



A GUIDE TO BUILDING REGULATIONS



INTRODUCTION

Last updated June 2018

It is always advisable to ensure you're up to date with the latest Building Regulations before commencing any architectural or construction project in the UK. Because Building Regulations are periodically updated and rewritten, changes occur fairly frequently, producing significant side-effects regarding project scope and delivery.

With decades of industry knowledge, our team at Sunsquare has extensive experience navigating regulations for countless skylight installations and walk-on rooflight projects.

For our readers in the industry – whether an architect, specifier, surveyor or simply a home improvement enthusiast – we have compiled this comprehensive whitepaper. It covers **skylights, rooflights and roof lanterns** and the relevant Building Regulations which affect their installation. By recommending common methods and materials used to meet compliance, we hope this guide helps you with the safety, security and sustainability of your projects.

However, the whitepaper should not be used as a definitive source of legal guidance. While we strive for absolute accuracy, we always advise our readers to thoroughly consult with official documentation and local building control authorities to ensure your project work is compliant. All official guidance can be downloaded from the [Government Planning Portal](#).

This guide is contemporary with the latest Planning Portal updates, 21 April 2016.



CONTENTS

BASICS OF BUILDING REGULATIONS FOR SKYLIGHTS	4
PLANNING PERMISSION	4
ABOUT 'MATERIAL CHANGE OF USE'	5
APPROVED DOCUMENT PART A - STRUCTURE	6
SECTION 4: ROOF COVERING REQUIREMENTS	6
OTHER NOTABLE REQUIREMENTS	7
APPROVED DOCUMENT B - FIRE SAFETY	8
B1: MEANS OF ESCAPE	8
B1: MEANS OF WARNING	10
B2: INTERNAL FIRE SPREAD (LININGS)	11
B4: EXTERNAL FIRE SPREAD	12
B5: ACCESS AND FACILITIES FOR FIRE SERVICES	12
APPROVED DOCUMENT B AND SKYLIGHTS: KEY TAKEAWAYS	12
APPROVED DOCUMENT E - RESISTANCE TO THE PASSAGE OF SOUND	15
KEY NUMBERS	17
APPROVED DOCUMENT F - VENTILATION	19
MEETING PART F REQUIREMENTS	19
NOTES ABOUT MECHANICAL VENTILATION	20
APPROVED DOCUMENT H - DRAINAGE AND WASTE DISPOSAL	21
APPROVED DOCUMENT K - PROTECTION FROM FALLING, COLLISION AND IMPACT	22
ROOF ACCESS SKYLIGHTS - GUIDANCE ON STAIRS, LADDERS AND RAMPS	22
GUIDANCE ON TERRACES, GUARDS AND BARRIERS	24
GUIDANCE ON PROTECTION AGAINST COLLISION AND IMPACT	25
APPROVED DOCUMENT L - CONSERVATION OF FUEL AND POWER	27
KEY U-VALUES FOR ENERGY EFFICIENT SKYLIGHTS AND ROOFLIGHTS	28
L1B & L2B - GUIDANCE FOR EXISTING DWELLINGS	29
ENERGY PERFORMANCE IMPROVEMENTS AND CERTIFICATION	29
APPROVED DOCUMENT M - ACCESS TO & USE OF BUILDINGS	31
APPROVED DOCUMENT N - GLAZING SAFETY (WITHDRAWN)	32
APPROVED DOCUMENT Q - SECURITY	33
ACHIEVING COMPLIANCE WITH PART Q	33
ABOUT THE SECURITY OF OPENING ROOFLIGHTS	34
ANY QUESTIONS?	35

BASICS OF BUILDING REGULATIONS FOR SKYLIGHTS

In skylight and rooflight installations, project leaders will generally need to seek approval under Building Regulations on grounds of **'work to an existing roof'** or **'construction of a new roof'** because:

- **Skylight installations can involve structural alterations to the existing roof**
- **The altered roof must be proven able to carry the load of the new rooflight in the long term**
- **The roof, once altered, must provide the same or improved levels of insulation, energy efficiency and fire safety**
- **If in close proximity to a boundary, fire performance may be affected**

Submitting a Building Regulations application may be avoided, as long as the area being re-covered or repaired comprises less than 25% of the whole roof.

The first thing to note about rooflights and UK Building Regulations is that the regulatory 'Approved Documents' covered here are not considered legally binding in terms of how minimum requirements are met. Instead, their suggested standards represent an aspirational aim by the UK Government which can be achieved using a variety of means. However, because innovative or unconventional methods can be hard for local authorities to validate, many industry professionals prefer to interpret the approved document recommendations at face value.

Approved documents affecting skylights covered in this whitepaper include:

- Part A - Structure
- Part B - Fire Safety
- Part E - Resistance to the Passage of Sound
- Part F - Ventilation
- Part H - Drainage and Waste Disposal
- Part J - Combustion Appliances and Fuel Storage Systems
- Part K - Protection from Falling, Collision and Impact
- Part L - Conservation of Fuel and Power
- Part M - Resistance to the Passage of Sound
- Part N - Glazing Safety (Withdrawn)
- Part Q - Security

PLANNING PERMISSION

Typically, skylight and rooflight installations only require planning permission in specific circumstances. Planning permission may be necessary when:

- The skylight product projects more than 150mm beyond the existing roof plane

- The skylight in question is more than “reasonably” large, occupying significant roof space (>25%)
- The proposed installation is for a **listed building**, within a designated **conservation area** or **Article 4 direction zone**
- Alterations to the roof structure may be higher than the highest existing part of the roof or roof ridge
- To ensure planning permission is granted, it is also essential that **side-facing windows** are specified with obscure glass for privacy purposes, and not openable unless at least 1.7m above ground.

ABOUT ‘MATERIAL CHANGE OF USE’

Additionally, Building Regulations state that a ‘material change of use’ occurs when a building or part of a building faces a change in intended use after being previously used for another specific purpose. The changed building often has to meet its own unique requirements, as well as sometimes improving on previous performance levels. We thoroughly recommend checking each Approved Document in detail for specific guidance around material change of use requirements before and during your projects.

APPROVED DOCUMENT PART A - STRUCTURE

Approved Document A provides guidelines on maintaining the stability and structural integrity of properties. It advises minimum and maximum loading limits to prevent deformation of the building, ground movement potential and the possibility of collapse (even in the event of an impact or severe accident).

To find specific guidance, refer to this table:

Covered	Publication / Part A Section
Timber size	Publications BS EN 1995-1-1:2004, PD 6693-1:2012, BS 8103-3:2009
Wall size	Section 2C
Building height	Sections 2C4, 2C16
Floor area	Sections 2C14, 2C38
Masonry strength	Sections 2C20, 2C21
Chimney height	Section 2D
Foundations	Sections 2E, 2E4
Wall cladding	Section 3
Roofing	Section 4, Publication BS EN 1991-1-1:2002

Of key interest is **Document A's Section 4** in addition to **BS EN 1991-1-1:2002**, regarding the load-bearing capability of flat and pitched roof materials.

