APPROVED DOCUMENT L - YOUR QUESTIONS answered

helping you comply with the Building Regulations

Contents

The Building Regulations Part L were amended by Statutory Instrument (2001) No 3335 on 11 October 2001. New Approved Documents L1 and L2 giving approved guidance on how the new Part L can be complied with were published on 31 October. The amendments to the Regulations and the new Approved Documents came into effect on 01 April 2002.

There are many new features in the changes to the Regulations and the new Approved Documents that will be unfamiliar to designers, builders, building services contractors and building control inspectors alike. Local authority Building Control departments are a traditional source of help on how works can meet the regulations. To give assistance to them in this role, and to help others directly, the Office of the Deputy Prime Minister (ODPM) has asked BRE to operate this Frequently Asked Questions site as a means of delivering answers to the questions that are being raised.

Clicking on the appropriate option in the bar at the left of this page will take the reader to questions concerning either Part L1 or Part L2. Questions concerning both parts are duplicated. Information on the Building Regulations generally, including electronic versions of the Approved Documents, is available on the main ODPM Building Regulations website which can be reached by clicking on the top option.

This FAQ site also contains links to archived documents and announcements made in the course of bringing the new Approved Documents L1 and L2 into existence. These include a link to DTLR Circular 03/2001 which describes the transitional provisions for Part L. These links may be reached by clicking on "Part L document links". I

t is important however, that readers bear in mind that the answers given on these pages do not have the status of the guidance in the Approved Documents. They are interpretations that appear to their individual authors to be in line with the guidance in the new Approved Documents L1 and L2, and they have the informal support of the ODPM. The building control body is responsible for enforcement in the particular case however, and these answers are not binding.

It is intended that the range of questions and answers given here will progressively develop so that the site will meet the ODPM's aim of providing an effective channel of communications with the construction industry, with building control inspectors in both the public and private sectors, and with the public. The Building

For further information or additional questions, readers may contact either energy.br@odpm.gov.uk or environment@bre.co.uk . We regret that we cannot undertake to obtain a solution in every case.

Part L1 — Questions

- SAP 2001 has been published, what does that mean for the guidance in Approved Document L1?
- When considering the compliance of an apartment block with Part L, should it be assessed as one building or should each flat unit be considered individually?
- Can you confirm that the allowance for solar gain is indeed optional; there is no mention of it being optional in the Summary guide?
- What is meant by "centre-pane U-value", which is mentioned in ADs L1 and L2 in connection with replacement windows in existing buildings, and how is it calculated?
- Can Table A2 in Approved Document L1 or L2 be used for glazed doors?
- What U-value should I achieve if I propose to have a mixture of wood, PVC-U or metal windows and doors ?
- What is meant in Table 1 in both Approved Documents L1 and L2 by the term "roofs with integral insulation" ?
- What is meant in Table 1 in both Approved Documents L1 and L2 by the terms "pitched roof with insulation between rafters" and "pitched roof with insulation between joists" ?
- Table 1 in both Approved Documents L1 and L2 gives no guidance on U-values for pitched roofs where the insulation is fixed wholly above or wholly below the rafters or joists. What would be reasonable provision in these cases?
- Approved Document L1 recommends as reasonable provision a minimum number of 'locations' in dwellings to be equipped with low energy fittings or lampholders. If you have two of these fittings in the same room, does it count as two locations or one?
- Would a compact fluorescent lamp in an ordinary bayonet cap lampholder count as a low energy fitting in a dwelling?
- I'm building an extension to a house. Do the lighting requirements of Part L apply?
- Does Part L require high frequency electronic ballasts in compact fluorescent lamps in dwellings?
- I've heard they're more energy efficient. For dwellings, does Part L say anything about the efficiency of the luminaires used?
- Does all external lighting on dwellings have to be by fluorescent or discharge lamps?
- Where can I get more information about the lighting requirements of Part L in dwellings?

