



Building Regulations Impact on Climate  
change

Dwellings and other Buildings

Parts, F,L,O and S.

Part G-Water Efficiency

John Shaw

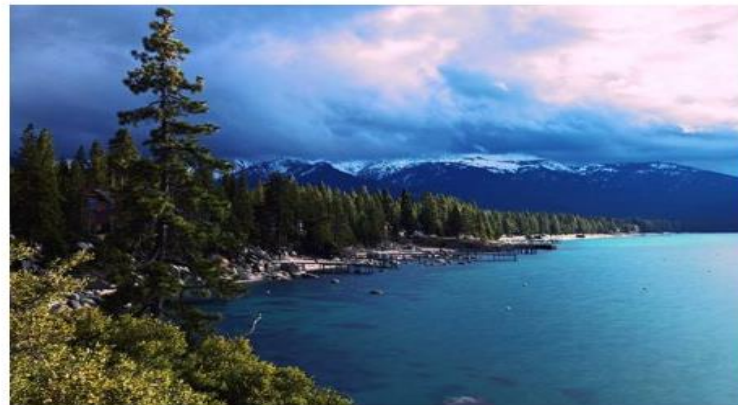
Head of Building Control Partnership



Department for Levelling Up,  
Housing & Communities

## Tackling climate change: what are we working towards?

- **2015:** UNFCCC Paris Agreement temperature goal to limit global warming to well below 2°C and pursue efforts towards 1.5°C
- **2019:** the UK Government and the devolved administrations committed to the Net Zero by 2050 target as recommended by the Climate Change Committee

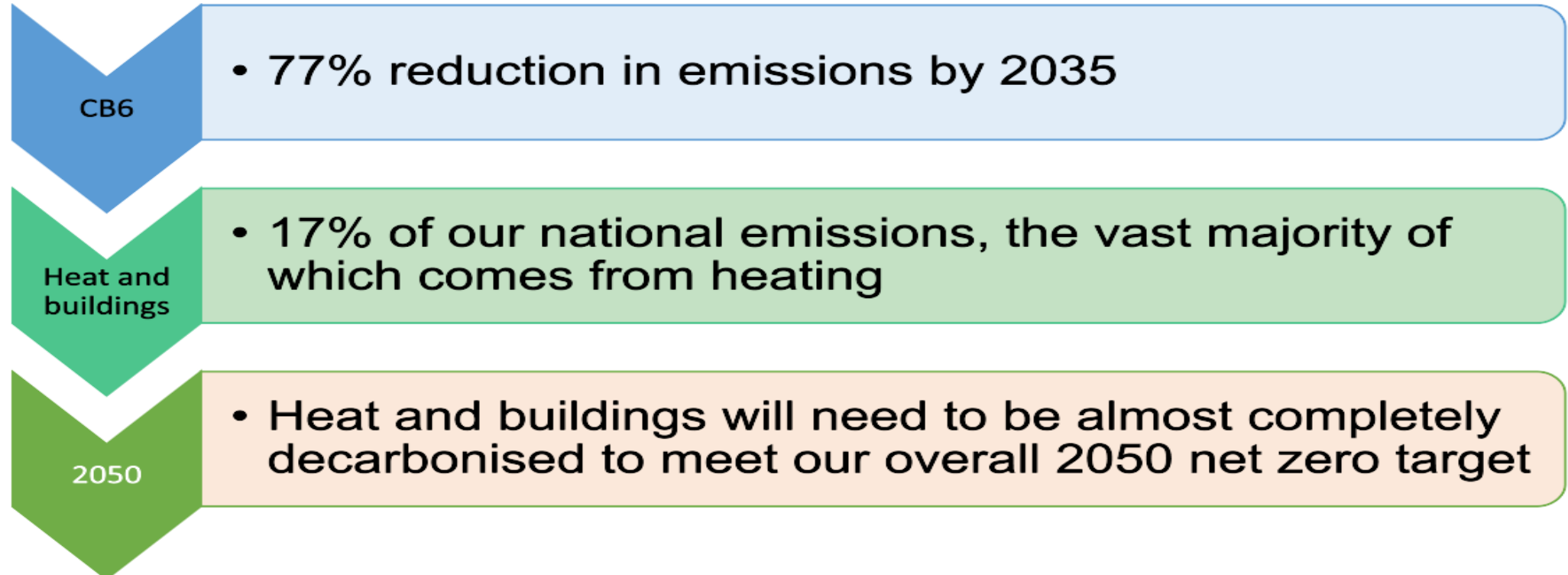


### What is Net Zero?

When the amount of carbon emissions produced are cancelled out by the amount removed, the UK will be a net-zero emitter.