SECTION 4: ROOF COVERING REQUIREMENTS

Part A, Section 4 contains specific guidance for skylights and roof area alterations. Here is a breakdown of the relevant building standards laid out within this document:

4.1: All roof covering materials (excluding glass windows in residential buildings with a roof pitch no less than 15 degrees) must be capable of safely withstanding the roof loads stated in BS EN 1991-1-1:2002

4.3: Roofs which are being re-covered must meet the same level of compliance with Requirement A1 – regarding structural integrity – as before any alteration was made

4.4: An increase of overall load by 15% or more is classified as a 'significant' change in loading

4.5: If the roof is deemed unable to withstand further increases to loading, additional strengthening of the roof must be carried out before progressing with more work (note that this will be classified as a material alteration)

4.7: Where dead loading is significantly decreased, the structure and anchorage of the roof should be checked to ensure resistance to uplift from wind loading levels

OTHER NOTABLE REQUIREMENTS

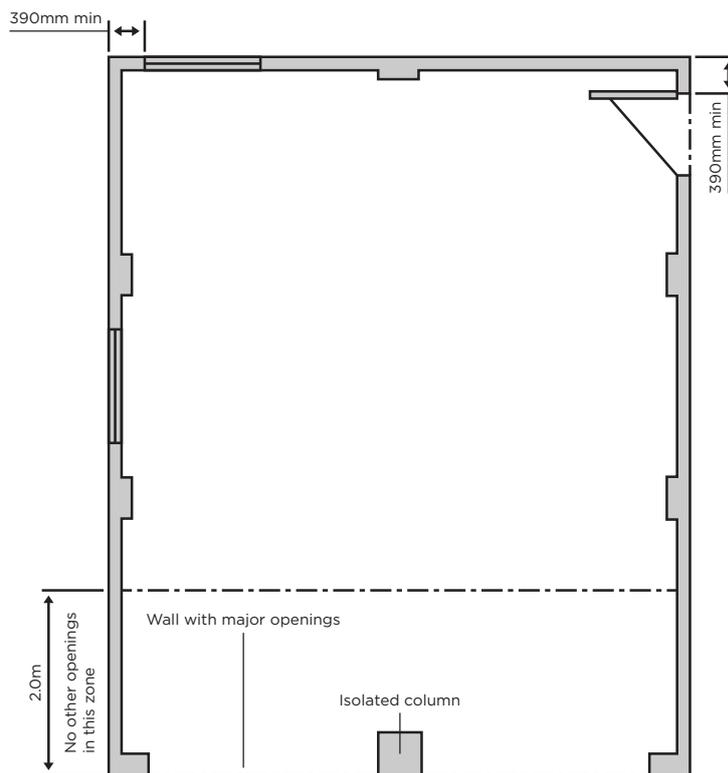
Approved Document A also contains relevant advice in two more areas:

Openings, recesses and overhangs

Openings and recesses must be shown to have no effect on the stability of any wall, buttressing or supported wall. Essentially, the property's stability as a whole should not be impacted by any opening.

Single-storey non-residential buildings and annexes

Only one or two major openings are allowed in these properties, no more than 2.1m in height and in one wall only. An opening, or aggregate width of two openings, may not exceed 5m.



The only other opening allowable in annexes and classified small buildings would be a traditional window or single-leaf door. Furthermore, roof access is only allowable for maintenance and repair purposes, in cases where the only lateral loads are wind loads.

Next: Approved Document B - Fire Safety

APPROVED DOCUMENT B - FIRE SAFETY

Part B, divided into two volumes, is the largest document in UK Building Regulations by far. This is no surprise, given its coverage of essential fire safety guidance for new and existing residential homes, flats and dwellings, in addition to non-domestic properties such as schools and office buildings.

The two volumes provide specific limitations on the use of rooflights including glazing, unit size, circumstances on the project site and more. The minimum requirements are defined against either British (BS476) or European (BS EN 13501) test standards.

For guidance covering domestic properties, read **Volume 1 Sections 3 and 10**. For coverage of non-domestic buildings, refer to **Sections 6, 12 and 13 of Volume 2**.

Both volumes are structured to provide advice on similar key areas:

Covered	Relevant Section
Means of warning and escape	B1
Internal fire spread: building lining	B2
Internal fire spread: building structure	B3
External fire spread	B4
Access and facilities for fire services	B5
Test standards	Appendix H

Read on for more information on what each part contains.

B1: MEANS OF ESCAPE

It is recommended that all first-floor dwellings should provide multiple openings which can be used as means of escape in the event of fire. While the minimum opening measurement of **450mm x 450mm** is not a strict legal requirement, the dimensions come heavily recommended for obvious safety reasons. Guidance also recommends that the bottom of any escape route opening must not be more than 1100mm above the floor.

Recommendations for means of escape are divided according to the number of upper floors in a property, and whether these are less or more than 4.5m above ground level.

Location of escape route	Provisions
Ground storey	<p>All habitable rooms (except kitchens) must:</p> <ul style="list-style-type: none"> • Open directly onto a hall leading to an entrance or suitable exit • Be provided with a compliant window or door
Upper floors less than 4.5m above ground level	<p>All habitable rooms in upper storey(s) served by only one stair must:</p> <ul style="list-style-type: none"> • Be provided with a compliant window or door • Be provided with direct access to a protected stairway
Dwelling with one upper floors more than 4.5m above ground level	<p>In cases where the dwelling house does not have more than one internal stairway:</p> <ul style="list-style-type: none"> • Upper storeys should be served by a stairway protected at all levels, extending to a final exit or providing access to two ground level exits • The top storey should be provided with its own separate fire-resistant exit construction, leading to a unique final exit
Dwelling with multiple upper floors more than 4.5m above ground level	<p>Follow the previous guidance for dwelling houses with two or more storeys 4.5m above ground level, plus:</p> <ul style="list-style-type: none"> • Alternative escape routes should be provided from each storey/level situated 7.5m or more above ground level, accessible by protected stairway and separate from the lower storeys by fire-resistant construction

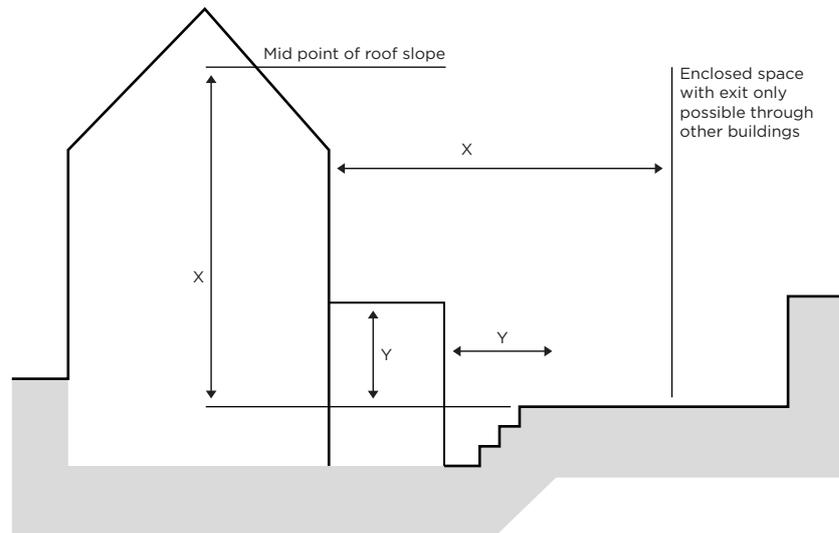
When direct escape to safety (a location in open air and away from the fire) is not possible, the requirement is that inhabitants must be able to easily reach relative safety, e.g. a protected stairway. For the purposes of Building Regulations, lifts, ladders and fold-out appliances such as chutes are not considered adequate escape routes.

