

# Part L 2013 and SAP 2012 Update

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# Programme

- ◆ 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.
- ◆ Started development of Design SAP 2012 in November 2013.
- ◆ Released Design SAP 2012 Beta on 16<sup>th</sup> December 2013.
- ◆ Provided a series of CPD events for our assessors in various locations; Exeter, Newcastle, Manchester, Reading, Lutterworth.



- Came into force on 6<sup>th</sup> April 2014 with same transitional provision as Part L1A 2006-2010
- For England only. Wales to introduce their own Part L on 31<sup>st</sup> 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)

- Came into force on 6<sup>th</sup> 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 m<sup>2</sup>
- Natural ventilation







# Gas Heating – Part L1A 2010

- ◆ Gas condensing boiler – 90% efficient
- ◆ Time and temperature zone controls
- ◆ 100% LELs
- ◆ Pressure test – 6.00 m<sup>3</sup>/m<sup>2</sup>/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**





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 m<sup>3</sup>/m<sup>2</sup>/hr to 5.00 m<sup>3</sup>/m<sup>2</sup>/hr
- Introduced 2.00 m<sup>2</sup> solar hot water panels

**Part L1A 2013 Results;**

**DER: 16.02**

**TER: 16.71**

**DFEE: 53.2**

**TFEE: 55.11**





# Oil Heating – Part L1A 2010

- ◆ Oil condensing boiler – 92% efficient
- ◆ Time and temperature zone controls
- ◆ 100% LELs
- ◆ 4.00 m<sup>2</sup> solar hot water panels
- ◆ Pressure test – 6.00 m<sup>3</sup>/m<sup>2</sup>/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 m<sup>3</sup>/m<sup>2</sup>/hr to 5.00 m<sup>3</sup>/m<sup>2</sup>/hr
- Solar panels; increased from 4.00 m<sup>2</sup> to 5.00 m<sup>2</sup>.
- 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 m<sup>3</sup>/m<sup>2</sup>/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





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 m<sup>3</sup>/m<sup>2</sup>/hr
- DCLG's Accredited Construction Details used
- 100% Low energy lighting

**Part L1A 2013 Results;**

**DER: 24.00**

**TER: 24.73**

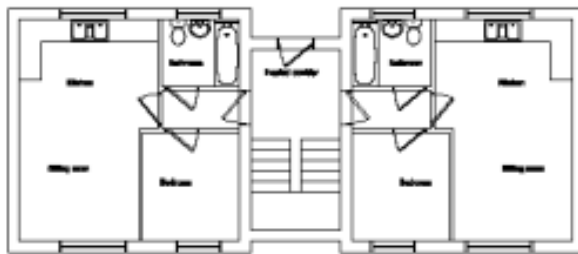
**DFEE: 54.76**

**TFEE: 55.11**

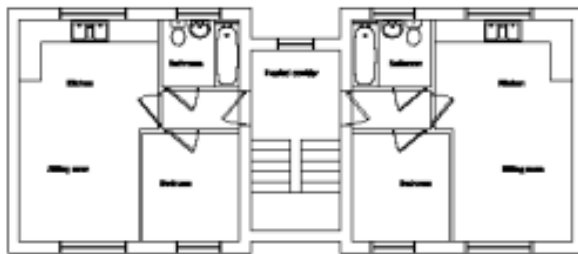


# Case Studies on Part L1A 2013 Compliance – Flats

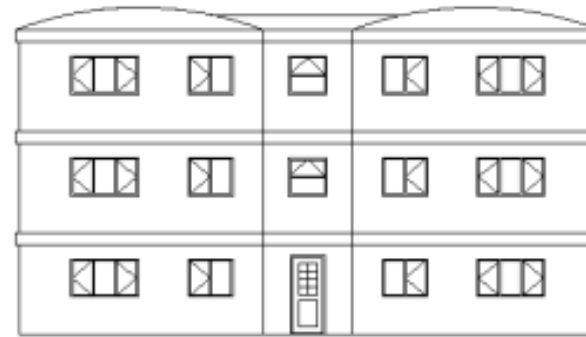
- ◆ Three storey block of flats
- ◆ Masonry construction
- ◆ Each flat approx. 35 m<sup>2</sup>
- ◆ Natural Ventilation



