TECHNICAL UPDATE
Gaps around windows

Introduction

This article gives best practice guidance on the required gaps around external windows and doors, and information in relation to sealants for the purpose of weather tightness.

Guidance given must be read in conjunction with the relevant guidance in our Technical Manual. In all circumstances, the Technical Manual version applicable to your development should be used.

Provision of information

A full set of design drawings and specifications shall be made available to the Warranty Provider and all other interested parties prior to the associated works starting on site. This may include:

- Evidence that the external windows and doors are suitable for the site exposure. E.g. A manufacturer's declaration of performance for the site.
- Evidence of certification confirming weather-tightness rating as detailed within BS 6375.
- Evidence of UKCA marking in accordance with UK Construction Production Regulation.
- Details of external window and door fixing will be required.
- Details of sealing around the frame will need to be confirmed.

The Warranty Surveyor, at their discretion, may also request supporting information that demonstrates suitability for use of any materials or systems contained within the above.

Note:
- Where timber windows are specified, timber and other wood based materials need to comply with the relevant requirements of BS EN 942
- For proof and demonstration of performance and adequacy, the documentation required is typically a valid UKAS (or European equivalent) third-party accreditation (e.g. British Board of Agrément, BRE, etc.)

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Gaps around windows and doors should be sized to allow for thermal movement and this will vary depending on the material of the frame.

Material	Recommended gap per side for width of structural openings (mm)		
	Less than 1.5m	**1.5m – 3.0m**	**3.0 – 4.5m**
Upvc –white	5	5	7.5
Upvc-non-white	7.5	7.5	11
Timber	5	5	5
Steel	4	5	6
Aluminium	5	5	7.5

The maximum gap permitted for openings less than 3m should be 10mm. For openings more than 3m, the maximum gap permitted should be 15mm. Please refer to the manufacturer's guidance for further clarification.

For gaps greater than 5mm, a backing strip should be provided behind the sealant and the sealant should have a minimum depth of 6mm.

Please note, for timber framed and LGSF buildings, gaps under window and door openings will also need to be provided to cater for differential movement between the timber frame/LGSF and the external brickwork. For further guidance please refer to the Timber frame or LGSF section of the Technical Manual.

Sealants

Thermally insulating filling materials should be applied to the perimeter gap around the frames (such as PU foam, or impregnated tapes). Perimeter joints needs to be continuously sealed on both the outside and the inside of the frames. Sealants should be appropriate to:

- The frame surface
- The substrate material
- Joint size and configuration
- Anticipated joint movement
- Anticipated weather exposure conditions.

Wet sealants (e.g. silicones) should be tested and classified in accordance with BS EN ISO 11600.

When using impregnated tapes, over-capping with a wet sealant is generally not required – manufacturer's instructions should be followed.

In situations where the sealant will rely on atmospheric moisture to begin curing then deep filling should be avoided.

When applying sealant:

- Apply against a firm backing, forcing it against the sides of the joint
- It should not be applied to the backing as this restricts lateral movement of the joint
- Any gaps greater than 6mm require a closed-cell oversized polyethylene (PE) foam backing rod be included
- A width to depth ratio of between 1:1 and 2:1 should be observed
- When applying a fillet joint a minimum 6mm contact to non-porous, and 10mm to porous substrates should be achieved
- Seal should be provided between any sill and frame, with a barrier created at ends of the sill

Finishing trims

The use of proprietary surface fixed finishing trims e.g. D-moulds, should be undertaken only as part of a designed junction between window and door framing and the surrounding opening.

For this purpose, surface finishing trims:

- Must be compatible with the materials used within the frame.
- Must be robust in their attachment.
- Must not be detrimental to the performance of the junction e.g. create thermal bridging.
- Must not impede the function or operation of the window or any attached fitments e.g. obstructing trickle vents, framing drainage outlet.

The inclusion of finishing trims should not be considered as a means to:

- Achieve weather tightness, unless they are included within appropriate weather and water tightness testing conducted on the window and door system.
- Extend frame dimensions where windows are undersized for the opening. Only recognised sections that form part of the window system can be used for this purpose e.g. proprietary or manufactured interlocking sections ('knock-ons'), or manufacturer led alterations using fixed sections (adhesively bonded planted sections).

Warranty stance

Gaps around windows need to be carefully considered in line with this guide and the manufacturer's installation instructions. In addition, the use of sealants and finishing trims need to be carefully considered so the integrity of the waterproof envelope is maintained.

Please note, this guide must be read in conjunction with the relevant guidance in our Technical Manual. In all circumstances, the Technical Manual version applicable to your development should be used.

Every care was taken to ensure information in this article was correct at the time of writing (March 2023). Guidance provided does not replace the reader's professional judgement and any construction project should comply with the relevant building regulations or applicable technical standards. For the most up to date LABC Warranty technical guidance please refer to your risk management surveyor and the latest version of the *LABC Warranty Technical Manual*.