In addition, where courtyards or back gardens offer no exit route except through other buildings, regulations state that the outdoor area must be at least as deep as the dwelling house is high.

For an escape route to be acceptable into an enclosed courtyard or garden, the depth of back garden should exceed:

- a. the height of the house above ground level (X); or
- b. where a rear extension is provided, the height of the extensions (Y)

whichever is greater



This section also offers advice for cases where balconies or flat roofs are used as part of an escape route. It is stipulated that:

- a) The roof should be part of the same building being escaped from
- b) Routes across the roof should lead to an external escape route
- c) 30 minutes of fire resistance must be provided by the part of the roof forming the escape route, its supporting structure and any openings within 3m

Balcony and flat roof areas used for these purposes must also comply with the recommendations of [Approved Document K](#).

B1: MEANS OF WARNING

Properties must be equipped to quickly and efficiently alert any inhabitants to the presence of a fire.

Approved Document B also states that the need for rapid evacuation of a building during a fire may conflict with security standards preventing unauthorised access to the property. Measures intended to prevent burglary can prevent an obstacle for fire services, which should be taken into consideration during the design phase.

RECOMMENDATION

This requirement should be easily fulfilled with an automatic smoke alarm and/or fire detection system, noting that more detectors are needed in properties at higher risk. All alarms should be **mains-operated** and must conform to **BS EN 14604:2005** or **BS 5446-2:2003**, with a standby power supply such as a battery or capacitor. Simultaneously, all fire detection systems in new dwelling houses and flats should be of Grade D LD3 standard according to **BS 5839-6:2004**.

B2: INTERNAL FIRE SPREAD (LININGS)

A property's materials, as well as the objects contained within, can have a significant impact on the way a fire and related heat, fumes, smoke and gases can spread.

For compliance with Part B2, materials used for lining in the construction of any property must exhibit certain levels of fire resistance. This includes walls, ceilings and floors. To qualify, these materials must:

1. Resist the spread of flame over their surfaces adequately
2. Limit heat release, as well as rate fire spreading, when ignited

The document provides **rooflight-specific guidance** in this regard, referring to minimum standards defined in Table 1, Section 3 of Part B2 (summarised here):

Location	National Class	European Class
Small rooms: area no more than 4m ²	3	D-s3, d2
Domestic garages: area no more than 4m ²		
Other rooms (including garages)	1	C-s3, d2
Circulation spaces within dwelling houses		

For clarification, Part B2 also supplies definitions and exclusions for both walls and ceilings:

B2 inclusions and exceptions

Classed as wall linings	Exclusions
<ul style="list-style-type: none"> • Glazed surfaces (except those featured in doors) • All parts of a ceiling that slope more than 70° to the horizontal 	<ul style="list-style-type: none"> • Doors and door frames (though paints will need be checked against regulations) • Window frames or frame sections holding glass • Narrow timber sections, e.g. architraves, skirting boards • Fitted furniture, e.g. fire surrounds, mantelpieces
<ul style="list-style-type: none"> • Glazing surfaces • Wall sections sloping 70° or less from the horizontal • The underside of a gallery floor • Any section of roof exposed to the room below 	<ul style="list-style-type: none"> • Trap doors, including frames • The framed area of a rooflight or glazing-holding section • Timber sections, e.g. architraves, exposed beams, moulded coverings • Any section of roof exposed to the room below

Notably, these recommendations do not apply to the upper surfaces of floors and stairs, which are less significant contributors in the spread of fire. Nor are recommendations for furniture and fittings covered, as Building Regulations cannot control these. Furthermore, it is worth noting that certain building products and materials currently lack appropriate test standards and procedures, for which existing national test methods must temporarily suffice.

B4: EXTERNAL FIRE SPREAD

Section B4 specifies that external walls and roofs must resist the spread of fire over the external envelope, as well as restricting the spread of fire from one building's roof to another.

1. Resist the spread of flame over their surfaces adequately
2. If ignited, possess rates of heat release of fire growth considered 'reasonable in the circumstances'

Specific guidance on fire resistance values for external building properties are generally located in Appendix A, Table A1.

B5: ACCESS AND FACILITIES FOR FIRE SERVICES

Compliance is relatively simple to achieve for section B5, requiring properties to provide sufficient facilities and space for fire service personnel and their equipment, as well as clearly defined access routes.

APPROVED DOCUMENT B AND SKYLIGHTS: KEY TAKEAWAYS

Although Part B is extensive in its guidance, the majority of skylight installation projects will achieve compliance by paying heed to these general rules:

Inner skins

- Ceiling and wall inner skins should be rated Class 1 (BS476) or Class C-s3,d2 (BS EN 13501:1)
- Rooflight inner skins should achieve the same rating as the skins above, or achieve Tp(a) rating
- **Exception:** rooflight inner skins can be specified with a Class 3, Class D-s3,d2 or Tp(b) rating if the rooflight area is less than 5m², and if there is space of 3m in all directions between distinct rooflights

Outer skins

- Rooflights should come with outer sheets rated at least AC (BS476) or BROOF(t4) (BS EN 13501:5)
- Outer sheets require ratings of Class 0 (BS476 part 7) or Class B-s3,d2 (15301:1) in cases where buildings are within 1m of a boundary, over 20m tall or accessible by the public
- **Exception:** lower fire ratings for outer sheets may be acceptable, only when the property is further than 6m from a boundary

Single skins

- Single skin sheet applications must meet the minimum standards defined for both inner lining and outer roof surfaces

Plastic rooflight materials

Glass reinforced polyester (GRP) can be classified according to standards laid out in **BS746 Parts 3 and 7**

and **BS EN 13501 Parts 1 and 5**.

However, because thermoplastic materials such as PVC and certain polycarbonates often melt during **BS476 Part 3** or **BS EN 13501 Part 5** tests, they must be classified according to European standards in certain applications:

Standard classification	Alternative European classification
Polycarbonate and PVC - Class 1 (BS476 Part 7) / Class C-s3,d2 (BS EN 13501 Part 1)	AA / BROOF (t4)
Multiwall polycarbonate of Class 1 (BS476 Part 7) / 3mm thick polycarbonate / solid PVC (any thickness)	Tp(a)
Other thermoplastic materials - BS2782	Tp(a) or Tp(b)

NOTE: While it is possible to use thermoplastic materials in place of glass, it is not allowable in cases where external windows or skylights connect to protected stairways or circulation areas. Additionally, they cannot be used in fire-resisting or protecting ceilings. Skylights and rooflights to rooms and circulation spaces constructed of thermoplastic materials are therefore permitted in limited applications, but only if the lower surface reaches TP(a) or TP(b) classification.

