



Certification Practice Note 1

Guidance on the certification of the structural design of windows

1.0 Background

- 1.1. The Building (Scotland) Regulations 2004 require in Mandatory Standard 1.1 that the building is designed so that the loadings that are liable to act on it will not lead to:
 - a) the collapse of the whole or part of the building
 - b) deformations which would make the building unfit for its intended use, unsafe, or cause damage to other parts of the building or to fittings or to installed equipment, or
 - c) impairment of the stability of any part of another building.
- 1.2. It is also important to note that references to “building” in the legislation include references to part of a building. It is for this reason that Certifiers must consider whether or not parts of the building, such as windows, meet the above requirements.
- 1.3. While the guidance in this document refers specifically to the certification of the design of windows it will, in many instances, be equally applicable to the certification of the design of glazed doors.

2.0 General Guidance

- 2.1 A window is considered to be an opening in a wall, door or roof and is generally made up of a pane or a grid of panes of glass, or other translucent material, fixed within a frame that is commonly made from timber, aluminium or uPVC.
- 2.2 Windows come in different shapes and sizes and will be subjected to different loadings depending on factors such as their position in the building, the building’s location and orientation, and whether the window may act as a protective barrier.
- 2.3 Windows will be manufactured by a wide variety of different companies, from large multi-national businesses to small local joiners.

2.4 It is important the Certifiers take a proportionate approach to the certification of the design of windows, based on a risk assessment which is to consider factors such as:

- a) Location of the building and local topography, etc
- b) Position of the window in the building, both vertically and horizontally
- c) Size of the opening for the window
- d) The size of any individual pane of glass
- e) The number of panes
- f) The support conditions for each pane
- g) The frame makeup and its fixings and supports
- h) The requirements for mullions and transoms
- i) Whether or not the window is required to act as a protective barrier
- j) The consequences of any failure of all or part of the window and/or its fixings and supports

2.5. Aspects of the design of the windows that should be considered will include:

- a) The loadings on the window, including any loads as a result of acting as a protective barrier
- b) The type and thickness of glass in each pane
- c) The fixing of the glass to the frame
- d) The fixing of the frame within the opening in the building
- e) The arrangement of any mullions and transoms
- f) Compatibility issues, such as tolerances, differential movements and deflections

2.6. In all cases the Certifier must be satisfied that the design meets the requirements of Mandatory Standards 1.1 and 1.2. This may be achieved by reviewing structural calculations or other justification for the design, such as BBA certificates or other recognised test certification, manufacturers literature, etc, together with drawings showing the construction of the window.

2.7. Furthermore, as noted in other guidance, the Certifier is required under the legislation to keep records of how compliance with the building regulations was established. In all cases therefore, irrespective of the risk determined, there must be clear evidence of the risk assessment within the certification records.

3.0 Simplified approach for low-risk settings

3.1. Having undertaken the appropriate risk appraisal, the Certifier may decide that the window is of low-risk, in which case a simplified approach to certification may be adopted, where it will be sufficient for the Certifier to review the general arrangement drawings and specification for the windows which will be part of the warrant submission. The specification, which may be on the drawings or in a separate document referenced from the drawings, is to clearly state the following:

- a) the British Standards to which the windows are to be designed and manufactured.
- b) that the windows are to be manufactured by firms who are registered with a recognised industry body/quality assurance scheme (e.g., TRADA BM, GGF, FENSA, CERTASS) and installed in accordance with their recommendations.

c) the information that is to be made available on completion of the building to demonstrate compliance with the structural requirements of the Building Regulations.

3.2. In addition, if adopting the simplified approach, Certifiers should satisfy themselves that the size and type of window is a standard product of proven performance. Evidence of this such as manufacturer's literature, test certification, etc should form part of the project records.

3.3. It should be noted that it is not envisaged that there would be any circumstances in which any window which might act as a protective barrier could be considered as 'low-risk' and, as such, the use of the simplified method would be inappropriate.

4.0 Certification Performance Criteria

4.1. Certifiers should also refer to the Certification Performance Criteria, which can be found on the SER website.

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