LABC Technical Guidance Note

Subject :	Use of Multi-foil insulation products Compliance with Regulation 7 and Requirement L1			
Date :	April 2008	Ref No :	06/001	Revision : c

Purpose

LABC technical Guidance notes are provided to LABC members to inform, promote good practice and encourage consistency of interpretation for the benefit of our clients. They are advisory in nature, and in all cases the responsibility for determining compliance with the Building Regulations remains with the Local Authority concerned.
Please note that this guidance note is based upon information available at the time of issue, and may be subject to change. This guidance note supersedes all previous versions.

Introduction

For most Building Control Surveyors in the UK, our first experience of multi-foil insulations systems came in the mid 1990s when the product started to be used for insulating loft conversions. While the claims made for very high levels of insulation were almost universally greeted with scepticism within the profession, many did ultimately chose to accept multifoils insulation systems on the basis of "certification" provided by a reputable testing organisation.

Over time however, the testing which formed the basis of this original acceptance has been more widely scrutinised, particularly as the tests were not carried out to the existing National, European or International standards relating to insulation products.

The original LABC guidance note issued in August 2006 considered these issues and gave advice to LABC members based on the situation at the time, and particularly with regard to the changes to Part L.

While that advice has been kept under constant review, little has changed until recently to persuade the group it was necessary to update the guidance note. Now however there has been a Judicial Review into the introduction of some of the changes made in 2006, and this in turn has led to new guidance being issued by the DCLG. In view of this the Group have decided it was now appropriate to review the advice given, and to bring members up to date on the current situation.

Review

Why is there a problem ?

The key issue of concern relates to the way the thermal performance of multi foil products has been tested. For many years, the appropriate method for determining insulation performance has involved the use of "Hot Box" testing in accordance with National, European and International standards. There is no reason why multi-foil insulation systems cannot be tested using this method and some multifoil manufacturers have both tested and marketed their products on this basis.

Several other manufacturers however feel that these tests do not fully reflect the special characteristics of their products and hence that a test to current BS EN standards will understate the actual insulation performance that can be achieved in real installations. They have therefore sought to develop new test methods which involve comparisons (using test rigs or actual buildings) between their own product and another insulating product (usually mineral wool).

Such tests set out to demonstrate that the actual energy consumption of buildings using multi-foil insulation will be equivalent to (or better than) an identical building using mineral wool insulation, and having done so, claim the same "R" value for the multi-foil product as would be accepted for the test thickness of mineral wool.

There is currently no accepted National, European or international standard for performing tests in this way, but work is underway in Europe to examine the viability of such testing methods, and it may be that new test methodologies and standards will be developed as a result. Progress on this work has not been as quick as had been hoped however and we may well still be some way from knowing the official outcome.

Members should be aware that Circular 06/2007 issued by DCLG after the Judicial Review judgement was released states that "The *Department is currently of the view, based both on international scientific opinion and on scientific evidence commissioned and published by it , that comparative testing does not provide accurate indications of thermal performance."*

Is there a big difference in claimed performance ?

Tests carried out by the National Physical Laboratory (who have UKAS accreditation) using test methods in accordance with BS EN ISO 8990 have indicated an "R" value for multi-foil products in a range of 1.69 to 1.71 m^2K/W. Those manufacturers who use comparative testing are however, claiming "R" values for their products which range from 5 to 6 m^2K/W. In other words, multi-foil manufacturers who have used the comparative testing route are claiming the insulating properties of their product to be approximately three times better than can be verified using existing National, European or International test standards.

Do Multi-foils comply with regulation 7?

Regulation 7 (Materials and workmanship) is a generic Regulation which establishes baseline performance standards applicable to all building materials. Section 1 of the Approved Document to support Regulation 7 then goes on to give advice to Building Control Bodies as to how the fitness of materials can be demonstrated.

A key point here however is that other requirements of the Building Regulations may impose specific requirements on particular construction elements (such as walls, floors, roofs), and Part L is a good example of this. In such circumstances, it is not enough for example that a particular type of insulation product is "fit for purpose" (the regulation 7 requirement), it is also necessary that the element of which it forms part achieves a particular standard of insulation (the Part L requirement).

Do things change as a result of the 2006 changes to part L ?

There were two key changes brought about by the 2006 changes.

1. The dispensation in the 2002 version of AD L1, which allowed the sloping part of roofs exposed within loft conversions to have a "U" value of 0.3 $W/m^2.K$ was withdrawn. This had the effect of significantly raising the performance standard required in a key area of construction where multifoils are often used.
2. The new Approved Documents clarified the appropriate test requirements for multifoils by inserting a link to the 2006 version of BR443. This in turn added a paragraph (3.10.2) which required multifoils to be tested to existing National or European standards by test organisations accredited to do so.

What is the effect of the Judicial review ?

The specific link to paragraph 3.10.2 of BR 443 has now been removed as a result of the Judicial review, but this was because the Judge felt that the proper notification process to the EU had not been followed. It is important to note that the Judge did not make any judgment whatsoever on the merits of any of technical issues involved in the case. While he acknowledges that there is an underlying debate in the industry as to the appropriate means of testing, in his Judgment he clearly confirms that "*It is common ground that I should not decide this underlying and background dispute. Indeed I am not in a position to do so*".

The Judicial review does not therefore significantly change or clarify the technical issues surrounding the use of multifoils in any way.

Unfortunately LABC have become aware of claims now being made by some multifoil manufacturers that the judgment requires Building Control Bodies to accept Certification based on comparative testing as a valid means of demonstrating compliance with the Building Regulations. This is not the case, and Building Control Bodies remain entitled to make their own judgement about compliance with the regulations, based on their assessment of any information they consider relevant.

DCLG circular 06/2007 makes this clear, and also explains that the intention of the Department is to consult fully in the near future on the references to BR 443 contained in a revised set of Approved Documents for Part L. This will enable consultees to comment fully on the appropriateness of paragraph 3.10.2 of BR 443. It is on the basis of that consultation that the DCLG will decide whether the references to BR 443 should be amended.

Recommendations

The advice of the LABC technical working group is as follows –

1. The group acknowledge the outcome of the Judicial review, but remain of the opinion that the thermal performance of all insulation materials should be determined by testing to National, European or International standards by organisations which have been accredited to do so. On this basis we are not aware of any multi-foil product currently on the market that can meet the normal roof "U" value requirement of 0.2 when used as a single layer without the need for additional insulation
2. While the group supports the work currently underway to examine the viability of new test methods, our advice to members would be to wait until the outcome of the proper process is known before accepting claims of performance based on such tests. There can be no guarantee that the outcome of this work will verify the high “R” values currently claimed by some manufacturers, and hence we believe if such values are accepted now, there is a significant risk that approved buildings will fail to achieve the required level of energy performance.
3. Several multifoil manufacturers have now obtained Agrement Board certificates for their products, and we understand that as part of the assessment process, the thermal performance of these products will be determined against existing National and European standards. We would therefore consider that the use of any multifoil product which has an Agrement Board Certificate to be acceptable, providing it is used strictly in the manner set out in the certificate.
4. We would advise all members to review their policy in the light of the Judicial Review, but see no reason why those who require that the thermal performance of multifoil insulation products should be proved on the basis of current National, European or International test methods should not continue to do so.
5. This guidance note will be reviewed regularly by the Technical Working Group, and will be revised whenever the group feels that it is appropriate to do so as a result of new or updated information concerning the use of multifoil products becoming available.