Read more about the limitations of thermoplastic lighting diffusers alongside rooflight recommendations in **Document B, Volume 1, Table 2**. Below is our short summary:

Minimum classification of lower surface	Use of space below the diffusers or rooflight	Maximum area of each diffuse panel or rooflight	Max total area of diffusers and rooflights as a % of floor area of the space in which the ceiling is located	Minimum separation distance between diffuser panels or rooflights
TP(a)	Any except protected stairway	No limit	No limit	No limit
Class 3 or TP(b)	Rooms	5m ²	50%	3m
	Circulation spaces except protected stairways	5m ²	15%	3m

Limitations on roof coverings

On **Table 5 and Table 16 of Volumes 1 and 2 respectively** you will find general guidance on minimum separation distances between the roof, or part of the roof, and the relevant or notional boundary of the property.

Designation of covering of roof or part of roof		Minimum distance from any point on relevant boundary			
National Class	European Class	Less than 6m	At least 6m	At least 12m	At least 20m
AA, AB, AC	BROOF (t4)	✓	✓	✓	✓
BA, BB, BC	CROOF (t4)	✗	✓	✓	✓
CA, CB, CC	DROOF (t4)	✗	✓	✓	✓
AD, BD, CD	EROOF (t4)	✗	✓	✓	✓
DA, DB, DC, DD	FROOF (t4)	✗	✗	✗	✓

Refer to tables on page 48 of Vol. 1 and page 102 of Vol. 2 for specific exclusions and allowances.

Next: Approved Document E - Resistance to the Passage of Sound

APPROVED DOCUMENT E - RESISTANCE TO THE PASSAGE OF SOUND

Part E of UK Building Regulations requires buildings to be designed and constructed in a way which minimises the impact of unwanted noise. This has become an increasingly major concern for local authorities and councils managing disputes between neighbours and local commercial operations.

The document's recommendations are applicable to all new buildings, existing buildings undergoing material alterations and renovations, buildings that contain flats and those being converted into flats. Properties which undergo a "material change in use" must also comply (for instance, when flats are being converted into a property for commercial use or vice versa).

Approved Document E can be broken down into its constituent parts, with Parts 1 and 2 being the most generally relevant to building and renovation projects:

Section	Covered
E1	Protection against sound from other parts of the building and adjoining buildings
E2	Protection against sound within a dwelling house, etc.
E3	Reverberation within common internal parts of buildings containing flats or residential rooms
E4	Acoustic conditions in school buildings and properties

The key elements of a building referenced include internal and external walls, windows, floors and staircases, each of which must have their acoustic and sound insulation properties calculated before installation. This includes **rooflights** and **skylights**, which must perform in accordance with minimum standards.

In particular, the regulations are concerned with reducing **airborne noise** (i.e. television noise, musical instruments and even use of voices), in addition to **impact sound** – caused by walking the floor in a block of flats, for example.

Diagram 0.1 Requirement E1

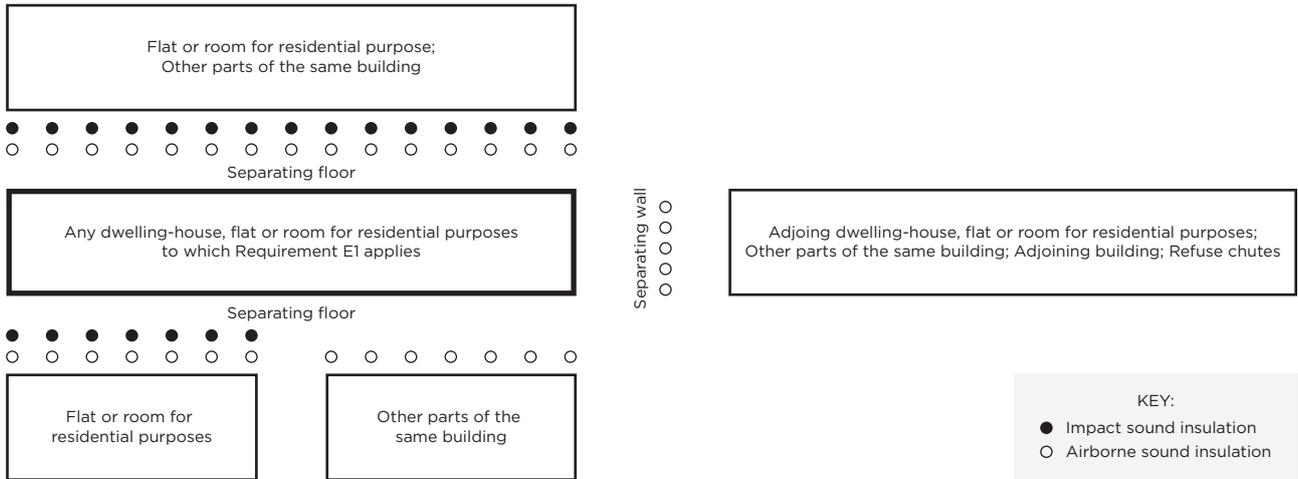


Diagram 0.2 Requirement E2(a)

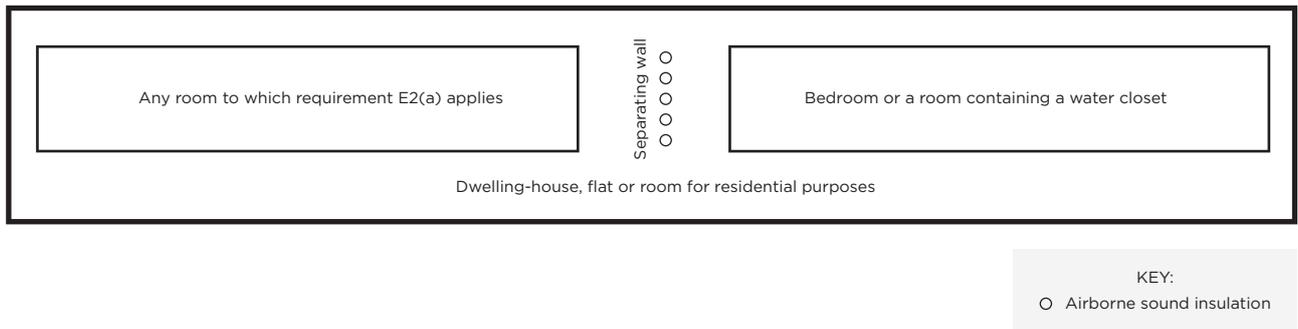
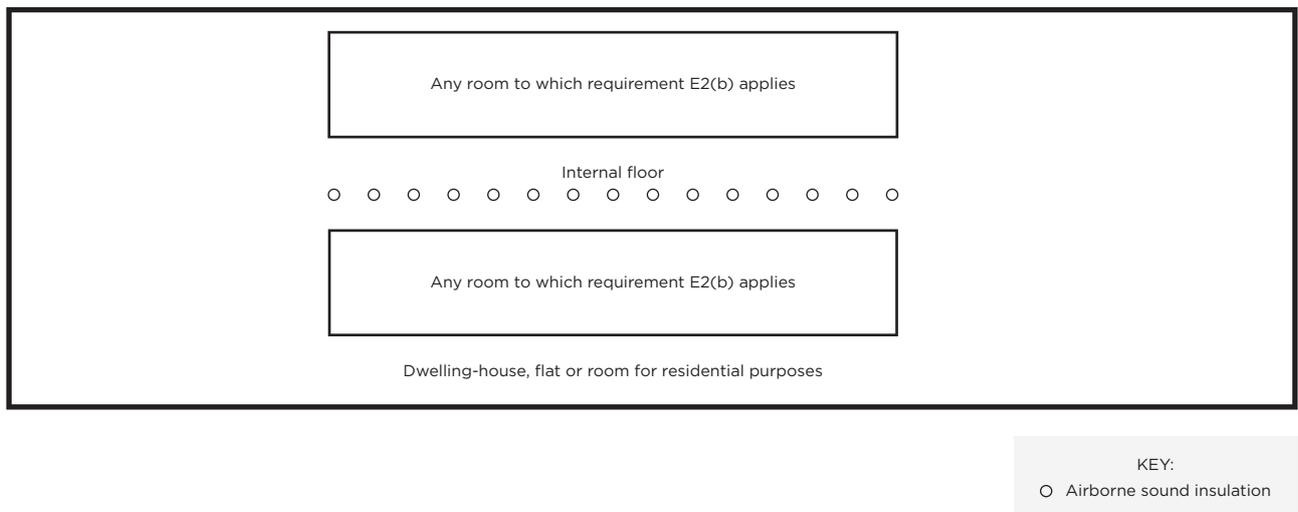