Part L1 — Answers

- **SAP 2001 has been published, what does that mean for the guidance in Approved Document L1?**

SAP 2001 was published in December 2001 and can be viewed at www.bre.co.uk/sap2001 Paper copy is available from BRECSU publications, telephone 01923 664258. The Department has indicated in a Circular letter dated 12 February 2002 to local authority and Approved Inspector Chief Executives that SAP 2001 is now approved but that calculations to SAP 1998 will be acceptable until 30 June 2002. References to the SAP in paragraphs 0.17, 0.18 and 1.28 of Approved Document L1 have been updated, and Appendix G of Approved Document L1 has been withdrawn. To see the full text of this letter visit www.safety.dtlr.gov.uk/bregs/brpub/letters/br06ab.htm

- **When considering the compliance of an apartment block with Part L, should it be assessed as one building or should each flat unit be considered individually?**

Generally, you have to consider each flat. Except where calculating the ground floor U-value for the flats: Paragraph C4 permits you to adopt either basis.

- **Can you confirm that the allowance for solar gain is indeed optional; there is no mention of it being optional in the Summary guide?**

The solar gain allowance is optional, as described in Paragraph 1.23 et seq in ADL1. Step 8 in the Summary guide (on Page 5 of ADL1) should therefore be treated as an option (even though it doesn't say so, in the interests of brevity)

- **What is meant by "centre-pane U-value", which is mentioned in ADs L1 and L2 in connection with replacement windows in existing buildings, and how is it calculated?**

The centre-pane U-value is the U-value determined at the centre of the glazing, ie without consideration of the frame or of the spacer bar at the edge of the glazing. The centre-pane U-value is calculated according to BS EN 673, 'Glass in building - Determination of thermal transmittance (U value) - Calculation method'.

- **Can Table A2 in Approved Document L1 or L2 be used for glazed doors?**

The data in Table A2, in conjunction with Table A3, can be used for patio doors and similar, where the relative area proportions of glazing and frame are similar to those of an aluminium window. For other cases, Tables A2 and A3 can be used to obtain the U-value of the glazed part. The U-value of the whole door is then the area-weighted average of the glazed part and the non-glazed part.

- **What U-value should I achieve if I propose to have a mixture of wood, PVC-U or metal windows and doors ?**

The Elemental Methods in Approved Documents L1 and L2 give the U-value for windows, doors and rooflights averaged for the whole building as 2.2 W/m^{2}K if these fittings have metal frames, and 2.0 W/m^{2}K if they have wood or PVC frames. Where a mixture of framing materials is proposed, a way of showing compliance would be to achieve the U-value applicable for the largest area of openings. Example: A proposed dwelling is to have windows and front and back door having total area of 20 m**2** in wood frames, and an aluminium-framed patio door of area 5 m**2**. In this case it would be reasonable, when using the Elemental Method to achieve an overall average U-value for windows, doors and rooflights of (2.0 W/m^{2}K).

- **What is meant in Table 1 in both Approved Documents L1 and L2 by the term "roofs with integral insulation" ?**

Roofs with integral insulation means roofs that have insulation sandwiched between metal or wood panels that are either site-assembled or factory assembled, or other structural elements that are intended to provide substantial insulation as well as structural support. Examples illustrating what is meant include:-

- factory-assembled, metal-faced composite insulation panels,
- site-assembled twin-skin metal cladding sandwiching insulation and metal sub-framing,
- factory-assembled structural insulated panel systems,
- reinforced aerated structural concrete panel systems.

- **What is meant in Table 1 in both Approved Documents L1 and L2 by the terms "pitched roof with insulation between rafters" and "pitched roof with insulation between joists" ?**

These terms refer to those situations where insulation is applied after the assembly of the rafters or joists. The insulation can be fixed above, between or below the structural member or any combination of this.