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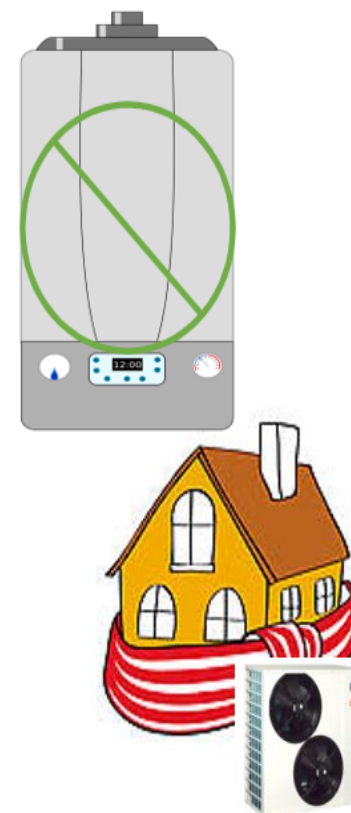
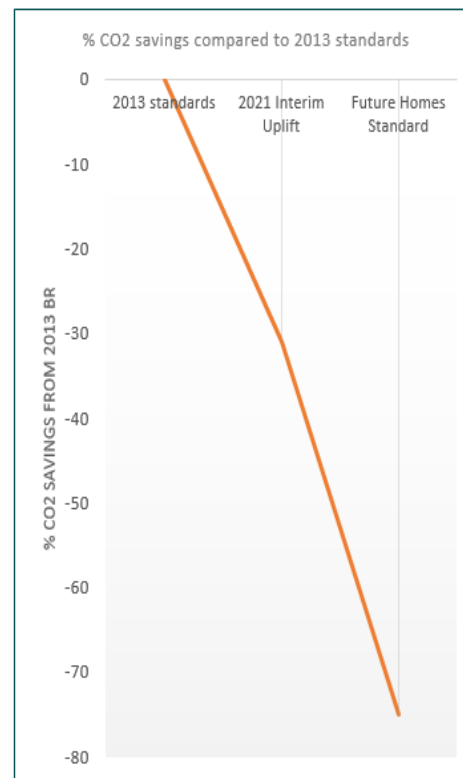




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## Ensuring all new buildings in England are ready for Net Zero by 2025 – the Future Homes and Buildings Standards

- **75% lower CO<sub>2</sub> emissions** for new homes built from 2025
- **Highly efficient non-domestic buildings** which use low-carbon heat and have the best fabric standards possible
- Very high fabric standards, technology neutral - Compliance simplest and lowest cost with **heat pumps**
- **Zero Carbon Ready standard**, no further retrofit work needed as grid decarbonised
- **Part L 2021 Uplift** is an interim standard, which will help to build up skills and supply chains



# Implementation timeline

## Phase 1: Introduce the interim uplift

- **Dec 2021** – Interim Part L, F and Overheating regulations made for domestic and non-domestic buildings
- **June 2022** – Interim Part L, Part F and Overheating regulations come into effect

## Phase 2: Technical work and engagement

- **Autumn 2021 – Summer 2022** – research and analysis to develop proposed technical specification
- **Summer 2022 – 2024** – develop sector specific guidance and embed understanding of the FHS

## Phase 3: Consultation and Policy Development

- **Spring 2023** – Technical consultation on the proposed specification of the Future Homes Standard

## Phase 4: Full FHS Implementation

- **2024** – Part L FHS Regulations made
- **2025** – Part L FHS regulations come into effect