Diagram 0.2 Requirement E2(b)



KEY NUMBERS

Minimum airborne sound insulation and maximum impact sound insulation values are provided within Tables O.1a to O.2 of the document.

	Airborne sound insulation $D_{nT,w} + C_{tr}$ dB (minimum values)	Impact sound insulation $L'_{nT,w} + dB$ (maximum values)
Purpose-built dwelling houses and flats	Walls - 45 Floors and stairs - 45	Floors and stairs - 62
Dwelling houses and flats formed by material change of use	Walls - 43 Floors and stairs - 43	Floors and stairs - 64
Purpose-built rooms for residential purposes	Walls - 43 Floors and stairs - 45	Floors and stairs - 62
Rooms for residential purposes formed by material change of use	Walls - 43 Floors and stairs - 43	Floors and stairs - 64
New internal walls and floors within dwelling houses, flats and rooms for residential purposes (new built or by material change of use)	Walls - 40 Floors and stairs - 40	N/A

In order to prove compliance with these requirements, pre-completion tests must include the following information as standard:

- Building address and type of building (e.g. dwelling house, flat, historic)
- Date(s) of testing carried out
- Organisation carrying out the testing, including:
 - Name & address
 - Third party accreditation number
 - The name(s) of the client(s) and tester(s)
- Rooms which were used in the tests
- The single-number quantity measurement for sound insulation in each test or set of tests
- The sound insulation values which should be achieved
- An entry stating a 'pass' or 'fail' for each test according to defined values
- Details of the test, including:
 - Equipment & procedures used
 - A statement of validity according to the recommended procedure (explained in Appendix B of the document)
 - Any exceptions or process alterations made during the tests
 - Source & receiver volumes, including which rooms were used as sources
 - A table of results in tabular and graphical format with single-number quantities, as well as DnT and L'nT data

RECOMMENDATION

Remaining in compliance with Document E is usually a case of ensuring that only thoroughly sound-tested products capable of exceeding the provided standards in the long term are installed, and in the correct areas of the property. **Refer to Diagrams 0.1 through 0.3.**

Next: Approved Document F – Ventilation

APPROVED DOCUMENT F - VENTILATION

Approved Document F relates to ventilation requirements in and around a property.

Ventilation within buildings is essential, allowing for the removal of 'stale' indoor air, reduction of condensation and mitigation of health hazards such as exposure to mould or pollutants. Ventilation is also, incidentally, a vital consideration in a property's thermal performance – an aspect that needs to be controlled to ensure adequate ventilation and energy efficiency are balanced.

The responsibility for ensuring ventilation requirements are met in new and existing buildings lies with the designer, with Regulations providing recommended minimum standards for extract, whole building and purge ventilation types.

The basic requirement of Section F1 is that suitable ventilation must be provided to any property, as well as the people within it, regardless of whether the building is domestic or non-dwelling. Section F2 states mechanical ventilation must be commissioned through a testing process to ensure compliance with F1.

MEETING PART F REQUIREMENTS

Modern buildings typically combine both infiltration-based and purpose-provided ventilation. Infiltration ventilation is the controlled air exchange between the inside and outside of a property via natural gaps and leakage paths (e.g. gaps in door frames). Purpose-provided ventilation, on the other hand, is the type found in examples from openable skylights to mechanisms such as extraction fans.

In order to achieve compliance, a ventilation system must be able to provide the following functionality:

- Extraction of water vapour from typical areas where it is created in large volumes (e.g. bathrooms, kitchens)
- On-demand extraction of pollutants from any rooms in which they originate (i.e. burned food in kitchens)
- Dilution of water vapour or pollutants spreading through habitable or occupied rooms
- Supplying inhabitants with air from outdoors over long time periods, simultaneously limiting draughts and exposure to bad weather
- Operation which does not negatively impact the health of the building's occupants
- Facilitation of necessary maintenance procedures during installation

While any combination of natural and mechanical ventilation will aid in achieving the necessary ventilation levels, Part F also states that purpose-provided ventilation is almost always preferable where viable, as its use minimises the amount of uncontrollable infiltration.

Minimum ventilation rates for whole dwellings are stipulated in a small table on page 19 of Approved Document F:

	Number of bedrooms in dwelling				
	1	2	3	4	5
Whole dwelling ventilation rate* (l/s)	13	17	21	25	29

**Minimum ventilation rates should not be less than 0.3 l/s per m² of internal floor area.*

Ventilation in existing properties and buildings

Where an existing building is being altered, it is necessary to ensure that the established ventilation levels of the property remain the same and are not negatively affected.

Ventilation in non-dwelling buildings

The ventilation requirements of various types of property are covered in Approved Document F – please refer to Tables 6.1 through 6.2b starting on page 34 for further details of standards and recommendations.

It is important to note that ventilation standards in non-dwelling properties are intertwined with requirements explained in Approved Document L – specifically relating to cooling. Please refer to Section L2a for more information.

Achieving ventilation with skylights, rooflights and roof lanterns

Naturally, one widely applicable way of achieving improved ventilation levels on countless building and renovation projects is the use of **electric-operated skylights**.

NOTES ABOUT MECHANICAL VENTILATION

If a skylight cannot be installed to provide sufficient ventilation to a property, there are certain considerations to keep in mind when opting for **mechanical ventilation**. When installed, and when testing is required, these include:

- The system’s installer should provide the property owner with full operational and maintenance instructions, enabling optimal running of the system
- New systems must be tested, and their tests results stored, according to Document F guidelines before being submitted to the relevant local authority
- Test results should be submitted no more than five days after the final tests are completed

Next: [Approved Document H – Drainage and Waste Disposal](#)

APPROVED DOCUMENT H - DRAINAGE AND WASTE DISPOSAL

This aspect of Building Regulations covers vital recommendations on drainage, broken down as follows:

Section	Covered
H1	Drainage of foul water
H2	Cesspools and treatment of wastewater
H3	Drainage of rainwater
H4	Construction around and over sewers
H5	Drainage through a separate system
H6	Storage of solid waste

Although this document does not contain guidance specific to skylights and rooflights, **Section H3** may well be relevant in certain projects and applications.

