Part L 2013 and SAP 2012 Update

With Jason Hewins
Elmhurst Energy Systems
Introductions

Brief summary of Part L 2013 and SAP 2012 Changes

Examination of case studies for Part L1A 2013

Compliance – Detached house, flats, bungalow

Possible effects of Part L1A 2013 on new dwellings

Common concerns of assessors

Our thoughts for Part L 2016

Q & A
Introduction to Elmhurst

- Founded in 1993, covering England, Wales, Scotland and Northern Ireland.
- We offer accreditation and training for:
  - Domestic Energy Assessors
  - On Construction Domestic Energy Assessors
  - Non Domestic Energy Assessors (level 3 and 4)
  - Display Energy Certificate Assessors
  - Domestic and Non Domestic Green Deal Advisors
- We have around 5600 active assessors
How have Elmhurst prepared for the changes?

- Initial planning for Design SAP 2012 started Autumn 2013.
- Released Design SAP 2012 Beta on 16th December 2013.
- Provided a series of CPD events for our assessors in various locations; Exeter, Newcastle, Manchester, Reading, Lutterworth.
Part L1A 2013

- Came into force on 6th April 2014 with same transitional provision as Part L1A 2006-2010
- For England only. Wales to introduce their own Part L on 31st July 2014. Scotland in 2015, N.I. unknown

Changes to Criterion 1:
- TER calculation revised. Based on a new notional dwelling in Appendix R of SAP 2012
- New compliance standard: Target Fabric Energy Efficiency Rate (TFEE)
SAP 2012

- Came into force on 6th April 2014 in conjunction with Part L1A 2013

- Changes include;
  - Thermal Bridging; 19 new junctions
  - New option for Semi Rigid ductwork for mechanical ventilation systems
  - More heating control options – controls and compensators from the PCDF
  - Manufacturers data for main heating not allowed at as built stage
  - Four options for insulation of primary pipework
Case Studies of Part L1A 2013 Compliance
Case Studies on Part L1A 2013 Compliance – Detached House

- 4 bedroom
- Masonry construction
- Approx 110 m²
- Natural ventilation
Gas Heating – Part L1A 2010

- Gas condensing boiler – 90% efficient
- Time and temperature zone controls
- 100% LELs
- Pressure test – 6.00 m³/m²/hr
- External walls u-value – 0.27
- Roof U-value – 0.14
- Floor U-value – 0.18
- Windows U-value – 1.6
- Doors U-value – 2
- DCLG’s Accredited Construction Details
- Natural ventilation

Part L1A 2010 Results;
DER: 18.17
TER: 18.25

Part L1A 2013 Results;
DER: 20.57
TER: 16.8
DFEE: 60.3
TFEE: 55.11
Gas heating – Part L1A 2013

To pass the following were improved:

- Wall U-value – reduced from 0.27 to 0.24
- Floor U-value – reduced from 0.18 to 0.16
- Roof U-value – reduced from 0.14 to 0.12
- Windows U-value – reduced from 1.6 to 1.5
- Pressure test – reduced from 6.00 m³/m²/hr to 5.00 m³/m²/hr
- Introduced 2.00 m² solar hot water panels

Part L1A 2013 Results;
DER: 16.02
TER: 16.71
DFEE: 53.2
TFEE: 55.11
Oil condensing boiler – 92% efficient
Time and temperature zone controls
100% LELs
4.00 m² solar hot water panels
Pressure test – 6.00 m³/m²/hr
External walls U-value – 0.27
Roof U-value – 0.14
Floor U-value – 0.18
Windows U-value – 1.6
Doors U-value – 2

DCLG’s Accredited Construction Details

Part L1A 2010 Results;
DER: **21.20**
TER: 21.25

Part L1A 2013 Results;
DER: **23.14**
TER: 19.25
DFEE: **60.3**
TFEE: 55.11
Oil heating – Part L1A 2013

To pass the following were improved:
- Wall U-value – reduced from 0.27 to 0.24
- Windows U-value – reduced from 1.6 to 1.5
- Pressure test – reduced from 6.00 m³/m²/hr to 5.00 m³/m²/hr
- Solar panels; increased from 4.00 m² to 5.00 m².
- EST’s Enhanced Construction Details used for thermal bridging

Part L1A 2013 Results:
- DER: 18.73
- TER: 19.15
- DFEE: 50.37
- TFEE: 55.11
Electric Heating – Part L1A 2010

- Air to water heat pump – 250% efficient
- Underfloor heating
- Programmer and at least 2 room stats
- 75% LELs (L1A 2010 minimum)
- Pressure test – 15.00 m³/m²/hr: N/A
- External walls U-value – 0.3 (L1A 2010 backstop)
- Roof U-value – 0.2 (L1A 2010 backstop)
- Floor U-value – 0.25 (L1A 2010 backstop)
- Windows U-value – 2.0 (L1A 2010 backstop)
- Doors U-value – 2.0 (L1A 2010 backstop)
- No thermal bridging details
- Natural ventilation