# New Approved Documents



<https://www.gov.uk/government/collections/approved-documents>

## **Part F 2021 – Ventilation**

vol 1 – Dwellings      vol 2 – Buildings other than dwellings

## **Part L 2021– Conservation of fuel and power**

vol 1 – Dwellings      vol 2 – Buildings other than dwellings

## **Part O 2021– Overheating**

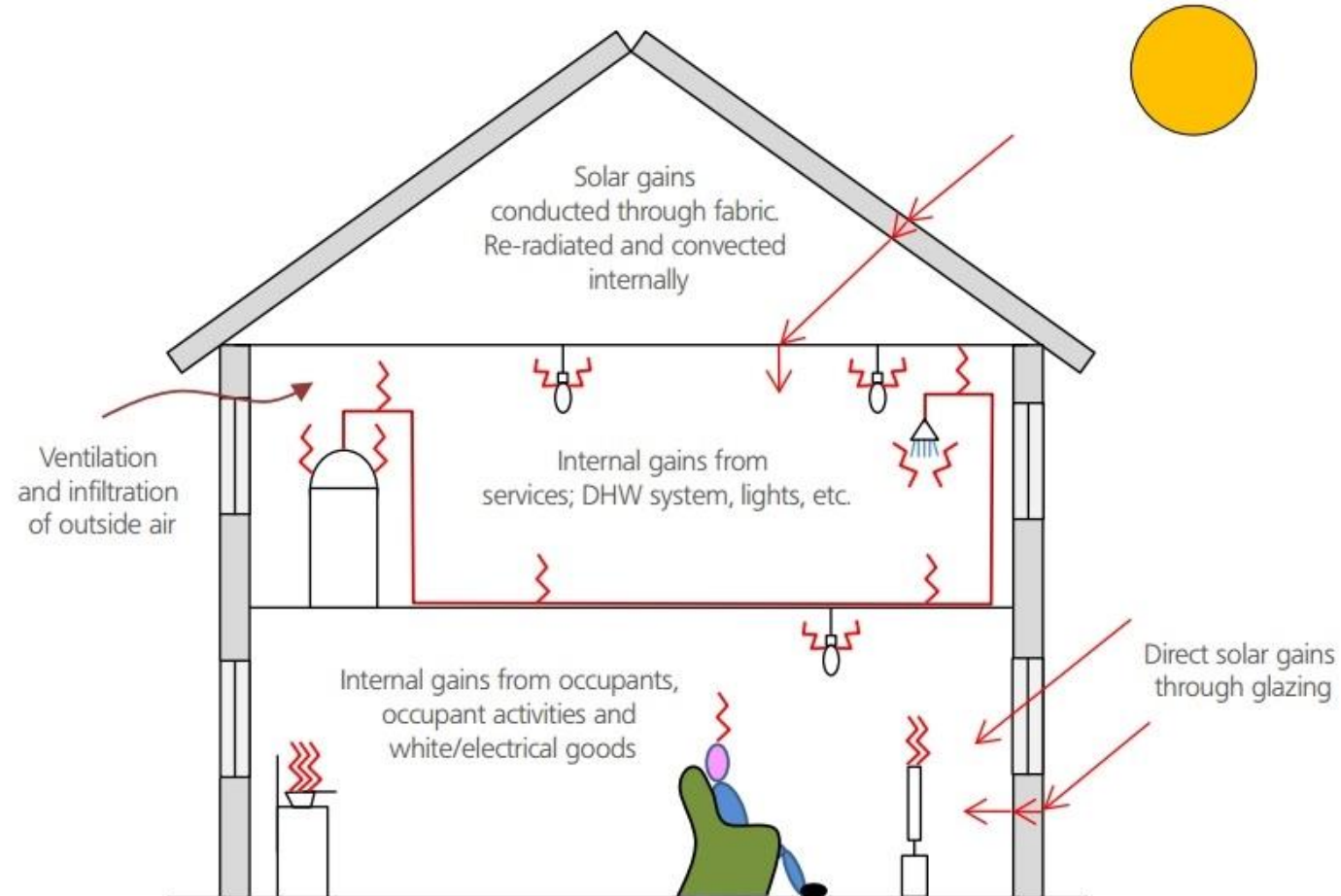
## **Part S 2021 – Infrastructure for the charging of electric vehicles**





## Part O - Overheating

- Overheating is a risk for new homes that can affect the health and welfare of occupants, particularly during hot weather
- In the 2003 hot spell we had over 10 days of extreme heat there were 35,000 additional deaths in France and 5,500 in the UK
- The UK has one of the highest rates of chronic respiratory health which costs the country billions
- DLUHC undertook research into overheating in new homes recently and all 8 tested properties failed the CIBSE TM59 criteria
- Overheating problem likely to get worse due to climate change



