

INSULATED REVEALS TO REFURBISHED BUILDINGS

Introduction

On conversions and refurbishments to existing buildings, if insulation is missed around window reveals, condensation and unsightly mould can occur on the internal room side of the wall finish. This article is based on questions and answers in order to determine a satisfactory standard in buildings being converted or refurbished. Please also refer to BRE 262 Thermal Insulation: Avoiding the risks.

Applicable sections of the Technical Manual

- Section 6 – External Walls
- Section 8 – External Windows and Doors
- Appendix D

Why is insulation often missing to reveals?

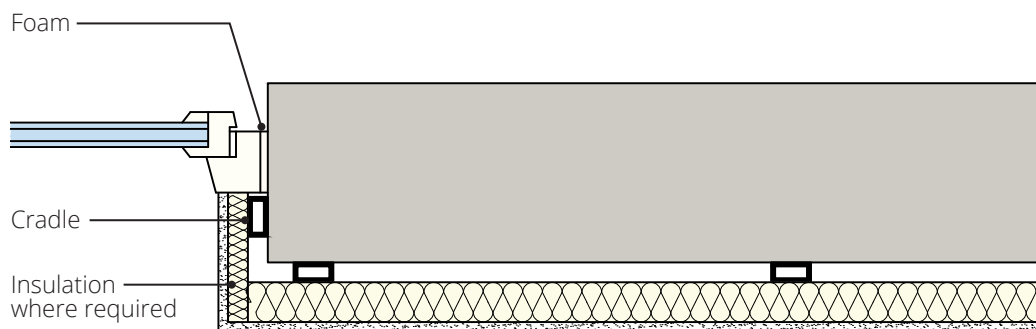
Insulation is often missing as the thickness of insulation required on a reveal is often greater than the depth of the window frame itself, resulting in builders reducing or omitting the insulation.

What is an acceptable level of insulation to a reveal?

Part L (conservation of fuel and power) of the Building Regulations recommends that the minimum performance of any insulated element should have a U value no worse than $0.7 \text{ w/m}^2\text{K}$. This U value should be used as the minimum standard for an internal reveal.

What does that equate to in insulation thickness?

This article does not attempt to answer that question as it depends on the thermal performance of the existing structure and the quality of the insulation product but as an example with a 225mm solid brick wall and using a high performance insulation board, a typical insulation thickness could be 20-25mm or more.



What other considerations should be taken into account?

- **Vapour control:** A vapour control provision should be continuous throughout the insulation layer. An EPDM bonded to the masonry reveal face and lapped to a DPC stapled around timber windows might address the risk of water ingress around window units but could create a condensation risk within the construction. Condensation should be negated by the introduction of a VCL and a thermal analysis of the proposed reveal make-up is strongly recommended.
- **Window frame thickness:** The window frame jamb needs to be deep enough to accommodate any reveal insulation, an example of where this becomes difficult, is where 'Crittall' windows are intended to be retained, as the jambs are very narrow.
- **Fixing:** Plasterboard on adhesive dabs should be avoided particularly where either the wall is of solid construction or where the reveals of a cavity wall are not separated by a DPC.
- Some insulation products can be directly applied to the wall, this would need to be proven by the third party agreement certificate (BBA or similar) or the independent lining must be continued around the reveal.

INSULATED REVEALS TO REFURBISHED BUILDINGS



What if the existing windows are to be retained and the jambs are too narrow?

There are a number of products on the market including some multi foils that are thinner which may be used. Any product to be proposed, must have third party certification**.

It should be noted, some, multi-foil insulation products require two air gaps of about 25mm per gap to function correctly.

**Where multi-foil insulation is proposed, the installation requirements and scope of approval on the third party accreditation certificate should be checked prior to installing (the certificates scope of approval might not cover the type of installation being proposed).

Other solutions may employ Aerogels which are very thermally efficient, naturally hydrophobic and can achieve the same thermal performance as PIR insulation using a thinner amount of material.

Where the jambs are too narrow and it is not practical to provide insulation, a condensation risk analysis could be provided by the developer to support the proposed solution, however the waterproofing detail around the frame still needs to be robust enough to prevent lateral damp penetration.

Our Technical Services Department will pick this up during the course of the 'Refurbishment Assessment' and discuss our concerns with the Developer during the course of this process.

The existing construction is cavity and it has been insulated with blown insulation. Do I still need to insulate the reveal?

Yes, unless the reveal incorporates an insulated cavity closer.

The walls are to be thermally upgraded externally. Does the internal reveal need to be insulated?

No, but the external wall insulation must be continuous and finish at the junction with the window or door to prevent the cold bridge.

Warranty stance

For refurbished buildings, interstitial condensation around the reveals are a common issue we come across. The method of insulating the reveal should be discussed with all interested parties early on in the design process.

Every care was taken to ensure the information in this article was correct at the time of publication. 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 technical guidance please refer to your Risk Management Surveyor and the latest version of the Technical Manual.