- **Table 1 in both Approved Documents L1 and L2 gives no guidance on U-values for pitched roofs where the insulation is fixed wholly above or wholly below the rafters or joists. What would be reasonable provision in these cases?**

The Elemental Method is intended to assist builders who do not wish to undertake calculations, but Table 1 cannot be exhaustive. Where designs are proposed that are not covered by the entries in the table, it may be prudent to adopt other methods for showing compliance. However, in the Department's view it would be reasonable, for pitched roofs where the insulation is fixed wholly above or wholly below the rafters or joists, to achieve U-values of 0.2 W/m^2K or 0.16 W/m^2K respectively.

- **Approved Document L1 recommends as reasonable provision a minimum number of 'locations' in dwellings to be equipped with low energy fittings or lampholders. If you have two of these fittings in the same room, does it count as two locations or one?**

It counts as two locations.

- **Would a compact fluorescent lamp in an ordinary bayonet cap lampholder count as a low energy fitting in a dwelling?**

No. The AD recommends lampholders that can only take compact fluorescent lamps. These normally have a ballast and starter within the lampholder or fitting, and a special socket which takes pins on the base of the lamp. This is to discourage the immediate replacement of the lamp with a tungsten one. The special lampholder with control gear is also a more sustainable solution because the ballast does not have to be replaced every time a lamp fails.

- **I'm building an extension to a house. Do the lighting requirements of Part L apply?**

Yes, if new rooms are created. One way to comply with the requirement would be to show that lampholders or fittings for energy efficient lamps have been installed in the extension, in at least the number of locations given in Table 4 in Approved Document L1. So in a 1-3 room extension, a single energy efficient fitting or lampholder would comply.

- **Does Part L require high frequency electronic ballasts in compact fluorescent lamps in dwellings? I've heard they're more energy efficient.**

Both magnetic or high frequency electronic ballasts would meet the requirements of Part L, but high frequency ballasted types have several advantages. As well as being more energy efficient, fittings are smaller and lighter. Flicker is eliminated, and they start immediately. The electronic start is also kinder to the lamp, resulting in increased life.

- **For dwellings, does Part L say anything about the efficiency of the luminaires used?**

An efficient luminaire or fitting is not a requirement of Part L in dwellings (though Approved Document L2 does give recommendations for offices, warehouses and industrial buildings). However it is good practice to ensure the fitting is efficient at emitting light. This depends on the shape of the lamp, the shape of the light shade or diffuser, and the material used. As a guide at least half the light from the lamp should come out of the fitting.

- **Does all external lighting on dwellings have to be by fluorescent or discharge lamps?**

No, external lighting with tungsten or tungsten halogen lamps would comply with the requirement if it automatically went out when there was enough daylight, and when not required at night (for example if it had a presence detector that turned the light on for a limited time).

- **Where can I get more information about the lighting requirements of Part L in dwellings?**

BRE Information Paper 'Dwellings and energy efficient lighting: new regulation Part L' gives details. It is available from www.brebookshop.com or publishers Construction Research Communications, telephone 020 7505 6622.

