Presentation Summary

- Buildings are the largest single contributor to UK carbon emissions, responsible for about 46% of UK emissions. Non domestic buildings account for about 19% & domestic 27%.

- Building Regulations address some aspects of this, but services engineers also face planning rules, energy performance of buildings (EPB) and renewables regulations, energy efficiency directive, carbon reduction commitment and F-gas & Ozone Depleting Substances regulations.

- Its hard to keep up, but this session will try to help you!
Presentation Outline

- Introduction
- Part L
- Zero carbon buildings
- Housing Standards Review
- European Directives
  - Ecodesign and Energy Related Products
  - Renewables Directive
  - EPBD recast
  - F-Gas Regulation 2014
- Minimum Energy Performance Standards
Introduction – Buildings, Energy & Carbon

1. CRC Energy Efficiency Scheme (CRC),
2. Climate Change Agreements & Climate Change Levy
3. Energy Performance Certificates (EPCs), Display Energy Certificates (DECs) & Air conditioning inspections
4. F-Gas related requirements
5. Green Deal,
6. Smart Meters,
7. Enhanced Capital Allowances (ECAs),
8. EU minimum standards and energy performance labelling,
10. Mandatory Greenhouse Gas reporting,
11. Energy Audits (Energy Savings Opportunity Scheme),
Key energy policies for buildings

- **Building Regulations Part L & Zero Carbon Buildings**
  - “zero carbon” new build
  - lower emissions from refurbishing existing buildings

- **Housing Standards Review**

- **EPBD Recast**
  - “nearly zero energy” buildings – new and refurb!
  - public display of energy certificates

- **Energy Efficiency Directive**
  - energy efficiency measures in existing buildings

- **F-Gas Regulation 2014**
  - phasedown of widely used current refrigerants

- **Minimum Energy Performance Standards**
  - requiring poorly rated buildings to be improved
Building Regulations 2013

Part L
Part L 2013 - honestly, yes, it came into force in 2014 but it IS still Part L 2013!

- What Part L 2013 covers and when it all comes into force
- Zero Carbon Homes and Allowable Solutions - what are they, and what do they mean?
- Nearly Zero Energy Buildings - what the EPBD says about them
- Is a Zero Carbon Home a Nearly Zero Energy Building? Does it matter, and should I care?
- Does it matter to my clients, and what, if anything, should I tell them about it?
- The future of Part L - or at least, some personal speculation about where it might go!
Or

what does Part L of the Building Regulations 2013 require me to do in 2014?

(or even in some cases not until 2015)!
Why 2014?

- 15 months elapsed between the end of the consultation (April 2012) and the announcement of the 2013 changes to Building Regulations

- To satisfy the moratorium on new regulations for small (micro) businesses announced in 2010

- Balancing Growth and reducing regulatory burdens with being Green – moving towards zero carbon, reducing energy costs for business and consumers, contributing to the fourth carbon budget under the Climate Change Act

- Coalition government
Building Regulations and Burdens on Business

11. This Section of the consultation outlines the scope of the consultation, its structure and contents and describes how the consultation fits with current Government policies to reduce the burden of regulation on business.
Fit with Government policies to reduce the burden of regulation

12. This Section - referring to the Government commitments to **reducing the burdens that fall on business as a result of regulation and to reducing the total regulatory burden on the house building industry during the current Spending Review period** - explains how all the proposals in the consultation will impact on business (specifically highlighting home building) and illustrates the overall regulatory picture for the package as a whole. It shows the fit with Government’s “**one-in, one-out**” policy on regulation where net cost imposed on business by new regulation (an “in”) is offset by at least an equivalent net reduction (an “out”).
2012 Building Regulations Consultation: a quick recap

- Section one: consultation approach and proposals to change various technical aspects of regulations.
- Section two: proposals to increase the energy efficiency of buildings – Part L
- Section three: proposals in relation to electrical safety in homes.
- Section four: changes to the building control system.
What was proposed in 2012?

- 8% uplift new for homes

- 20% uplift for new non domestic buildings
  - both seen as a “meaningful step” towards “zero carbon”

- Consequential improvements for existing homes when extended, or a new boiler installed or new windows fitted

- Proposals for a QA system to ensure that as-built performance was in line with the design intent
What did we get?

