

General Advice on Building Regulations



These 'Advice Notes', published by LABC, focus on Building Regulation scenarios that create a lot of questions or cause misunderstandings. Their purpose is to outline and explain the issues so that professionals and members of the public can get a quick understanding of a topic. These are not 'chapter and verse' technical documents and technical specialists who want in-depth technical details should refer to the Buildings Regulations and Approved Documents published by the Department for Communities and Local Government.

RENOVATION OF THERMAL ELEMENTS

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“*Revisions in the Building Regulations applicable to the renovation of existing properties have caused issues. Building owners, their agents and contractors may be tempted to avoid the full upgrading of thermal elements to save cost and time. This may be because they don't understand how we define thermal elements, measure their proportions and estimate "payback". This Consistency Advice Note explains LABC's recommendations on the implementation of the regulations using examples provided by industry.*”

Upgrading the energy efficiency of existing properties is an important part of reducing CO₂ emissions and meeting government targets. Building owners are encouraged to improve the thermal efficiency of their buildings and Building Regulations require that where a person intends to renovate a thermal element, such work shall be carried out as is necessary to ensure that the whole thermal element complies with the requirements of Part L.

A thermal element is defined as wall, floor or roof, but not windows etc. which separates a thermally conditioned part of the building from elsewhere. The definition in Regulation 2A goes on to include "all parts of the element between the surface bounding the conditioned space and external environment".

With this interpretation, it is not appropriate to take each wall bounding the conditioned space as a separate entity for the purposes of applying the 25%. This does give rise to the scenario of renovating 'one wall at a time' to avoid regulatory control. In such situations encouragement should be given to improve the walls accordingly.

Approved documents L1B and L2B recommend U-values to be achieved where there is work of renovation to a thermal element. This is only applicable where there is a simple payback term of 15 years or less, and/or the work is technically and functionally feasible. Guidance is given in A.D. L1B where a lesser provision may be applicable and requirements reduced to a point that the payback term is achieved, or intrusion on useable floor area is reduced to less than 5%.

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Care must be taken to ensure that the derogation routes are considered correctly and are applied appropriately. Less effective (and therefore likely less expensive) insulants may require excessive thickness to achieve the recommended U-value of 0.30 W/m²K, thus increasing costs if applied externally by for example requiring alterations to roof overhang, or reducing the internal floor space beyond the 5% when applied internally. Alternatively where there is space available, a greater thickness of a less costly insulant could meet the recommended values.

There may be different options available, that will achieve the desired standards while falling within the limiting criteria of payback period and available internal space. The following points should be considered before accepting lesser standards than those recommended in the Approved Documents, particularly where material thickness is considered an obstacle:

- Is the sole justification for a lesser provision based on the grounds that it is not possible to install the required thickness of insulation?
If so determine what insulation material is proposed
- If a higher performance insulating material (although more expensive) were to be used, could the space criteria be satisfied.
- Can the cost of a higher performance insulant satisfy the payback period of 15 years or less.

Where material thickness does not present a problem, the reverse of the above should be considered.

- Is the sole justification for a lesser provision based on material cost where payback exceeds the 15 year guideline?
If so determine what insulation material is proposed
- If a less costly material (and therefore likely reduced performance for a given thickness) were to be used, is space available for the necessary material thickness.
- Would the extra thickness of the material satisfy space and payback criteria?

General Note

Different insulation materials on the market offer a wide variation in performance and cost. However, many of the leading companies have developed products specifically to meet the needs of those undertaking renovation projects. It should therefore be possible in most cases to find a solution to meet regulatory requirements. Many alternative solutions are available e.g. Glass fibre, rock fibre, expanded polystyrene, extruded polystyrene, PUR/PIR, phenolic insulation and aerogel. Generally the better the thermal performance for a given thickness, the higher the cost. However, it is reasonable to expect that the installed cost of all but the most expensive products can satisfy the payback period providing there are no substantial installation difficulties or irresolvable space constraints.

This note relates to the provisions of Part L only and does not take into account compliance with any other part of the Building Regulations.