Part L2 — Questions

- Carbon performance rating method - How are fan-coil systems handled in the CPR procedure?
- Is "green electricity" - i.e. electricity generated by sources such as wind farms, tidal barrages, or by burning biomass/waste - treated more favourably in Part L's calculations than electicity generated rom conventional sources? Are such green sources treated differently in the Carbon Index Calculation and would the use of this form of electricity remove the restrictions placed on electricity within the elemental and the target u-value procedures?
- Why can't "portable buildings" made from sub-assemblies be erected using components made after 31 December but before 1 April 2002 (see Paragraph 0.26b of ADL2)?
- What is meant by "centre-pane U-value", which is mentioned in ADs L1 and L2 in connection with replacement windows in existing buildings, and how is it calculated?
- Can Table A2 in Approved Document L1 or L2 be used for glazed doors?
- I'm designing the lighting for a restaurant. Can I count some of the lighting as display lighting? Does the 500W exemption in Paragraph 1.46 in AD L2 apply?
- We're relighting part of our building. Does Part L2 apply?
- To improve energy efficiency we'd like to retrofit reflectors into our existing light fittings. Does this come under Part L2?
- Are any forms of lighting exempt from Part L2?
- What about track mounted lighting?
- We're doing the lighting for a theatre. Which clauses in Approved Document L2 apply?
- In the foyer of our new office we'd like to include some domestic type pendant fittings to give a welcoming touch. But the manufacturers don't have any light output ratio data for these luminaires. How can we show compliance with Part L?
- Where can I get more information about the lighting requirements of Part L? Has CIBSE Guidance Note GN 4 been updated to explain the new lighting provisions?
- Provisions against solar overheating - Item 4 in the Summary Guide, Paragraph 1.20 et seq and Appendix H: If a discrete zone in a building fails the overheating criteria, does the whold building fail?
- Provisions against solar overheating - Item 4 in the Summary Guide, Paragraph 1.20 et seq and Appendix H: What area should be taken into account when calculating solar overheating potential?
- Following the amendment to the Building Regulations, what kinds of work on controlled services and fittings (e.g. new installations, extensions or modifications of existing installations) would be considered to be "building work" under Regulation 3 and would therefore need to comply with Requirement L2?
- In a non-domestic building, can you trade off rooflight area against U-values; for example, if the rooflight area is 10% instead of 20%, as given in Table 2 of ADL2, what can the U-values be?
- Should smoke vents be taken into account in assessing the U-value of fabric elements?
- What U-value should I achieve if I propose to have a mixture of wood, PVC-U or metal windows and doors ?

- Does the wall area used to derive fenestration allowance in Table 2 include the area of wall below ground that encloses basements ?

- What is meant in Table 1 in both Approved Documents L1 and L2 by the term "roofs with integral insulation" ?

- What is meant in Table 1 in both Approved Documents L1 and L2 by the terms "pitched roof with insulation between rafters" and "pitched roof with insulation between joists" ?

- Table 1 in both Approved Documents L1 and L2 gives no guidance on U-values for pitched roofs where the insulation is fixed wholly above or wholly below the rafters or joists. What would be reasonable provision in these cases?

- ADL2 says that, for schools, a way of showing compliance would be to follow BB 87 (1997). BB 87 was produced in line with ADL 1995. Why should schools have this relaxation?

- ADL2 says that, for hospitals, a way of showing compliance would be to follow the NHS Estates publication "Achieving energy efficiency in new hospitals" 1994. This was produced in line with ADL 1995. Why should hospitals have this relaxation?

Part L2 — Answers

- **Carbon performance rating method - How are fan-coil systems handled in the CPR procedure?**

The cooling capacity of the fan coils is not part of the calculation - the input power of the refrigeration plant (including the power needed to reject heat to atmosphere, such as pumps and fans associated with cooling towers) is the relevant parameter. When using the whole office building version of the CPR procedure, the heating capacity of the fan coils does not come into the calculation either - the boiler input power (again including all the auxiliaries) is the parameter used. Fans and pumps associated with moving the "coolth" and heat around the building are part of the distribution system. So the fan-coil units' fan input powers should be included as part of the cooling and heating distribution systems, together with the input powers of the pumps that circulate the heated or cooled water to them.

- **Is "green electricity" - i.e. electricity generated by sources such as wind farms, tidal barrages, or by burning biomass/waste - treated more favourably in Part L's calculations than electicity generated rom conventional sources? Are such green sources treated differently in the Carbon Index Calculation and would the use of this form of electricity remove the restrictions placed on electricity within the elemental and the target u-value procedures?**

"Green electricity" imported from the national grid is not admissible in Part L annual carbon accounting. It is taken into account in the "national mix" calculations that support the value in Table 6 on Page 18 in ADL2. See Note 2 to that table concerning on-site generation.

