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GGF Datasheet: A Guide to Building Regulations for Dwellings - Scotland

Contents

1.0 Introduction to the Building Regulations

Building regulations in Scotland are statutory regulations that seek to ensure that the policies set out in the relevant legislation are carried out. Building regulations approval is required for most building work in the UK. Building regulations that apply in Scotland are set out in the Building (Scotland) Act 2003. The regulations made under the Act have been periodically updated, rewritten or consolidated. The Scottish Government (at Edinburgh) are responsible for the issue of the documents in Scotland.

The detailed requirements of Building regulation Technical Handbook in Scotland are scheduled within 8 separate headings, each designated by a number, Part 0 to Part 7.

Newer versions of Building Regulations are generally not retrospective, they are applied to each new change or modification to a building (or new part of a building) but do not require renovation of existing elements. There are general requirements for any change or improvement, that the building must not be left any less satisfactory in compliance than before the works were carried out. The current Technical Handbook is the 2019 revision.

2.0 Scope

This document is intended to offer guidance on the use of the Building Regulations Technical Handbook that impact the design, fabrication and installation of windows and doors. It applies to window and doors manufactured from all materials.

3.0 Technical Handbook 2.0: Fire

3.1 Introduction

TH 2.0 has guidance that will help to protect life and assist the fire and rescue services in the event of fire. This guide will focus on means of escape and cavity barriers.

3.2 TH 2.0 – The requirements

The requirement for cavity barriers is detailed on page 72 under section 2.4.

2.4 Every building must be designed and constructed so that in the event of an outbreak of fire within the building, the spread of fire and smoke within cavities in its structure and fabric is inhibited.

The requirement for means of escape is detailed on page 86 under section 2.9.

2.9. Every building must be designed and constructed so that in the event of an outbreak of fire within the building, the occupants, once alerted to the outbreak of fire, are provided with the opportunity to escape from the building, before being affected by fire or smoke.

3.3 Meeting the requirements.

TH 2.4.1 gives guidance on the installation of cavity barriers around the head, jambs and cill of an external door or window. Table 2.7 Fire resistance gives detail on the required performance.

TH 2.3 gives guidance on the escape criteria of different situations including but not limited to:

a. Topmost storey not more than 4.5m

b. Topmost storey more than 4.5m but not more than 7.5m

c. Topmost storey more than 7.5m but not more than 18m

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Escape windows can form part of the strategy for each of the above situations.

Windows intended to provide fire escape facility should comply with the requirements of 2.9.4 of TH 2.0. It also includes guidance on the installation of conservatories that are located below an escape window. More detailed guidance for fire doors can be found within section 2.A.1 and 2.A.2 regarding testing and Table 2.7 Fire resistance for performance.

Main entrance doors on escape routes should provide a means of escape using a non-key turn locking system from the inside. In many cases a thumb turn cylinder would be suitable.

4.0 Technical Handbook 3.0: Environment

4.1 Introduction

TH 3.0 has several relevant sections to the design, manufacture and installation of windows and doors.

These are:

a. 3.10 Precipitation

b. 3.14 Ventilation

c. 3.16 Natural lighting

4.2 TH 3.0 -The requirements

The requirement for TH 3.10 is detailed on page 169.

It states that the building shall be designed and constructed in such a way that there will not be a threat to the building or its occupants as a result of moisture from precipitation penetrating to the inner face of the building.

The requirements for 3.14 ventilation are detailed on page 192.

It states that every building must be designed and constructed in such a way that ventilation is provided so that the air quality inside the building is not a threat to the building or the health of its occupants.

The requirements for 3.15 condensation are detailed on page 202.

It states that every building must be designed and constructed in such a way that there will not be a threat to the building or the health of its occupants as a result of moisture caused by surface or interstitial condensation.

The requirements for 3.16 natural lighting are detailed on page 205.

It states that every building must be designed and constructed in such a way that natural lighting is provided to ensure that the health of the occupants is not threatened.

4.3 Meeting the requirements

4.3.1 Precipitation

For windows and doors to meet the requirements of TH 3.10 precipitation the below points should be considered in order that any building element, including windows and doors, exposed to precipitation, or wind driven moisture, should prevent penetration of moisture to the inner surface of any part of the dwelling.