The bare minimum recommendations of this Section are that rainwater should be:

- Drained away from a building in a manner which does not create damp damage
- Easily carried away from the roof of a building
- Funnelled into a soakaway, watercourse or sewer – doing no damage to foundations or adjacent structures
- Filtered via drainage systems which minimise blockages and facilitate easy access for future maintenance

Naturally, the placement and specification of a skylight can impact the efficacy of rainwater drainage in any given property. Because rainwater can soak into walls and cavities, doing £1000s of damage in the process, it is essential to consider whether the skylight's installation will affect overall compliance with Part H3.

Next: [Approved Document K – Protection from Falling, Collision and Impact](#)

APPROVED DOCUMENT K - PROTECTION FROM FALLING, COLLISION AND IMPACT

Approved Document K provides safety standards regarding protection from falling, collision and impact around stairways, ladders and ramps as well as doors, windows, balustrades and barriers. The document also incorporates guidance about the safety of glazing and roof access in residential buildings (previously part of Documents N and M).

This aspect of the Building Regulations is among the most essential for skylight, rooflight and roof lantern installations, with its primary aim to prevent injury around potentially hazardous areas of a property. As well as providing details on the minimum safety requirements of glazing and any surrounding construction work, the document focuses on the safety of stairs and provision of barriers where necessary. The contents are structured as follows:

Section	Covered
K1	Stairs, ladders and ramps
K2	Protection from falling
K3	Vehicle barriers and loading bays
K4	Protection from collision with open windows, skylights and ventilators
K5	Protection against impact from, and trapping by, doors and windows

ROOF ACCESS SKYLIGHTS - GUIDANCE ON STAIRS, LADDERS AND RAMPS

Where your skylight installation project is meant to provide rooftop access via a stairway or ladder, refer to Section K1. The guidance is designed to ensure safe movement between different levels, as well as the interior and exterior, of a given building.

This Section provides specific guidance on necessary specifications for handrails, headroom, length, width and other essential aspects around the design, construction and installation of stairs, ladders or ramps. This includes minimum standards of maintenance access provision.

Maintenance access

The availability of access routes for maintenance duties, as well as requisite safety standards, are defined according to the nature of the building and its intended uses. Public buildings, for instance, generally require higher standards of safety compared to those where access is reserved exclusively for maintenance professionals.

Follow the **one month rule**: if stairs and ladders will be used more than once per month, consider following guidance for private stairs in dwellings or industrial stairs and ladders found in **BS 5395-3**. When maintenance access is required less often, the use of portable ladders may be deemed acceptable. For cases where access is needed more than once per month, a more secure and long-term solution will be needed.

RECOMMENDATION

A permanent flight of stairs is widely acknowledged as the most acceptable solution for providing regular roof access via skylights.

Headroom requirements

Approved Document K provides fine detail about achieving headroom compliance – an essential consideration in skylight and rooflight installations.

Aspect	Measurement / Guidance
Minimum headroom for access between floors	2m
Maximum pitch for private stairs inside a dwelling	42°
Minimum tread width for top of skylight access stairway	400mm
Minimum width for narrow tread end	50mm
For every 50mm of roof construction depth	Add 56mm to the length of the skylight opening

Some key takeaways from the document to keep in mind:

- a) The permitted 2m headroom must be provided when the skylight is at maximum pitch
- b) The landing area must be the same width of the stairs (recommended minimum between 600mm and 800mm)
- c) The final step of an access skylight's flight of stairs is to be considered a landing
- d) Roof construction thickness must be factored into insulation, structural load and headroom calculations

RECOMMENDATION

If you're having trouble achieving the requisite level of clearance with traditional skylight frames, our advice is to consider installation of a **box skylight** for provision for extra headroom.

Loft and roof access compliance with alternating tread stairs

Approved Document K specifies that alternating tread stairs may only be used in loft conversions where there is not enough space provided for a full flight, or when stairs provide access to just one habitable room. Deemed usable only in a last resort, there is an expectation that alternating tread stairs be reserved for applications where they will be used little, by few people.

RECOMMENDATION

Although this section does not explicitly refer to roof terrace access, we generally recommend that alternating tread stairs **NOT** be used for regular rooftop access. If in doubt, consult your local building authority.

GUIDANCE ON TERRACES, GUARDS AND BARRIERS

Section K3 concerns itself with the provision of pedestrian guarding around any part of a roof where it is considered reasonable. Vitally, this includes specific guidance around skylights, rooflights and other openings.

As with so many requirements of Approved Document K, the recommendations for specification and placement of barriers varies significantly depending on the conditions and circumstances of the property. However, there are some elemental recommendations:

Minimum barrier heights

- Stairs, landings, ramps and edges of internal floors in single-family dwellings: 900mm
- For external balconies and roof edges: 1100mm
- In residential and public buildings: 900mm for flights of stairs, otherwise 1100mm

Crucially, any pedestrian guarding must be proven to withstand the loads stated in **BS EN 1991-1-1** and **PD 6688-1-1**. In a provision designed to protect small children, guarding must also not allow a sphere of 100mm to pass through any openings, avoiding the use of horizontal supports or rails.

Using a skylight as a barrier

It is sometimes deemed acceptable for a hinged access skylight to be used safely without extra barrier provision. However, the viability of this option does depend largely on the specs and orientation of the skylight in question, in addition to the layout of the property.

Due to the hinged opening mechanism, the opening section of a skylight can qualify as an appropriate barrier while opened. Using skylights as barriers is also viable when the skylight is installed adjacent to a wall.

Additionally, if a skylight's glass section when fully opened combines with an adjacent wall to provide barriers along opening lengths of the frame, then a balustrade at the rear is the only added requirement.

Compliance is also achievable using **box skylights**, boasting a physical structure that projects beyond the roofline and forms a natural barrier against injury by falling.

This is certainly an option to consider, but only as long as the skylight product can be guaranteed to meet minimum glazing safety standards requirements laid out in K4. Read on for further details.