- **Why can't "portable buildings" made from sub-assemblies be erected using components made after 31 December but before 1 April 2002 (see Paragraph 0.26b of ADL2)?**

The 31 December date was an editorial error which as been rectified in a Circular letter dated 12 February 2002 to local authority and Approved Inspector Chief Executives. The circular letter provides substitute text for Paragraph 0.26b containing the correct cut-off date - 1 April 2002. The detailed text is contained in Annex B to the letter which can be viewed at: http://www.safety.dtlr.gov.uk/bregs/brpub/letters/br06ab.htm

- **What is meant by "centre-pane U-value", which is mentioned in ADs L1 and L2 in connection with replacement windows in existing buildings, and how is it calculated?**

The centre-pane U-value is the U-value determined at the centre of the glazing, ie without consideration of the

frame or of the spacer bar at the edge of the glazing. The centre-pane U-value is calculated according to BS EN 673, 'Glass in building - Determination of thermal transmittance (U value) - Calculation method'.

- **Can Table A2 in Approved Document L1 or L2 be used for glazed doors?**

The data in Table A2, in conjunction with Table A3, can be used for patio doors and similar, where the relative area proportions of glazing and frame are similar to those of an aluminium window. For other cases, Tables A2 and A3 can be used to obtain the U-value of the glazed part. The U-value of the whole door is then the area-weighted average of the glazed part and the non-glazed part.

- **I'm designing the lighting for a restaurant. Can I count some of the lighting as display lighting? Does the 500W exemption in Paragraph 1.46 in AD L2 apply?**

The 500W exemption only applies to office, storage and industrial buildings. However lighting of serveries in restaurants, and bar counters, counts as display lighting for the purposes of Part L. Lighting provided to highlight dining tables could also be considered as display lighting. This would allow the use of tungsten halogen lamps, for example, for this type of lighting (see Section 1.52 of the AD). General lighting in kitchens, circulation areas and toilets ought to comply with the general lighting recommendations in Paragraph 1.48.

- **We're relighting part of our building. Does Part L2 apply?**

The lighting requirements apply in replacement work, where the new lighting covers more than 100 m2 of floor area (whether this is the whole building or just part of it). Replacement work implies that whole luminaires (with or without wiring), or lighting controls, are being replaced. So just changing fluorescent tubes would not count.

- **To improve energy efficiency we'd like to retrofit reflectors into our existing light fittings. Does this come under Part L2?**

No, if only part of the luminaires are being replaced, the work does not come under Part L2.

- **Are any forms of lighting exempt from Part L2?**

Exterior lighting (in buildings other than dwellings) is exempt, and portable lighting that is not fixed to the building. Emergency escape lighting and specialist process lighting are also exempt from the lighting requirements. Specialist process lighting could include illuminated signs and displays; stage lighting; coloured lighting; items such as crystal chandeliers which are principally art objects with integral lighting, rather than decorative luminaires; and specialist task lighting, for example in TV and photographic studios, operating theatres and doctors' and dentists' surgeries.

- **What about track mounted lighting?**

Track mounted lighting that is installed as part of building work, that is to say as part of lighting systems serving more than 100m2 being installed in a new building or as part of a refurbishment project does not count as portable lighting and is not exempt.

- **We're doing the lighting for a theatre. Which clauses in Approved Document L2 apply?**

The stage lighting and any illuminated signage are exempt from Part L2. Lighting of the auditorium counts as display lighting; Paragraphs 1.50-1.52 and 1.59 describe ways to comply. General lighting of most other areas (including foyer, circulation areas and back of house areas) will be covered by Paragraphs 1.48 and 1.58.

- **In the foyer of our new office we'd like to include some domestic type pendant fittings to give a welcoming touch. But the manufacturers don't have any light output ratio data for these luminaires. How can we show compliance with Part L?**

According to AD L2, the lighting efficacy requirements need not be applied to up to 500 circuit Watts of installed lighting capacity in an office, storage or industrial building. This allows some lighting with non-photometered luminaires. Alternatively, if you can't persuade the manufacturer to obtain photometric data, you could assume an LOR of zero in the luminaire lumens per watt calculation in Paragraph 1.44. The building as a whole may still comply if there are enough highly efficient luminaires elsewhere.

- **Where can I get more information about the lighting requirements of Part L? Has CIBSE Guidance Note GN 4 been updated to explain the new lighting provisions?**

GN4 hasn't been updated but a BRE Report 'Energy efficient lighting: Part L of the Building Regulations explained' gives full details. It is available from www.brebookshop.com or publishers Construction Research Communications (telephone 020 7505 6622).