- 6% uplift for domestic emissions, 9% for non-domestic
- No consequential improvements – DCLG won a Judicial Review of the decision not to proceed
- No action to address QA issues at present
- Revised Approved Documents and Compliance Guides
- Revised SAP and SBEM tools coming along at last!
- All new homes require a fabric energy efficiency calculation before construction and when completed, to be submitted to the Building Control Officer
- Wider range of notional non-domestic buildings (inc. smaller warehouses)
- Achievable with good fabric & services in most building types
Transitional Arrangements

Fabric energy efficiency rates for new dwellings

5. After regulation 26, insert—

“26A. Where a dwelling is erected, it shall not exceed the target fabric energy efficiency rate for the dwelling which have been approved pursuant to regulation 25.”
Transitional provisions

9. — (1) The amendment made by regulation 5 does not apply in any case where on the date these Regulations come into force (6th April 2014, Ed) —

(a) building work has started in accordance with any relevant notification provision; or

(b) a relevant notification provision has been complied with in relation to proposed building work and the building work is started within the period of twelve months beginning on the day this Part of these Regulations come into force.

(2) In this regulation, “relevant notification provision” means regulation 12(2) of the Building Regulations 2010 and sections 47(1), 50, 51A(2) and 54 of the Building Act 1984.

So if you had started on site, or deposited plans or building notices, its “Part L 2015” (or beyond!)
Zero Carbon Buildings
The Road to Zero Carbon

- Budget 2013 confirms Government committed to Zero Carbon homes. “Should not lose sight of this important commitment.” (DCLG, BRE Event, 8th October)
- Part L ‘2013’ is “an important ‘technical’ step: strikes balance between Zero Carbon and growth commitments” (DCLG)
- “Next steps to Zero Carbon” consultation explored thinking on 2016 step, including design principles and options for Allowable Solutions – consulted on over summer 2013
- Energy elements of the Housing Standards Review a key part of the approach – and NOT JUST for homes.
Key UK commitments to zero carbon

- Government still committed to zero carbon homes from 2016 – reconfirmed in the budget, and again in the announcement about Part L
- Zero carbon non domestic buildings from 2019 is still a policy goal – it’s not been withdrawn
- EPBD Recast requires “nearly zero energy” buildings from end of 2020 (end of 2018 for the public sector)
The Zero Carbon Hierarchy – stepped progress towards a workable definition.
**What is an Allowable Solution?**

(i) Undertaking the full 100% of carbon abatement on site or through connected measures (e.g. a heat network);
(ii) Meeting the remaining carbon abatement requirement themselves through off-site carbon abatement actions;
(iii) Contracting with a third party Allowable Solutions provider for them to deliver carbon abatement measures sufficient to meet the house builders’ obligations.
(iv) Making a payment which is directed to a fund which then invests in projects which will deliver carbon abatement on their behalf. The payment would be based on a fixed price which would be subject to periodic review.
Nearly zero energy buildings in Building Regulations

- Non domestic buildings zero carbon from 2019

AND

Nearly zero-energy requirements for new buildings

- 25B. Where a building is erected, it must be a nearly zero-energy building.

The Building Regulations &c. (Amendment) Regulations 2012 SI 2012 No.3119
Is nearly zero energy the same as zero carbon?

\[ ZC = NZE \]
Q. Is a Zero Carbon building a Nearly Zero Energy building?

A. It depends!
Zero Carbon is a UK domestic policy, which depends upon Allowable Solutions

Nearly Zero Energy is an EU policy/term:

‘nearly zero-energy building’ means a building that has a very high energy performance, as determined in accordance with Annex I. The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby;
European Commission have undertaken to define

- “nearly”
- “significant”

This may help us to understand whether a “zero carbon” building is “nearly zero energy”.
Housing Standards Review
Purpose of the Review

- “a fundamental review of the building regulations framework and voluntary housing standards which aimed to rationalise the large number of codes, standards, rules, regulations and guidance that add unnecessary cost and complexity to the house building process - while delivering quality, sustainability, safety and accessibility.”