GROUND FLOOR PLAN



FIRST AND SECOND FLOOR PLANS



FRONT ELEVATION



SIDE ELEVATION

# Gas Heating – Part L1A 2010

- Gas condensing combi boiler – 90% efficient
- Programmer, roomstat and TRV's
- 100% LELs
- Pressure test – 5.00 m<sup>3</sup>/m<sup>2</sup>/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**



# Gas Heating – Part L1A 2013

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**

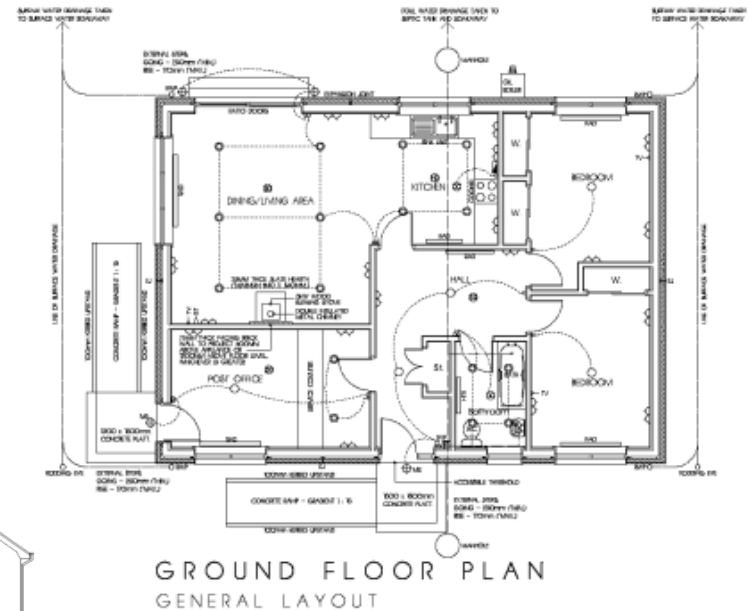
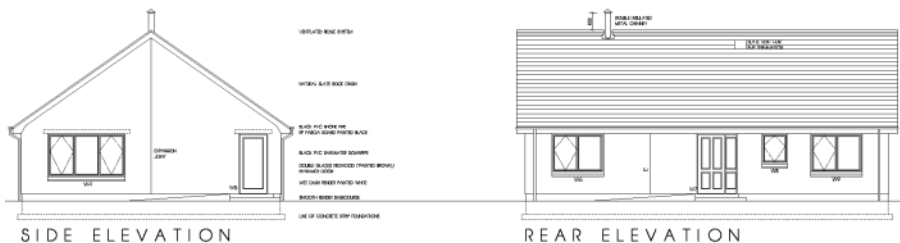
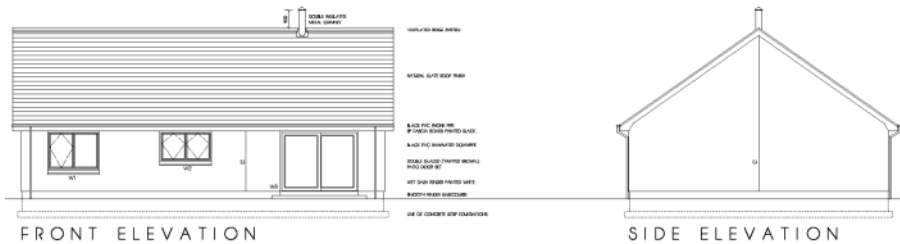
**TFEE: 48.00**





# Case Studies on Part L1A 2013 Compliance – Bungalow

- Small bungalow
- Masonry construction
- Natural ventilation
- Floor area – 99.96 m<sup>2</sup>



# Gas Heating – Part L1A 2010

- ◆ Gas condensing combi boiler – 90% efficient
- ◆ Programmer, roomstat and TRV's, weather compensator
- ◆ 100% LELs
- ◆ Pressure test – 6.00 m<sup>3</sup>/m<sup>2</sup>/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**



# Gas Heating – Part L1A 2013

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 m<sup>3</sup>/m<sup>2</sup>/hr to 5.00 m<sup>3</sup>/m<sup>2</sup>/hr
- Independent heating circuits with time and temperature control
- 2 m<sup>2</sup> 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?





# Possible effects on new dwellings cont.

- ◆ 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?**