- **Provisions against solar overheating - Item 4 in the Summary Guide, Paragraph 1.20 et seq and Appendix H: If a discrete zone in a building fails the overheating criteria, does the whold building fail?**

It should be the designers' aim to avoid such situations in their pursuit of satisfying clients' comfort expectations. However there may be difficult situations where it is impractical to attempt reducing gains to the "norm". In these special circumstances, common sense must prevail. Some suggestions are:

i) If the building is an air conditioned office, compliance would be achieved if the CPR is no greater than the value in Table 11: this is implied by Paragraph 1.20b and would allow higher solar loads in a "difficult" space, e.g. a SW corner office to be compensated by lower loads elsewhere.

ii) If the building is not mechanically cooled, then there id no simple way of providing such offsetting. The "difficult" space - the SW corner zone for instance - could be treated as part of a main façade, but this would only be justified if the zone was part of an open plan area or was otherwise effectively thermally coupled with the façade in which it was being averaged.

- **Provisions against solar overheating - Item 4 in the Summary Guide, Paragraph 1.20 et seq and Appendix H: What area should be taken into account when calculating solar overheating potential?**

As stated in Paragraph 1.22, the area in question is the internal area as seen from the treated space. This excludes the floor and ceiling voids.

- **Following the amendment to the Building Regulations, what kinds of work on controlled services and fittings (e.g. new installations, extensions or modifications of existing installations) would be considered to be "building work" under Regulation 3 and would therefore need to comply with Requirement L2?**

As a result of the amendment to Regulation 2 of the Building Regulations, the definition of controlled service or fitting has been extended to include services or fittings in relation to which Part L imposes a requirement. Part L deals with various services but we can illustrate the effect of the changes by considering as examples the following works involving air conditioning systems:
(Note that those parts of Requirement L2 which specifically deal with air conditioning systems concern systems serving more than 200 m^2.)

1) If a new air conditioned building is to be built, the air conditioning systems serving more than 200 m2 within it would need to comply.

2) Where an existing building that is not air conditioned is to have an air conditioning system serving more than 200 m^2 installed, then the work would have to comply.

3) If the air conditioning systems serving more than 200 m^2 in an existing building are to be extended, then the extension works need to comply.

4) If an existing air conditioned building is to have some or all of the a.c. equipment serving more than 200 m^2 replaced, then the new (replacement) system(s) would need to comply, irrespective of what was there before.

5) However, if someone chooses to alter an existing air conditioning system serving more than 200 m^2 by, for example, re-arranging ductwork distribution systems to suit new room layouts or by changing the dispersal of cooling loads around the buildings, such as by moving computers from one floor to another, the need for the works to comply would depend upon the individual facts of the case, as judged by the Local Authority.

- **In a non-domestic building, can you trade off rooflight area against U-values; for example, if the rooflight area is 10% instead of 20%, as given in Table 2 of ADL2, what can the U-values be?**

Window or rooflight area can be traded off against window or rooflight U-value. If the window or rooflight area is less than in Table 2, the window or rooflight U-value can be higher than in Table 1, within the constraint of the heat loss criterion given in Paragraph 1.15.

Window or rooflight area cannot, however, be traded off against opaque fabric, except to the limited extent permitted by Paragraph 1.16 b). For example, the Elemental U-value for a flat roof in Table 1 is 0.25 W/m^2 K. If the trade-off provisions of Paragraph 1.15 are used to allow for a rooflight area of less than 20%, the maximum U-value of opaque roof is 0.27 W/m^2 K.

- **Should smoke vents be taken into account in assessing the U-value of fabric elements?**

Not directly. The U-value of the wall or roof should be determined in the absence of the smoke vents. The smoke vents themselves should be insulated as far as ispracticable.

