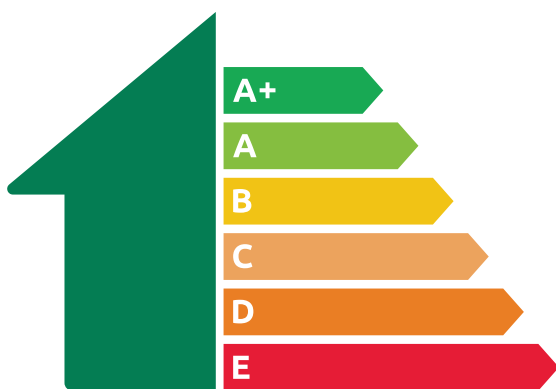
Only energy ratings that are fully auditable and are issued by a recognised ratings body are an acceptable means of compliance.

If the rated product is supplied unglazed then the installer will be considered to be the final manufacturer and will need to become a WER/DSER license holder in their own right. This can be easily achieved without cost by applying to the FENSA WER scheme, providing that the fabricator is a BFRC member, that they give permission and supply a list of suitable IGU's that can be utilised.

If the product is supplied fully glazed by a WER/DSER licence holding fabricator then it is their responsibility to label the product appropriately.

WER stands for Window Energy Rating and DSER stands for Door Set Energy Rating. They are both rating systems used to measure the energy efficiency of windows and doors, respectively. The ratings are based on a traffic-light style A-G scale, with A being the most energy efficient and G being the least energy efficient.

WER is calculated based on a number of factors, including the window's glazing type, frame type, and insulation properties. DSER is calculated based on a similar set of factors, but it also takes into account the weatherstripping around the door.



Use of U-Value

If you are demonstrating compliance through the use of a u-value then documented evidence will need to be made available upon request. It is recommended that a copy of the u-value calculation or certificate of conformity is carried by the installer during the works and supplied to the occupier on completion of the installation.

The u-value calculation must be on the whole product not just the IGU.

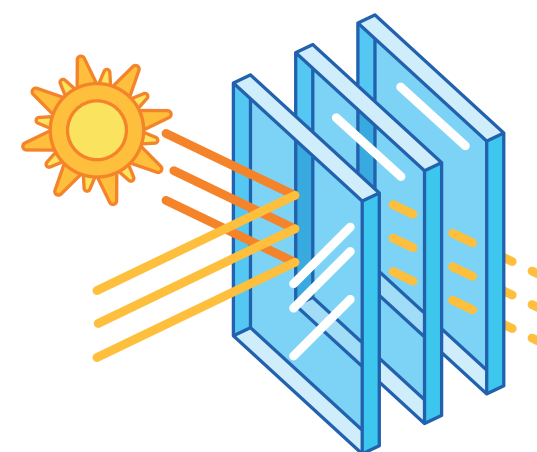
The calculation should identify all major component parts or the value thereof – for example framing material, profile system and glass unit specification.

Use of Centre Pane U-Value

If you are demonstrating compliance through the use of a centre pane u-value first it must be confirmed that this method of compliance is demanded by the property type. For example it is situated in a conservation area and the correct permissions have been granted.

Documentary evidence will need to be made available upon request. It is recommended that a copy of the centre pane u-value calculation is carried by the installer during the works and supplied to the occupier on completion of the installation.

The u-value calculation is just a measurement of the thermal performance through the centre of the IGU, the spacer bar is not included. These calculations can be obtained directly from most glass manufacturers via their websites.



The U-value is a measure of how well glazing insulates. It is measured in watts per square meter per kelvin (W/m^2K). A lower U-value indicates that the glazing is more insulating and will allow less heat to pass through it.

Thermal Performance

How will FENSA assess compliance?

When on site the assessor will first look for a Window (WER) or Door Set (DSER) Energy Rating label on the product that has been provided by a ratings body such as BFRC or TRR.

If a WER or DSER is not present then the assessor will ask for a whole window u-value calculation – this can be an actual calculation for that window or a certificate of compliance or similar from the system supplier.

If a calculation is provided the assessor will check off items specified on the calculation such as glass coating type, spacer bar type, gas fill required, profile size/type and any other identifiable feature.

If no calculation is available or the window/door does not match the specification required the assessor will raise a non-conformity and ask for the correct documentation to be sent to FENSA.

How can a non-conformity be cleared?

FENSA will request that you provide the relevant documentation to prove that the window or door is compliant.