These points include but are not limited to:

1. The joint between walls and window/door frames to be appropriately sealed
2. Cavity closer and reveal linings selection
3. Door threshold selection

It is important to follow the manufacturers' installation and weather sealing instructions at all times.

4.3.2 Ventilation

The provision for ventilation is outlined in 3.14.1 of TH 3.0. It states that a dwelling should provide ventilation by either:

a. Natural means, or

b. Mechanical means, or

c. A combination of natural and mechanical means

And that the ventilation should have the means to

- Provide outside air to maintain indoor air quality sufficient for human respiration
- Remove excess water vapour from areas where it is produced
- Remove pollutants that are hazardous to health
- Rapidly dilute pollutant odours

Further detail can be found in Section 3.14.1.

Section 3.14.3 contains detail for the recommended ventilation of a dwelling, table 3.5 supports and includes detail for the use of trickle ventilators. This section also has detail for ventilation requirements for existing buildings.

Section 3.14.4 has detail for ventilation within conservatories (see also 3.14.8), and 3.14.6 contains detail

for the correct selection and positioning of trickle ventilators.

Section 3.14.8 contains further detail for conservatories (see also 3.14.4) and extensions when fitted over existing windows.

4.3.3 Natural Lighting

The requirement for natural lighting is detailed on page 205 in section 3.16.

It states that every building must be designed and constructed in such a way that natural lighting is provided to ensure that the health of the occupants is not threatened.

The requirement only applies to dwellings.

Section 3.16.1 gives guidance for the provision of natural light that includes glazing. It provides detail on the size and placement of glazing within the dwelling. Section 3.16.0 states that the primary purpose of the standard is to habitable rooms and gives a definition of what a habitable room is in terms of the building regulations.

Section 3.16.2 gives guidance for conservatories and section 3.16.3 gives guidance for extensions.

5.0 Technical Handbook 4.0: Safety

5.1 Introduction

TH 4.0 has several relevant sections to the design, manufacture and installation of windows and doors.

These are:

a. 4.1 Access to buildings

b. 4.4 Pedestrian protective barriers

c. 4.8 Danger from accidents

d. 4.13 Security

5.2 TH 4.0 -The requirements

The requirement for TH 4.1 Access to buildings is detailed on page 263.

It states that every building must be designed and constructed in such a way that all occupants and visitors are provided with safe, convenient and unassisted means of access to the building. It also includes limitations.

The requirements for TH4.4 Pedestrian protective barriers is detailed on page 290.

It states that every building must be designed and constructed in such a way that every sudden change of level that is accessible in, or around, the building is guarded by the provision of pedestrian protective barriers. It also includes limitations.

The requirements for TH 4.8 Danger from accidents is detailed on page 296.

It states that every building must be designed and constructed in such a way that:

a. People in and about the building are protected from injury that could result from fixed glazing, projections or moving elements on the building

b. Fixed glazing in the building is not vulnerable to breakage where there is the possibility of impact by people in and around the building

c. Both faces of a window and rooflight in a building are capable of being cleaned in such a way that will not be a threat to the cleaner from a fall resulting in severe injury

d. A safe and secure means of access is provided to a roof, and

e. Manual controls for ventilation and for electrical fixtures can be operated safely

Standard 4.8 d does not apply to domestic buildings.

5.3 Meeting the requirements

5.3.1 Access to Buildings

In order to comply with TH 4.1 each common entrance to a domestic building should be an accessible one. This is most commonly the front entrance door. For a door to comply it must have a clear opening width an accessible threshold as defined in section 4.1.7 on page 267 of TH 4.0. Figure 4.2 supports. Section 4.1.9 on page 268 gives further detail on accessible thresholds. Figure 4.3 supports.

Section 4.1.8 on page 268 gives guidance on glazed vision panels to common entrance doors and how to prevent collisions.

Page 269 section 4.1.10 has detail about alteration and extension works. The general rule is to not make the building any less compliant than it was before the work.

5.3.2 Pedestrian protective barriers

In order to comply with TH 4.4 barriers must be designed and installed so as to prevent the risk of injury through falling. Windows may form part of, or be a

barrier.

Section 4.4.1 has detail on the location of barriers. It states that an area of glazing may act as a barrier if it is designed and installed specifically to do so.