- **What U-value should I achieve if I propose to have a mixture of wood, PVC-U or metal windows and doors ?**

The Elemental Methods in Approved Documents L1 and L2 give the U-value for windows, doors and rooflights averaged for the whole building as 2.2 W/m^2K if these fittings have metal frames, and 2.0 W/m^2K if they have wood or PVC frames. Where a mixture of framing materials is proposed, a way of showing compliance would be to achieve the U-value applicable for the largest area of openings. Example: A proposed dwelling is to have windows and front and back door having total area of 20 m^2 in wood frames, and an aluminium-framed patio door of area 5 m^2. In this case it would be reasonable, when using the Elemental Method to achieve an overall average U-value for windows, doors and rooflights of (2.0 W/m^2K).

- **Does the wall area used to derive fenestration allowance in Table 2 include the area of wall below ground that encloses basements ?**

No. The "area of exposed wall" in Table 2 should be taken as meaning exposed wall above ground floor level. The finished internal floor surface level can be the datum where it is at or near outside ground surface level. Otherwise the datum should be taken as outside ground surface level if the ground is flat or the mean level around the building otherwise. For all cases the upper datum is the soffit of the finished internal ceiling over the occupied space on the top storey.

- **What is meant in Table 1 in both Approved Documents L1 and L2 by the term "roofs with integral insulation" ?**

Roofs with integral insulation means roofs that have insulation sandwiched between metal or wood panels that are either site-assembled or factory assembled, or other structural elements that are intended to provide substantial insulation as well as structural support. Examples illustrating what is meant include:-

- factory-assembled, metal-faced composite insulation panels,
- site-assembled twin-skin metal cladding sandwiching insulation and metal sub-framing,
- factory-assembled structural insulated panel systems,
- reinforced aerated structural concrete panel systems.

- **What is meant in Table 1 in both Approved Documents L1 and L2 by the terms "pitched roof with insulation between rafters" and "pitched roof with insulation between joists" ?**

These terms refer to those situations where insulation is applied after the assembly of the rafters or joists. The insulation can be fixed above, between or below the structural member or any combination of this.

- **Table 1 in both Approved Documents L1 and L2 gives no guidance on U-values for pitched roofs where the insulation is fixed wholly above or wholly below the rafters or joists. What would be reasonable provision in these cases?**

The Elemental Method is intended to assist builders who do not wish to undertake calculations, but Table 1 cannot be exhaustive. Where designs are proposed that are not covered by the entries in the table, it may be prudent to adopt other methods for showing compliance. However, in the Department's view it would be reasonable, for pitched roofs where the insulation is fixed wholly above or wholly below the rafters or joists, to achieve U-values of 0.2 W/m^2K or 0.16 W/m^2K respectively.

- **ADL2 says that, for schools, a way of showing compliance would be to follow BB 87 (1997). BB 87 was produced in line with ADL 1995. Why should schools have this relaxation?**

When ADL2 was published the DfES indicated that a revised version of BB 87 was expected to be published later in 2002 that would be in line with ADL2. In addition the DfES explanatory leaflet "Guidance on the Constructional Standards for Schools" refers to the new constructional standards included in ADL2 and this can be downloaded from the Education Department's website at: http://www.teachernet.gov.uk/sbconstand

- **ADL2 says that, for hospitals, a way of showing compliance would be to follow the NHS Estates publication "Achieving energy efficiency in new hospitals" 1994. This was produced in line with ADL 1995. Why should hospitals have this relaxation?**

NHS Estates have no plans to amend the guidance publication, which was published in 1994 before the 1995 edition of ADL (published in June 1994) came into effect. However the Minister of State for Health wrote to Chief Executives of NHS hospitals in April 2001 indicating that new hospitals should achieve energy performance no worse than 35-55 GJ per 100m3. ODPM consider this would normally be a reasonable target for private hospitals too. The minister of State's letter and the associated guidance, which itself refers to the Building Regulations on energy efficiency, can be viewed on the NHS Estates website on sustainability at: http://www.nhsestates.gov.uk/sustainable_development/ and by following the link on the page header to the second section labeled "ENERGY"