- Addressed:
  - accessibility
  - space
  - security
  - water efficiency
  - energy
  - indoor environmental standards
  - materials
  - process and compliance
Key Proposals

- To reduce the scope of local authorities to add anything to the statutory minimum requirements of the Building Regulations
- To “wind down” the Code for Sustainable Homes
- To review the Planning and Energy Act
- To introduce space standards
- To rationalise the requirements across all forms of tenure
All going swimmingly until…

House of Commons
Environmental Audit Committee

Code for Sustainable Homes and the Housing Standards Review

Eighth Report of Session 2013–14
Key finding:

- “DCLG urged not to demolish Sustainable Homes Policy”
- Environmental Audit Committee Chair Joan Walley MP said: “The Secretary of State should think again before demolishing the Code for Sustainable Homes. The policy has been a big success in driving up home building standards, delivering local choice and supporting green exports. Building materials manufacturers in the UK told us that they use the Code as a green kitemark when they sell their products abroad.”
Latest on Housing Standards Review

- Energy elements of the Code to be absorbed into Building Regulations
- Code to be “wound down” - with legacy arrangements
- Space standards to be developed for use at local authority discretion
- New Approved Document M1 for Access
- Revised text for Approved Document G and H on water and waste storage
- New Approved Document Q for Security
- And all to be in place “in the lifetime of this parliament”
European Directives

- Ecodesign and Energy related Products
- The Renewables Directive
- The EPBD (Recast)
- The Energy Efficiency Directive
Energy related Products and Ecodesign
ErP

- Sets minimum product performance standards for a range of energy using products, including hot water heaters, pumps, fans, lamps, boilers
- Set at an EU level
- Causing considerable activity for the manufacturing sector, alongside the Construction Products Regulations
- Specific implementing measures for each product group, or “lot”
- In some cases products must also be labelled
What is the ErP Framework trying to do?

- To make cost-beneficial CO2 savings, and to save UK consumers money on their energy bills
  - 2011 Carbon plan: save 15Mt CO$_2$ pa by 2020
  - Save UK around £1000 million pa (~ Euro 1200 million)
  - primarily through savings on energy bills
- Ecodesign and energy labelling are intended to save 10% of EU energy consumption
- Encourages moves towards a low carbon economy
- Getting design right at the beginning has an effect on environmental impacts throughout the lifecycle of the product.
Implementing Measures Agreed 2013

Ecodesign/ Labelling

• Computers Reg 617/2013 – no label
• Space heaters and Combination heaters Reg 813/2013, 811/2013
• Water Heater and Hot water storage Reg 814/2013, 812/2013
• Networked standby Reg 801/2013 – no label
• Domestic Ovens, hobs and range hoods Voted July 2013 + label
• Vacuum Cleaners Reg 666/2013, 665/2013
• Motors amendment Reg voted July 2013 no vote, label expected
• Solid fuel Boiler voted 10/10/13, + label
• Local Space heaters vote expected + label?
• Transformers vote expected + label?
• Ventilation vote expected + label?

Professional Refrigeration

With thanks to Mike Rimmer of Defra for information
The EU Renewables Directive, 2009/28/EC

Sets the UK a target of 15% by 2020
UK Target for increasing the share of national energy from renewables

UK Renewables Policy

- Driven by three principal concerns
  - Improving the UK security of supply
  - Reducing UK carbon emissions
  - Controlling the cost of energy to industry and consumers

- A combination of incentives and requirements

- Implemented via the Renewable Energy Strategy, Carbon Reduction Commitment, EPB and Building Regulations and Financial incentives:
  - Feed in Tariffs
  - Renewable Heat Incentive
  - Green Deal ????
Energy Performance of Buildings Directive (Recast)
The Energy Performance of Buildings Directive – the EPBD

- First adopted in 2003, implemented in two phases
  - labelling and whole building calculations (2006)
  - air conditioning and boiler inspections (2009)

- Recast adopted in May 2010, replaces the original EPBD from 1st February 2012
  - expands the scope of the Directive

- Consolidated Regulations adopted in UK In December 2012
Extended Scope of the EPBD as Recast

- Display Energy Certificates required in public buildings over 500m$^2$ (previously over 1,000m$^2$)
- All buildings over 500m$^2$ and frequently visited by the public which have an energy certificate must display it
- Article 27, Penalties, requires that

  “Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive.”
Why do we have energy certificates?

