

The Building Regulations Part L2A - 2010 Revision - A Quick Guide to the Changes

Summary

The Building Regulations Part L2A applies to energy use in new build non-domestic buildings. This Regulation is being revised for publication in April 2010 with the changes coming into force in October 2010. Guidance on the introduction from the Department of Communities is pending.

The two main aims for this revision are a 25% further reduction in regulated CO₂ emissions and reducing the difference between claimed and real life performance.

The main consequences of this revision are -:

- A predicted increase in capital cost of around 1%.
- Greater scrutiny of construction standards for compliance.
- Limitations on glazing area without shading or solar control.
- Limited effect on the cost of producing compliance submissions.

The New Target

- Aims to reduce overall CO₂ emissions by 25%
- Uses an aggregate approach
- Aims for marginal cost for each type of building to be the same

In other words, a building where CO₂ savings can be made relatively cheaply would be expected to achieve a greater than 25% reduction.

Below are the estimated improvements calculated for the impact assessment for the revision. Also included is the estimated increase in capital cost associated with the improvement.

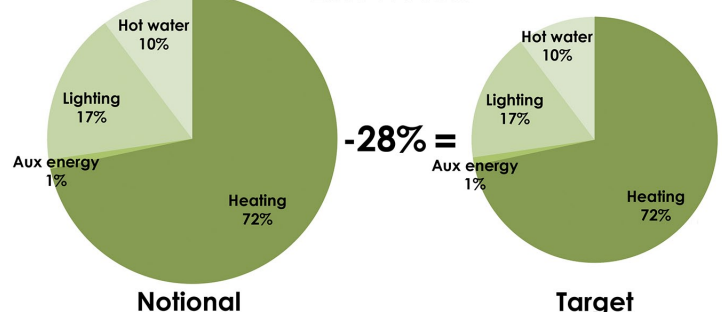
	Shallow plan (nat vent)	Shallow plan (air con)	Deep plan (air con)	Ware-house unlit	Ware-house rooflit	Hotel	School	Retail	Super-market
Reduction in CO ₂ emissions	27%	33%	19%	22%	36%	25%	23%	33%	11%
Increase in capital cost	0.7%	1.2%	1.2%	0.2%	0.7%	0.1%	0.1%	6.1%	0.3%

The aim, of course, would be to beat this cost increase through effective design. MC Building Physics can assist in this process.

The process for demonstrating compliance is unchanged, a software tool is used to model the building and a target (TER) and actual building (BER) CO₂ emission rate are calculated. Compliance is achieved if the BER is less than the TER.

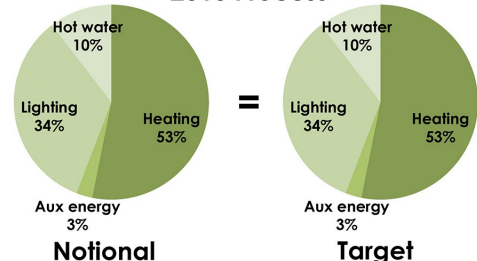
For the current regulations (2006) the target for the building is set by taking a notional building of typical efficiency (for 2002) and applying an improvement factor to it, which varies according to building type.

2006 Process



The 2010 revision changes this and now the notional building is specified to the standard required by the regulations.

2010 Process



The specification of the notional building varies according to how each space is glazed and the heating fuel used.

This sets the notional space U-values, heating system efficiencies, lighting system efficiency and fuel carbon emission factor.

The main result of this change is to make prediction of what the target will be without modelling very difficult. Hence production of the model at an early stage will be essential.

The Building Regulations Part L2A - 2010 Revision - A Quick Guide to the Changes

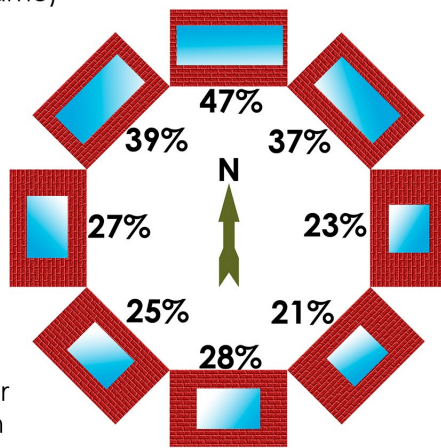
Solar gain and overheating risk

Solar gain in all types of building (natural vent, mechanical vent, air conditioned) will now have to be limited.

The criterion for this is to not exceed the cumulative solar gain from April to September for a facade or roof with the following specification -:

- East facing
- 40% glazed (10% frame)
- Solar transmission (g-value) of 0.46
- Horizontal roof
- 15% glazed (25% frame)
- Solar transmission (g-value) of 0.46.

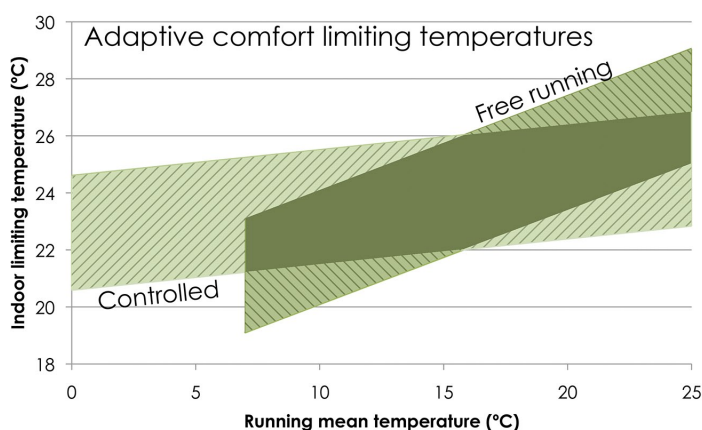
This diagram shows (from analysis for London) the permissible glazing areas for a basic clear double glazed unit on each facade.



The overheating criteria will now be decided between designer and client. Typically guidance will come from CIBSE Guide A which itself is due for revision early in 2010.

Current thinking is for an adaptive approach to be adopted where the temperature at which comfort is achieved is related to the temperature over the preceding days.

As a member of the relevant Guide section steering group MC Building Physics can offer advice on the choice of criteria.



Ensuring high performance in use

One aim of this revision is to ensure that building performance is modelled accurately and achieved when built.

The main aspects of this are thermal bridging and air permeability in the envelope.

Thermal bridging due to joints and around openings must now be represented in the building model using one of three methods.

- An accredited detail
- Calculated value (increased by 25% as safety factor)
- Default value (increased by 50% as safety factor)

The difference between a poorly detailed wall and a good one can add 5% to the heating demand. In naturally ventilated buildings this could seriously affect the chances of achieving compliance.

The calculation of BER for final submission must use the measured air leakage rate and still achieve the target emission rate.

The submission must also include a commissioning plan and a logbook of sufficient quality to allow the users of the building to operate it in an energy efficient manner.

MC Building Physics and the New Part L

MC Building Physics can offer the following -:

- Part L2 submissions for the 2006 version.
- Advice on submissions for the 2010 version.
- Calculation of thermal bridging values.
- Early stage scoping studies (zero level).
- Energy and carbon strategy.
- Natural ventilation strategy.
- Low and zero carbon system feasibility.
- Answers to more complex design questions.
- Passivhaus calculations.
- EPCs to level 5.

Please see our website for a larger range of offerings.

If you would like to discuss any issues related to the new Part L2 or any other aspects of the offering please get in touch.

Phone : 01474 888 121
email : m.collin@mccarbon.co.uk
Web : www.mcbp.co.uk