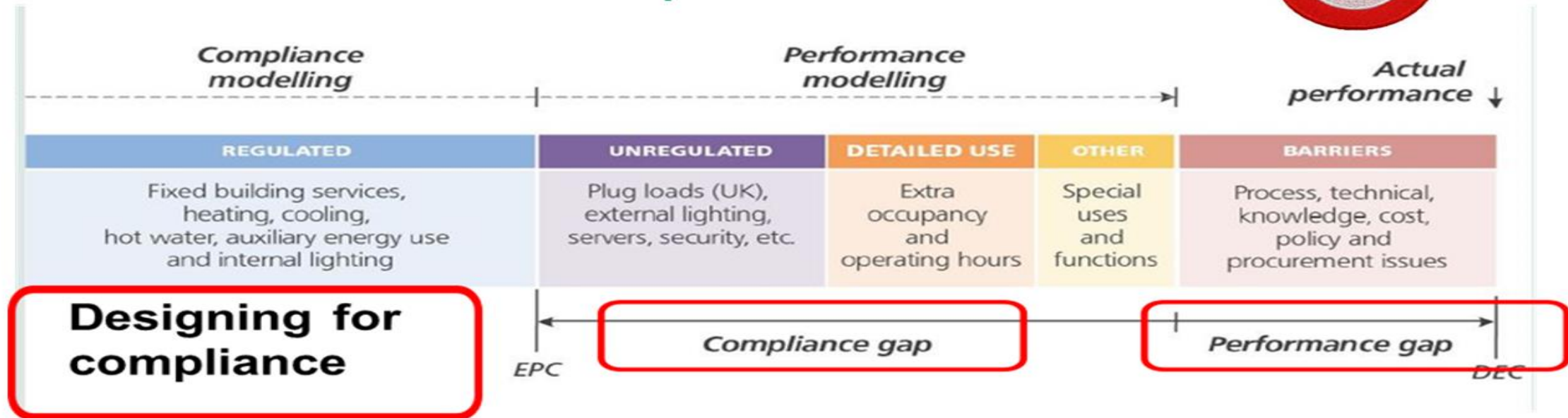




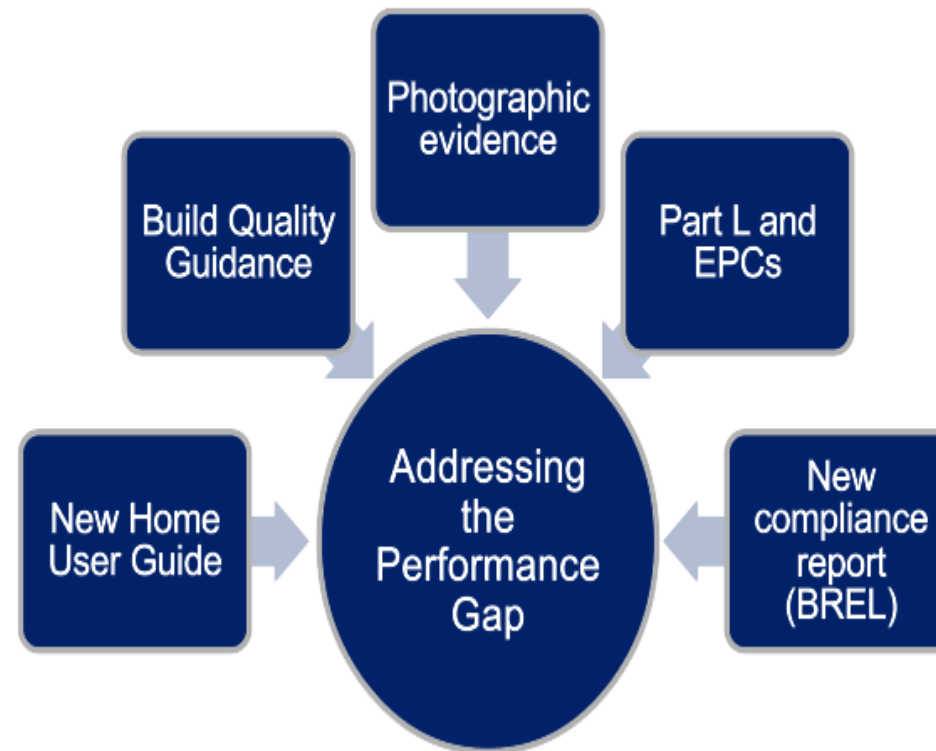
	Current 2013 Part L standard	2021 Part L Standard	Indicative FHS specification
Floor U-value (W/m2.K)	0.13	0.13	0.11
External wall U-value (W/m2.K)	0.18	0.18	0.15
Roof U-value (W/m2.K)	0.13	<b>0.11</b>	0.11
Window U-value (W/m2.K)	1.4	<b>1.2</b>	0.8
Door U-value (W/m2.K)	1.0 - opaque 1.2 – semi-glazed	<b>1.0</b>	1.0
Air permeability at 50 Pa	5.0 m3/(h.m2)	5.0 m3/(h.m2)	5.0 m3/(h.m2)
Heating appliance	Gas boiler	Gas boiler	Low-carbon heating (e.g. Heat pump)
Heat Emitter type	Regular radiators	<b>Low temperature heating</b>	Low temperature heating
Ventilation System type	Natural (with extract fans)	Natural (with extract fans)	Natural (with extract fans)
PV	No	<b>40% floor area</b>	None
Wastewater heat recovery	No	<b>Yes</b>	No