- To make energy use in buildings **transparent** and **actionable**
- To **motivate** and **inform** improved energy performance of buildings
- Because saving energy and not wasting energy is cheaper than generating it
So where are we now with energy certificates and air conditioning reports?

Inspection of air conditioning systems

Energy Performance Certificate
Non-Domestic Building

Jubilee House
High Street
Anytown
AI 2CD

Certificate Reference Number: 1234-1234-1234-1234

This certificate shows the energy rating of this building. It indicates the energy efficiency of the building fabric and the heating, ventilation, cooling and lighting systems. The rating is compared to two benchmarks for this type of building: one appropriate for new buildings and one appropriate for existing buildings. There is more advice on how to interpret this information on the Government’s website www.communities.gov.uk/eepbd.

More energy efficient

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<th>A+</th>
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Technical information

Main heating fuel: Gas
Building environment: Air Conditioned
Total useful floor area (m²): 2927
Building complexity (NO1's level): 4

Benchmarks

Buildings similar to this one could have ratings as follows:

- If newly built: A
- If typical of the existing stock: A-
Energy Efficiency Directive
Energy Efficiency Directive

- Directive published in November 2012
- Comes into force in stages over next 3 years
- Introduces four yearly energy audits for “large enterprises”
  - may be based on ISO 50001 (was BS EN 16001)
  - may also use Display Energy Certificates, Green Deal assessments
Consultation in summer 2013 on the “Energy Savings Opportunity Scheme”
Implementing Regulations published late June 2014 First cycle of audits to be complete by 5th December 2015
How will it work?

All “large organisations” (on a given qualifying date) will need to carry out an energy audit overseen by a “lead assessor” every four years, covering their buildings, transport and industrial uses of energy. The first round of audits are to be complete by 5th December 2015.
Who does it affect?

- “Large organisations”, ie those that are not SMEs

So this means any organisation with more than 249 employees, turnover in excess of 50m Euros or assets in excess of 43m Euros

The last condition catches all sorts of investment funds and trusts, probably unintentionally!
What do they have to do?

- Undertake an energy audit covering the energy they use for buildings, industrial processes and transport.
- There are some significant questions about the responsibility for energy use in transport depending on the ownership of the vehicles and contractual relationships between client organisations and transport operators.
- On this point, please do not ask me, I don’t know the details!
- The Freight Transport Association do…
- For today, I will focus on buildings…….
When do they have to do it?

- Qualifying organisations must tell the Environment Agency that they have completed the audit by 5\textsuperscript{th} December 2015.
So what is an audit?

- DECC have avoided the temptation to prescribe this.
- Audits will be carried out under the oversight of a “lead assessor” who must belong to an approved register run by a professional body.

  Declaration of interest – CIBSE have applied!

- ISO 50001, DECs and Green Deal Advice Reports may all be used to contribute towards ESOS Assessments.
- Assessors may also look at existing data, such as CRC returns, and potentially EDR related information, when compiling their assessment.
- There is as yet no standard format for the report.
- There is as yet no QA or audit regime covering completed audits.
New F-Gas Regulation
EU 517/2014

F-Gas Regulation

Key objective: to reduce direct emissions of HFCs in EU

Three main pillars:

- Equipment bans – the main ones come into force from 2020 and restrict use of higher GWP refrigerants in new equipment.
- Service bans – restrict the use of refrigerants with GWP >2500 for servicing existing equipment from 2020 (with certain exceptions).
- Phasedown based on CO2 quota cap and reduction.

All three measures target higher GWP refrigerants first, in particular R-404A (GWP of 3922).
The F-Gas Phasedown schedule
What might the future look like?
Minimum Energy Performance Standards?

If you want to let or sell a property with an F or G rated EPC then you will have to improve it;

  I can’t afford that!

    Well, you can take out a Green Deal plan…
      Oh no you can’t…

Or I could just not get an EPC in the first place….?

  nearly 3 out of 5 buildings said their owners currently prefer that option
Thank you for listening
Any Questions?