CIBSE LOW CARBON CONSULTANTS REGISTER – SESSION 4
INTRODUCTION TO BUILDING REGULATIONS PART L

I – Prophets energy services 03012013
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• Building Regulations
  – Are made for specific purposes: health and safety; energy conservation and the welfare and convenience of disabled people
  – The technical requirements are conveyed in Parts A to P of Schedule 1 to the Regulations
    • Part L is one such part of Schedule 1

• Approved Documents
  – Provide practical guidance with respect to the technical requirements of the Building Regulations
• Introduced 1976
  – After 1973 oil crisis
• Updated 1982 – better insulation
• Updated 1990 – better insulation
• Updated 1995 – better insulation and SAP
• Updated 2002 – change to carbon focus
  – Anticipated carbon saving 1.4 Mt/year by 2010
• The 2006 update
  – Sustainable and Secure Buildings Act 2005
  – Response to climate change
• The 2010 update
  – Tighter limits
  – Revisions to standards
  – Average 25% CO2 reduction over 2006 standards
Key Drivers Part L 2010

• **UK Low Carbon Transition Plan**
  Lays out future requirements and policy.

• **EU Energy Performance of Buildings Directive**
  Certification of Buildings energy Performance.

• **The Climate Change Act 2008**
  Creates a new approach to managing and responding to climate change in the UK

• **CRC Energy Efficiency Scheme**
  Central to the UK’s strategy for improving energy efficiency and reducing carbon dioxide (CO2) emissions
The Approved Documents

- Are intended to provide guidance for some of the more common building situations
- There may be alternative ways of achieving compliance
- There is no obligation to adopt any particular solution contained in the AD

- ADL1A – New dwellings
- ADL1B – Existing dwellings
- ADL2A – New non-domestic buildings
- ADL2B – Existing non-domestic buildings
- ADF1 – Means of Ventilation
- Extensive use of second-tier documents
- Reference to many third tier documents
KEY FEATURES OF PART L
Schedule 1 – Conservation of Fuel and Power

L1. Reasonable provision shall be made for the conservation of fuel and power in buildings by:
   (a) limiting heat gains and losses-
   (i) through thermal elements and other parts of the building fabric; and
   (ii) from pipes, ducts and vessels used for space heating, space cooling and hot water services;
   (b) providing fixed building services which—
   (i) are energy efficient;
   (ii) have effective controls; and
   (iii) are commissioned by testing and adjusting as necessary to ensure they use no more fuel and power than is reasonable in the circumstances; and
Schedule 1 – Conservation of Fuel and Power

(c) providing to the owner sufficient information about the building, the fixed building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances.
Consideration of high-efficiency alternative systems for new buildings – Regulation 25A

(1) Before construction of a new building starts, the person who is to carry out the work must analyse and take into account the technical, environmental and economic feasibility of using high-efficiency alternative systems (such as the following systems) in the construction, if available -
(a) decentralised energy supply systems based on energy from renewable sources;
(b) cogeneration;
(c) district or block heating or cooling, particularly where it is based entirely or partially on energy from renewable sources; and
(d) heat pumps.

(2) The person carrying out the work must -
(a) not later than the beginning of the day before the day on which the work starts, give the local authority a notice which states that the analysis referred to in paragraph (1) -
(i) has been undertaken;
(ii) is documented; and
(iii) the documentation is available to the authority for verification purposes; and
(b) ensure that a copy of the analysis is available for inspection at all reasonable times upon request by an officer of the local authority.

(3) An authorised officer of the local authority may require production of the documentation in order to verify that this regulation has been complied with.
Regulation 17 – Energy Performance of Buildings

Where a building is erected, it shall not exceed the target CO$_2$ emission rate for the building that has been approved pursuant to regulation 17B.
Regulation 20 – CO₂ Emission Rate Calculations

20D.–(1) Subject to paragraph (4), where regulation 17C applies the person carrying out the work shall provide to the local authority a notice which specifies—
a. the target CO₂ emission rate for the building; and
b. the calculated CO₂ emission rate for the building as constructed.
(2) The notice shall be given to the local authority not later than five days after the work has been completed.
(3) A local authority is authorised to accept, as evidence that the requirements of regulation 17C would be satisfied if the building were constructed in accordance with an accompanying list of specifications, a certificate to that effect by an energy assessor as defined in regulation 17J who is accredited to produce such certificates for that category of building.
Regulation 20 – CO₂ Emission Rate Calculations

20D (4) Where such a certificate is given to the local authority—
   a. paragraph (1) does not apply; and
   b. the person carrying out the work shall provide to the local authority not later than five days after the work has been completed a notice which—
      i. states whether the building has been constructed in accordance with the list of specifications which accompanied the certificate; and
      ii. if it has not, lists any changes to the specifications to which the building has been constructed.
Key Points of ADL2A 2010

• Energy efficiency standards of new buildings to be improved by 25% over Part L 2006

• A step towards ZERO CARBON new, non domestic buildings

• Five criteria for new build compliance

• Limits on design flexibility

• Documented feasibility assessment of the use of high efficiency alternative systems

• 2 stage submission for compliance – as designed AND as built
Criteria to demonstrate compliance

- Criterion One – Achieving acceptable building CO2 emission rate (BER)
- Criterion Two – Limits on design flexibility for fabric and services
- Criterion Three – Limiting solar gain in summer
- Criterion Four – Building performance consistent with BER

**Quality of Construction and Commissioning**

- Criterion Five – Provisions for energy efficient operation of the building

**Providing Information**
Key Features of ADL2A

Providing information-
• Clearly distinguish "Requirements" (the Building Regulations) from "Guidance" (supplementary information in the Approved Document ADL2A). ADL2A has an Introduction (section 1), a section describing the Requirements (section 2) and a section of Guidance (section 3)
• Improve compliance so that buildings, when built, match the TER figures claimed in submissions to Building Control
ADL2B Key Points

• No CO₂ target (except large extensions).

• Detailed elemental requirements.

• More rigorous calcs (U vals, Boiler Efficiency, SEER etc.)

• Consequential improvements have particularly important implications.

• Existing buildings represent major savings
ADL2B Key Points

• When you replace a part of the fabric it should meet a minimum efficiency standard within technical, feasible and economic constraints.

• When you replace a boiler, it should meet a certain minimum efficiency, and when you put in a new window, it should meet a certain maximum U-value.

• You don't have to carry out CO$_2$ emissions calculations, and you don't have to do airtightness testing. HOWEVER you can choose to use such methods if you feel they will give you greater design flexibility.