# The Unintended Consequences: The Performance Gap



- Actual energy use in homes varies 200+% & 'Performance Gap' can vary 400%
- Product substitution can be a major problem, alongside build quality?



# Part L - Vol1 - Dwellings – Home User Guide



For new dwellings, the operating and maintenance instructions should include a Home User Guide.



The Home User Guide should contain non-technical advice on how to operate and maintain the dwelling in a healthy and energy efficient manner.



The guide should contain advice on the following.

- a. Ventilation.
- b. Heating and domestic hot water.
- c. On-site electricity generation (if applicable).
- d. Staying cool in hot weather

## Appendix B: Reporting evidence of compliance

### BREL report

- B1** The Buildings Regulations England Part L (BREL) report and photographic evidence should be provided to the building control body and to the building owner to show that building work complies with energy efficiency requirements.
- B2** SAP 10 will produce the BREL report for the building as a standard output option.
- B3** Two versions of the BREL report should be produced, using the approved software.
  - a. The first, the design stage BREL report, before works begin, to include all of the following.
    - i. The target primary energy rate and dwelling primary energy rate.
    - ii. The target emission rate and dwelling emission rate.
    - iii. The target fabric energy efficiency rate and dwelling fabric energy efficiency rate.
    - iv. A supporting list of specifications.
  - b. The second, the as-built BREL report, to include all of the following.
    - i. The target primary energy rate and as-built dwelling primary energy rate.
    - ii. The target emission rate and as-built dwelling emission rate.
    - iii. The target fabric energy efficiency rate and as-built dwelling fabric energy efficiency rate.
    - iv. A supporting list of specifications and any changes to the list of specifications that was provided at design stage.

The building control body can then use these reports to help check that what was designed has been built. The software includes a facility to compare the design stage and as-built data input files and automatically produce a schedule of changes.





## Photographic evidence

- B6** Photographs should be taken for each dwelling on a development as a record during the construction of a property. The photographs should be made available to the energy assessor and the building control body. Anyone may take the photographs.
- B7** Photographs should be taken of typical details as listed below and should be unique to each property. One photograph per detail should be recorded. Additional images, such as a close-up detail, should be provided only when necessary (see below). Photographs should be taken at appropriate construction stages for each detail when completed, but prior to closing-up works.

Photos should be for **each home, geolocated and timestamped**.

To show **thermal continuity and quality of insulation**, and **airtightness** details:

1. Foundations/substructure and ground floor.
2. External walls.
3. Roof
4. Openings

Details of **Building Services**:

1. Plant/equipment identification label(s).
2. Primary pipework continuity of insulation.
3. Mechanical ventilation ductwork continuity of insulation (for duct sections outside the thermal envelope).

Detailed guidance is provided in the draft Approved Document L1 (Appendix B).



# Any questions?