

## **Local Authority Building Control**

### **Technical Information Note 2 Consequential Improvements**

# Introduction

This guide on consequential improvements only highlights the main works likely to be encountered where consequential improvements will apply. The full requirements can be found with in Approved documents and L2B of the Building Regulation 2010 (as amended).

## Consequential Improvements

### Consequential Improvements Required under L2B (Buildings other than dwellings)

Where ever a building over 1000m<sup>2</sup> is being extended, or having a fixed building service fitted for the first time, or having the installed capacity of any fixed building services increased improvements to the existing building will be required (see enclosed flow diagram).

#### Consequential improvements on extended buildings

Where a building is extended or the habitable area is increased improvements need to be undertaken to a value of no less than 10% of the value of the principal works. Improvements that in ordinary circumstances are practical and economically feasible can be seen in table 1.

<b>Table 1 Improvements that are practical &amp; economically feasible</b>	
1	Upgrading heating systems more than 15 years old by the provision of new plant or improved controls
2	Upgrading cooling systems more than 15 years old by the provision of new plant or improved controls
3	Upgrading air handling systems more than 15 years old by the provision of new plant or improved controls
4	Upgrading general lighting systems that have an average lamp efficacy of less than 40 lamp lumens per circuit watt and that serve areas greater than 100m <sup>2</sup> by the provision of new luminaries or improved controls
5	Installing energy metering following the guidance given in CIBSE TM 39
6	Upgrading thermal elements which have U values worse than those set out in column (a) of table 3 to that shown in column b
7	Replacing existing windows, roof windows or roof lights (but excluding display windows) or doors (but excluding high usage entrance doors) which have a U value worse than 3.3 W/m <sup>2</sup> K with fittings meeting the requirements of table 2.
8	Increasing the on site low and zero carbon (LZC) energy generating systems if the existing on site systems provide less than 10% of on site energy demand, provided the increase would achieve a simple payback of seven years or less.
9	Measures specified in the Recommendations Report produced in parallel with a valid Energy Performance Certificate.

## Consequential improvements on installed building services

Where it is proposed to install a fixed building service as a first installation or as an installation, which increases the installed capacity per unit area of the existing service, reasonable provision would be to:

- a) firstly improve the fabric of those parts of the building served by the service where this is economically feasible and
- b) Then additionally make improvements in line with table 1 (please note that the costs for any improvements undertaken as a result of (a) above cannot be taken into account when complying with the additional works).

For the purpose of these regulations, the installed capacity of a fixed building service is defined as the design output of the distribution system output devices (the terminal units) serving the space in question, divided by the total useful floor area of that space.

Reasonable provision for improving the building fabric served by the service (a above) would be to follow the guidance below providing the work is technically, functionally and economically feasible (please note that this work is not limited to the 10% threshold):

Where the installed capacity per unit area of a heating system is increased the thermal elements which have U values worse than those set out in column (a) of table 3 should be upgraded and existing windows, roof windows or roof lights (but excluding display windows) or doors (but excluding high usage entrance doors) which have U values worse than 3.3 W/m<sup>2</sup>K should be replaced to the standard set out in table 2.

<b>Table 2 Standards for controlled fittings</b>	
<b>Fitting</b>	<b>Standard</b>
Windows, roof windows and glazed rooflights <sup>1</sup>	1.8 for the whole unit
Alternative option for windows in buildings that are essentially domestic in character <sup>2</sup>	A window energy rating of Band C
Plastic rooflights <sup>3</sup>	1.8
Pedestrian doors with more than 50% of its area glazed	1.8
High usage entrance doors for people	3.5
Vehicle access and similar large doors	1.5
Roof ventilators (including smoke extract ventilators)	3.5
1. Display windows are not required to meet the standard given in this table. 2. For example, student accommodation, care homes and similar uses where the occupancy levels and internal gains are essentially domestic in character. 3. The relevant rooflight U-value for checking against these limits is that based on the developed area of the rooflight, not the area of the roof aperture.	

<b>Table 3 Upgrading retained thermal elements</b>		
<b>Element</b>	<b>U-value W/m<sup>2</sup>K</b>	
	<b>(a) Threshold</b>	<b>(b) Improved</b>
Wall – cavity insulation	0.70	0.55
Wall – <u>external or internal insulation</u>	0.70	0.30
Floors	0.70	0.25
Pitched roof – insulation at ceiling level	0.35	0.16
Pitched roof – insulation at rafter level	0.35	0.18
Flat roof or roof with integral insulation	0.35	0.18

Where the installed capacity per unit area of a cooling system is increased the thermal elements within heated areas which have U values worse than those set out in column (a) of table 3 should be upgraded and if the area of windows, and roof windows (but excluding display windows) within the area exceeds 40% of the façade or the area of roof lights exceeds 20% of the area of the roof and the design solar load exceeds 25W/m<sup>2</sup> then solar control provisions should be upgraded such that at least one of the following criteria is met:

- i. the solar gain is no greater than 25W/m<sup>2</sup>,
- ii. the design solar load is reduced by at least 20%,
- iii. the effective g value is no worse than 0.3, and

Any general lighting system within the area served by the relevant **fixed building service** which has an average lamp efficacy of less than 45 lamp-lumens per circuit-watt should be upgraded with new luminaires and/or controls following the guidance in the *Non-Domestic Building Services Compliance Guide*.

## **Additional Information**

Whilst every care has been taken in compiling this guidance note the Building Regulations are changed from time to time so it is important that you check that the information here is still current. The details highlighted in this guidance note are for general scenarios and each case should be taken on its own merits.

### **If in doubt please do not hesitate to contact:**

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# Do consequential improvements apply?

## Buildings other than dwellings Regulation L2B