Documents required to clear the non-conformity will be one of the below:

- WER/DSER licences with proof of purchase from the fabricator or supplier
- If the product has been supplied fully glazed this will need to be proven
- If the product has been supplied un-glazed then unless the installer is part of the FENSA WER's scheme the product will not be suitable to be proven compliant via WER/DSER and an alternative method will need to be used.
- A u-value calculation or certificate of conformity along with proof of purchase of the specified elements such as frames and units

Note: Documentation for each individual product type per installation will be required. For example, if an installation is made up of a composite front door, French doors and several casement windows, this would mean at least three different sets of documentation. Collating and providing these documents following a non-conformity will be a time consuming task and therefore it is strongly recommended that proof of compliance is made available at time of installation to the occupier.

Additional Guidance:

When installing a bow-bay, it is important that insulation is provided both to the underside of the window board and to the roof or canopy to avoid cold spots and an increased risk of condensation. It is recommended that all voids should be fully backfilled with an insulant such as PU foam.

The use of add-on profiles should be limited to where there is a genuine requirement and not to fill unintended voids. For example, correct use would be on the hinge side of a door to allow hinge clearance or at the head of a frame to allow the sash to clear a soffit.

The frame should be specified as the largest size frame possible that will fit into the opening and remain square, with an adequate gap to allow expansion around the whole perimeter.

Thermal bridging should be avoided. For example, thermal breaks should be positioned so that the frame material behind it is not in direct contact with the building substrate. This may require insulation under metallic frames and/or positioning of the thermal break over a cavity if one is present. Direct through frame fixing through the thermal break should be avoided unless deemed permissible by the system manufacturer.

Low emissivity (low e) coated glass will be required in the vast majority of installations to enable the minimum thermal performance to be achieved. This coating will affect the appearance of the glass under certain light conditions, this is perfectly normal. Optimally the low e glass should be installed with the coating on the internal pane of the glass however there is very little difference in thermal performance and as such this is not a requirement, although consistent orientation of glazing is recommended for aesthetic value.

During certain weather conditions and usually during spring or autumn, external condensation may form on the glass. The reason for this is that modern windows are so much more thermally efficient than those installed in the past. As a result, the heat used to warm homes isn't able to easily pass through to the outer pane. The outer pane of glass is therefore cooler and when its temperature falls below dew point moisture present in the air condenses on it. This is a natural phenomenon and actually proves that the windows are saving energy.

Access

Access to Buildings

The requirement is that you should not make the building less accessible than it was before the installation. The height of the threshold for a principal entrance door should not be made worse. In practice there is often a compromise between compliance (not make access worse) and performance (weatherproofing).

Any principal entrance door replacement shall at least be as compliant as the previous door. The height of the new threshold should be no higher than the previous door threshold. The step into the building should be no higher.



If there is no threshold currently (for example a stone sill with metal upstand) then a door with an accessible threshold should be installed.

Approved Document M defines an accessible threshold as a threshold that is level or if raised has a total height of not more than 15mm.

The principal entrance to a dwelling should ideally have a clear opening width of at least 775mm. When replacing the principal entrance door every practicable effort should be made to retain the maximum width. The clear opening width is taken from the edge of the frame on the latch side to the face of the door leaf when open at 90°.

It is advisable to retain evidence of compliance such as pre installation photographs in case of subsequent inspection.

When surveying or specifying a window or door for a dwelling, the surveyor should be aware that the occupants may have specific needs above the minimum access requirements of the building regulations.

FENSA BENEFITS

As a FENSA Approved installer you get access great offers, exclusive discounts and fantastic opportunities to win more work with FENSA. To discover even more and enroll in these amazing offers, simply go into "FENSA Benefits" on the Installer Portal or follow the link below

<https://fensaonline.com/FensaBenefits/Home>. You won't regret it!

Job leads direct from the FENSA Website

Lead Generation

FENSA Approved Installers get exclusive access to **FENSA Lead Generation**, the powerful sales and lead generation tool connecting them to homeowners online.

UPVC, Glass, Aluminium and Timber Recycling

Recycling

Save thousands on skip hire with UPVC, Timber, Glass and Aluminium windows & doors collections. Free collection in England & Scotland.

- Our recycling scheme provides the FENSA community with an on-site collection service
- When having your uPVC collected for free you can also have the glass units collected in certain areas of the country
- If you have surplus aluminium you will be paid a commission based on the weight collected
- Your excess timber can be collected across England and Wales

Offer finance to your customers

Finance

As representatives of Improveasy, our installers can offer a variety of finance options including 0% interest free finance and 'buy now, pay later'.

Enjoy 10% off at TradePoint and B&Q

Tools & Materials

Our Approved Installers get 10% discount across B&Q and TradePoint both in store and online. No catch, no minimum spend. T&C's apply.

Cut costs with a fuel card from Fuel Card Services

Petrol & Diesel

Get the right fuel card for your business and benefit from **discounts of up to 10p per litre** plus a fortnight's interest free credit.

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