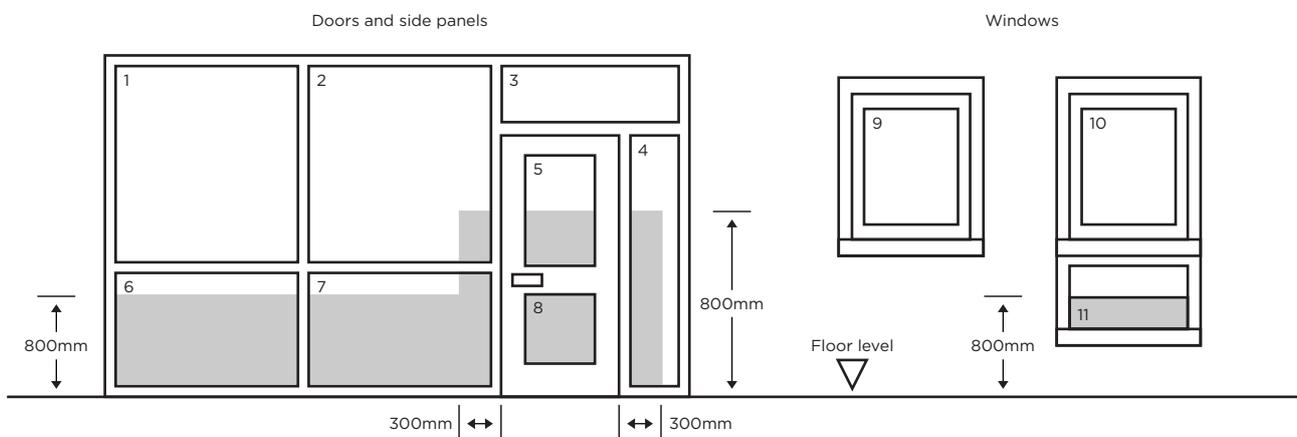
GUIDANCE ON PROTECTION AGAINST COLLISION AND IMPACT

Section K4 provides essential guidance on glazing, its design and specification of materials. There are three principles to this guidance. Simply put, any glazing in a building which people are likely to interact with (defined as a **critical location**) must, if broken:

- Break in a way which minimises risk of injury
- Resist impact without breaking
- Offer added shielding or protection against impact

Diagram 5.1 within the Approved Document provides clear guidance on classification of critical locations in all buildings.

Diagram 5.1 Critical glazing locations in internal and external walls



Shaded areas show critical locations to which requirement K4 applies (i.e. glazing in areas numbered 2,4,5,6,7,8,11)

Fortunately, the wide availability of high quality glazing makes compliance a relatively easy thing to achieve.

RECOMMENDATION

The most common solution in this area would be the specification of **toughened safety glass** with a **laminated interlayer**. A skylight specified with these attributes will fracture into small, harmless pieces when broken, while the interlayer will catch any fractured glass that falls. The interlayer should also help to satisfy requirements for the protection from falling.

Providing notice of glazing

Another key provision of Document K states that, where large panes of glass are installed in a property, they must be marked in a way which clearly, quickly advertises their presence. This is to prevent inhabitants of the building walking or running into a glass panel or wall they weren't aware of. This also applies to any part of a window, skylight or ventilator which projects outside the edge of the building.

Compliance can be achieved through clear manifestation of the glazing. For instance:

- Indicate the presence of glazing with mullions, transoms, frames or push/pull handles
- Using barriers, railings, floor level changes and surface markings around any glazed unit posing a risk of impact
- Include a logo, watermark, signage (minimum 150mm high) or other decorative glazing feature (minimum 50mm high)
- Ensure the background seen through the glass contrasts visually with the glazing's setting, in all light conditions
- Where glass doors are installed beside or as part of a glazed screen, they must be marked with high-contrast strips
- Where glass doors can be held open, leading edges must be protected with visible guarding

Next: [Approved Document L - Conservation of Fuel and Power](#)

APPROVED DOCUMENT L - CONSERVATION OF FUEL AND POWER

This Approved Document deals with the energy performance of properties, aiming to conserve power and reduce waste. It relates to any and all materials used in a given construction or architectural project. The document is divided into two sections according to the type of building:

Section	Covered
L1A	Conserving fuel and power in new dwellings
L1B	Conserving power and fuel in existing dwellings
L2A	Conserving fuel and power in new non-dwelling buildings
L2B	Conserving fuel and power in existing non-dwelling buildings

The minimum recommendations are designed to ensure that a) heat gain and loss is limited through the user of thermally controlled materials, and b) fixed building services should be as efficient as possible and able to be controlled once installed.

Utilising skylights and rooflights can be an effective method for achieving energy efficiency standards in building projects. Over the years, research has demonstrated that increased rooflight area in a property corresponds directly with increased energy savings and reduced CO2 emissions. While there are limits on maximum rooflight area, and these vary from building to building, it is worth noting some facts showing these benefits:

- A building with 12% rooflight coverage reduces CO2 emissions associated with operating that building by up to 50%
- In practically all buildings, increased energy savings continue to grow as rooflight area increases beyond 15% of floor area
- By increasing rooflight area beyond 20% in buildings with higher illumination requirements, further savings can be achieved

KEY U-VALUES FOR ENERGY EFFICIENT SKYLIGHTS AND ROOFLIGHTS

A detailed and complicated document, there is a lot to pick apart about ensuring energy efficiency. We will explore some of the recommendations and provisions below. However, some of the most essential information comes in the form of recommended values for rooflights:

Building type	Minimum U-value*	Recommended air permeability
New dwellings	2 W/m ² K	10 m ³ /hm ² at 50Pa
Existing dwellings	1.6 W/m ² K	
New non-dwellings	2.2 W/m ² K	10 m ³ /hm ² at 50Pa
Existing non-dwellings	1.8 W/m ² K	

***Important note:** these U-value limits assume that a window or skylight has been analysed in vertical position, despite skylights usually being installed horizontally. When a skylight is assessed in horizontal position, add 0.3 W/m²K to these limits (up to a limiting value of 2.1 W/m²K).

EXCEPTION

It is also worth noting that, in buildings which suffer from unusually high internal heat gains, less demanding rooflight U-values may be deemed appropriate. In these cases, a U-value of 2.7 W/m²K should not be exceeded.

Optimum rooflight size

Document L also states maximum limits on the amount of roof space that glazed elements such as skylights can occupy, setting the upper cap at 25% of floor area. Research, showing relatively little improvement in savings when rooflight area is increased from 12% to 15%, suggests that rooflight area of 15-20% will guarantee a reduction in CO₂ emissions within most buildings. However, this will vary depending on the specific property and improvements to efficiency must be proven on a case-by-case basis (explained below).

Repairs to rooflights

Windows, including rooflights and skylights and their frames, are defined as 'Controlled Fittings'. Therefore, if during repairs you are replacing the glazing in a rooflight - without touching the frame - then L2B requirements do not apply as, technically, no new 'fitting' is being installed. Like-for-like replacement will be acceptable in these circumstances, although upgrading to Part L efficiency standards would be advisable wherever it is practical.

On the other hand, in instances where a significant amount of glazing is being replaced - for windows or skylights - the activity may be classed as a 'refurbishment' instead of a 'repair' (regardless of whether frames are changed) and should, therefore, comply with L2B standards.

Achieving compliance

The foremost principle and criterion of compliance with Document L is simple: the CO₂ emission rate of the dwelling or non-dwelling building (DER or BER) must not exceed the target emission rate (TER). Furthermore, it must be confirmed that the building will maintain those levels.

Building Emission Rate (BER) ≤ TER

The TER (the maximum CO₂ emission rate allowable) is calculated during the design stage. It is calculated for a Notional Building of the same specifications as the actual building, though the performance of fabric, services and controls follow AD L2A and NCM Modelling Guide definitions. It is measured in mass of CO₂ emitted per year per square metre of the total useful floor area in the building (kg/m²/year).

The BER is calculated using the specifications of the actual property, rather than the Notional Building, including the geometry and full details of the building fabric, services and controls. If the BER is lower than the TER when calculated, the building is compliant.

In addition, calculated dwelling fabric energy efficiency rates (DFEE) must be above the target fabric energy efficiency rate (TFEE) for a given building.