Section 4.4.2 has detail on the design of barriers and states that any barrier or fixed glazing accepted instead of a barrier should be secure, capable of resisting loads calculated in accordance with BS EN 1991-1-1 and associated PD 6688-1-1 and be of a height as described in Table 4.7 on page 291. This section includes additional information as to when a barrier should be installed.

5.3.3 Danger from accidents

In order to comply with TH 4.8 glazing must be designed in such a way that it will not cause serious injury through impact or collision.

Section 4.8.1 has detail to help ensure that openable windows that project into a circulation route or space are guarded against collision. It details where the guarding should be applied and the design considerations that should be taken.

Section 4.8.2 details the measures that can be taken to ensure that the glazing, if impacted will not cause harm or serious injury. It also includes guidance on where the safety glazing should be applied. It states that safety glazing should comply with BS 6262: part 4. Guidance on glazing manifestation is included also.

Section 4.8.3 contains detail for the safe cleaning of windows. It gives guidance on different strategies for cleaning that may be relevant and also further detail for common scenarios such as roof lights and cleaning from the inside. Detail on the safe limit of reach for the adult UK population is also included.

Section 4.8.5 gives guidance on the safe operation of manual controls to window openers. It does not apply to trickle ventilators that may be fitted above the maximum allowable height of 1.7m as detailed on page 300 in section 4.8.5.

5.3.4 Security

To comply with the requirements of TH 4.13 security windows and doors must be manufactured and installed so as to resist forced entry.

Section 4.13.1 gives guidance on physical security for windows and doors. It offers 3 solutions to achieve the requirement.

a. Secured By Design, further detail is found in section 4.13.2.

b. Product testing, further detail is found in section 4.13.3

c. Relevant product standards and component performance, further detail can be found in section 4.13.4

The most common method for enhanced security window and doorsets within the UK is testing to PAS24 :2016.

It is also important to ensure the installation is in line with the manufacturers guidelines as enhanced security product installation may differ from the standard product installation. Section 4.13.5 contains more detail.

6.0 Energy

6.1 Introduction

The aim of TH 6.0 is to ensure that effective measures for the conservation of fuel and power are incorporated into dwellings by addressing the performance of the building fabric and building services.

6.2 TH 6.0 - The requirements

Section 6.2 Building insulation envelope contains the requirement relevant to window and door sets

The requirement for 6.2 Building insulation envelope states that every building must be designed and constructed in such a way that an insulation envelope is provided which reduces heat loss.

6.3 Meeting the requirements

In order to meet the requirements of TH 6.2 adherence to maximum whole product U values must be met when calculated in accordance with BS EN ISO 10077-1 and BS EN ISO 10077-2.

Section 6.2.1 contains detail for the maximum allowable individual U value and an area weighted average U value for windows, doors and rooflights. Table 6.3 supports.

Section 6.2.3 contains detail on limiting heat loss through thermal bridging, a problem that can occur via low thresholds for example.

Further guidance is given in sections 6.2.7 – 6.2.13 for specific building circumstances including conversions, extensions, listed or historical buildings and conservatories.

8.0 Technical Handbook 0.8 – Workmanship and fitness of materials.

8.1 Introduction

Technical handbook section 0.8 refers to Regulation 8. Its purpose is to ensure that all materials and workmanship of a satisfactory standard, and fit for purpose.

8.2 TH 0.8 – The requirement

The requirements of TH 0.8 are on page 26. It states:

1. Work to every building designed, constructed and provided with services, fittings and equipment to meet a requirement of regulation 9-12 must be carried out in a technically proper and workmanlike manner, and the materials used must be durable, and fit for their intended purpose.

2. All materials, services, fittings and equipment used to comply with regulations 9-12 must, so far as is reasonably practicable, be sufficiently accessible to enable any necessary maintenance or repair work to be carried out.

8.3 Meeting the requirements

Section 0.8.3 has detail on the expected performance of materials. It includes the material selection, workmanship competence and the correct installation of materials.

Section 0.8.4 supports.

Section 0.8.5 contains information and guidance on how to establish if the materials used are fit for purpose. It includes but is not limited to CE marking, British Standard Compliance and Independent certification schemes.

Section 0.8.8 contains detail on ways of establishing the suitability of workmanship. It includes but is not limited to CE marking, Independent certification schemes and management systems.

Where other methods are not available or appropriate then test reports can be provided to show that materials and workmanship comply with the building regulations. Testing must be carried out by a UKAS (or equivalent) accredited testing body.