Part L1A 2010 Results;
DER: 27.00
TER: 30.65

Part L1A 2013 Results;
DER: 35.62
TER: 24.93
DFEE: 90.76
TFEE: 55.8
Electric heating – Part L1A 2013

To pass the following were improved:

- Wall U-value – reduced from 0.3 to 0.25
- Roof U-value – reduced from 0.2 to 0.10
- Floor U-value – reduced from 0.25 to 0.14
- Windows U-value – reduced from 2.0 to 1.5
- Pressure test - 5.00 m³/m²/hr
- DCLG’s Accredited Construction Details used
- 100% Low energy lighting

Part L1A 2013 Results:
- DER: 24.00
- TER: 24.73
- DFEE: 54.76
- TFEE: 55.11
Case Studies on Part L1A 2013 Compliance – Flats

- Three storey block of flats
- Masonry construction
- Each flat approx. 35 m²
- Natural Ventilation
Gas Heating – Part L1A 2010

- Gas condensing combi boiler – 90% efficient
- Programmer, roomstat and TRV’s
- 100% LELs
- Pressure test – 5.00 m³/m²/hr
- External walls u-value – 0.24
- Roof U-value – 0.16
- Floor U-value – 0.18
- Windows U-value – 1.6
- DCLG’s Accredited Construction Details
- Natural ventilation

Part L1A 2010 Results;
DER: 23.75
TER: 23.88

Part L1A 2013 Results;
DER: 25.24
TER: 22.32
DFEE: 51.11
TFEE: 48.00
To pass the following were improved;

- Roof U-value – reduced from 0.16 to 0.12
- Floor U-value – reduced from 0.18 to 0.13
- Windows U-value – reduced from 1.6 to 1.4
- Flue Gas Heat Recovery system on gas boilers

Part L1A 2013 Results;
DER: 22.04
TER: 22.32
DFEE: 46.94
TFEE: 48.00
Small bungalow
Masonry construction
Natural ventilation
Floor area – 99.96 m²
Gas Heating – Part L1A 2010

- Gas condensing combi boiler – 90% efficient
- Programmer, roomstat and TRV’s, weather compensator
- 100% LELs
- Pressure test – 6.00 m³/m²/hr
- External walls u-value – 0.24
- Roof U-value – 0.14
- Floor U-value – 0.16
- Windows U-value – 1.6
- Door U-value – 2.0
- DCLG’s Accredited Construction Details
- Natural ventilation

Part L1A 2010 Results;
DER: 20.62
TER: 20.63

Part L1A 2013 Results;
DER: 23.43
TER: 18.47
DFEE: 67.15
TFEE: 60.36
To pass the following were improved:

- Roof U-value – reduced from 0.14 to 0.10
- Floor U-value – reduced from 0.16 to 0.12
- Windows U-value – reduced from 1.6 to 1.4
- Door U-value – reduced from 2.0 to 1.8
- Pressure test – reduced from 6.00 m³/m²/hr to 5.00 m³/m²/hr
- Independent heating circuits with time and temperature control
- 2 m² solar hot water panel

Part L1A 2013 Results;
- DER: 17.32
- TER: 18.47
- DFEE: 57.52
- TFEE: 60.36
Possible effects on new dwellings?

- Fabric now more important due to TFEE standard, however TER appears to be the ‘tougher’ target.
- Greater attention paid to thermal bridging and air permeability.
- High performance lintels (IG Hi-Therm etc.) may become more popular.
- A move away from the DCLG’s Accredited Construction Details to bespoke, modelled Psi values?
- Heating controls – independent heating circuits with separate time and temperature control required.
- Still ‘penalised’ for using mechanical ventilation. Will this be an issue with better air tightness?
- Heat Pumps were widely used over past few years to offset poor fabric – will this still be the case?
Detached dwellings appear to be tougher to achieve TER and TFEE than flats or terraced houses.

For detached, gas heated dwellings to achieve the TER they will possibly now required some form of renewable energy.

Dwellings that have party walls; TER and TFEE assume filled and sealed party walls. Contradicts Part E?

For flats and terraced houses ‘Block Averaging’ is important for TER and TFEE compliance.
Assessors concerns

- Dwellings not reflecting final EPC rating.
- Developers not following design stage specifications – problems at EPC stage.
- Aspects of surveys complex – thermal bridging, rooms in the roof, etc.
- Frustration at building control – lack of checking, accepting RdSAP EPCs for new build dwellings, etc.
- Part L1A 2013 – how much of an improvement over 2010 standards?
- Transitional arrangements – sites can build dwellings to older standards years after building regs. approval
Our thoughts for Part L 2016

- Early planning is key.
- Clear guidance on changes to be issued.
- A final definition of Zero Carbon to be confirmed as soon as possible.
- Allowable Solutions – what will these be?
- Transitional arrangements – will these be site wide or plot specific?
The End

Questions?