L1B & L2B - GUIDANCE FOR EXISTING DWELLINGS

Where the renovation of an individual thermal element in an existing property is deemed a 'major job' - up to and over 50% of the surface being replaced - then the entire element must remain in compliance with heat gain and heat loss limits. The same standard applies when a thermal element is to be replaced wholesale.

ENERGY PERFORMANCE IMPROVEMENTS AND CERTIFICATION

Where work being undertaken is an extension, initial installation or increase in capacity of fixed building services, it will be necessary to attain an Energy Performance Certificate. This applies to both new and existing properties.

The EPC must be provided within 5 days after completion of any work. It must be supplied to the owner of the property as well as the relevant local authority to show the work has been undertaken. The EPC should:

- State the certificate's date of issue
- State the asset rating of the property
- Include the legal standard benchmark or reference value
- Be issued by a qualified and certified energy assessor
 - Name of the energy assessor
 - Address of the energy assessor's employer (or self-employed trading name and address)
 - The name of the assessor's relevant accreditation scheme
- Include a reference number to the dataset used to produce the certificate
- State the address of the property (unless portal, in which case include the owner's registered address)

- Include an estimate of the building's total usable floor space
- Be accompanied by a **Recommendation Report** (explained below)

Recommendation Reports

Document L also specifies that energy assessors should provide the building's owner(s) with a comprehensive "Recommendation Report", improvements that can be made to increase the energy efficiency of the property in question. This must include:

- Improvements, of reasonable cost, which can be made to a property at the same time as other major works
- Improvements to elements of the property which can be made without major renovations
- Routes for the property owner to learn more about their building's energy efficiency, plus any costs related to the recommendations
- In-depth details of what implementing the report's recommendations may entail

Next: Approved Document M – Access to & Use of Buildings

APPROVED DOCUMENT M - ACCESS TO & USE OF BUILDINGS

This aspect of Building Regulations is designed to ensure that access to a building is easy for all able and disabled users. It covers rules for extensions to existing buildings, as well as providing standards for accessibility of facilities and conveniences (such as bathrooms, for example). The document is split in the following way:

Section	Covered
M1	Visitable dwellings
M2	Accessible and adaptable dwellings
M3	Wheelchair-user dwellings

Much of its guidance focuses on minimum standards and dimensions for room spaces, doorways and accessways such as corridors, ramps and stairs.

The most relevant information pursuant to skylight installations and (more specifically) to extension works. Although not strictly linked to skylights, there are basic recommendations for any stairways deemed unavoidable in the entrance to a property:

- All flights of stairs should have a minimum width of 900mm
- Must be provided with solid handrails, on both sides, along the entire run of flight and any landings in-between
- Rises and goings must be constructed in-line with Document K safety guidelines

It is worth keeping requirements for ease of movement in mind, especially in cases where rooflight installation projects also involve renovation to habitable rooms or accessible facilities. Remember that all corridors and passageways must accommodate wheelchair users, unobstructed by items such as radiators, fire extinguishers, etc.

RECOMMENDATION

As a bare minimum, any internal passageway must be between 900mm and 1200mm wide depending on the width of its doorway (from 750mm to 800mm). Consult Table 4 in Approved Document M for further detail.

Next: Approved Document N - Glazing Safety (Withdrawn)

APPROVED DOCUMENT N - GLAZING SAFETY (WITHDRAWN)

From April 6th of 2013, the contents of Approved Document N are incorporated by [Approved Document K](#).

Next: Approved Document Q - Security

APPROVED DOCUMENT Q - SECURITY

This document – covering doors and windows, including skylights – establishes reasonable standards around resistance to attack and forcible entry. Its guidance applies to any door or window which provides access from outside into a building or dwelling, as well as those which provide entry into a flat from communal areas within a building.

Approved Document Q is one of the few examples in Building Regulations where **rooflights** are mentioned by name. Specifiers should be aware of this product-specific requirement and ensure skylights installed in “easily accessible areas” are in full compliance.

Windows and doors in “easily accessible areas” are defined as those which:

- Are within 2m vertically of an accessible level surface such as ground, basement level or an access balcony
- Are within 2m vertically of a flat or sloping roof (which is within 3.5m of ground level, with a pitch of less than 30°)

ACHIEVING COMPLIANCE WITH PART Q

In order to satisfy Part Q's requirements, there are a number of test standards which demonstrate sufficient security performance. These are:

- PAS 24:2012
- STS 204 Issue 3:2012
- LPS 1175 Issue 7:2010
- LPS 2081 Issue 1:2015

PAS 24:2012 is perhaps the preferred standard for achieving compliance with windows and doors, although other standards (demonstrating similar performance levels) are often acceptable. However, because PAS 24 security tests were designed with vertically-installed windows in mind, they are not always suitable for flat roof skylight applications.

LPS 2081 security standards

LPS 2081 standards, on the other hand, can be readily applied to glass rooflights.

Similar to LPS 1175, the LPS 2081 standard extends tests to prove resistance against ‘stealth’ and ‘persistence’ attacks by burglars. In other words, products are tested against the use of force, tactics and tools commonly used by criminal opportunists in residential areas.

To pass with security rating ‘A’, the skylight must be able to withstand a sustained attack on its glazing, frame and fixings for up to one minute. The glass may break, but only if it remains sufficiently intact to prevent the intruder gaining entry. If the product is able to withstand attack for up to three minutes, it may be awarded a ‘B’ security rating.

ABOUT THE SECURITY OF OPENING ROOFLIGHTS

It is a common concern that opening rooflights are less secure than the fixed alternative. Traditionally, opening rooflights have lacked the sophisticated locking systems of doors and windows, previously perceived as more easily accessible.

The increase in single-storey extensions and home renovations has increased the supply of 'accessible' rooflights in buildings and dwellings, however, and their security should be carefully considered.

To help guarantee the security of openable skylights, consider:

- Utilising dual locking systems at either end of the skylight
- Ensuring electric and motorised opening systems cannot be 'back driven'
- Keeping significant distance between entry points and interior control switches
- Integrating continuous hinges and fixings which are invisible from the exterior

RECOMMENDATION

Naturally, the specification of **toughened safety glass** in skylight and rooflight products will go a long way to providing acceptable resistance to attack. A **laminated interlayer** will also offer protection against fracture (ideally a heat-strengthened interlayer will be specified rather than annealed, as this will help prevent fracture from heat stress).

ANY QUESTIONS?

We hope you've found this whitepaper helpful, whether you're conducting research or already fully engaged in your project. Our earnest aim is to provide an up-to-date hub for architects, construction industry specialists and specifiers, offering advice on every aspect of regulations relating to skylights.

We'd love to hear how we're doing. If you feel like we've missed something essential, please don't hesitate to get in touch. We'll update this guide with any additional information as soon as possible.

Feel free to contact us today if you have any questions about how skylights, rooflights and roof lanterns can be specified and installed in full compliance with UK Building Regulations. We're more than happy to assist.

sunsquare

Unit D1 Drinkstone Investment Park
Kempson Way,
Bury St Edmunds
Suffolk,
IP32 7AR

sales@sunsquare.co.uk
+44 (0)1284 848667