

Passivhaus Trust Part L Consultation Response

18th April 2012

Introduction

Part L Consultation

On 31st January 2012 Government opened a consultation on proposed changes to Part L (closing on 27 April 2012).

As part of this Government published 2 main documents¹:

'2012 consultation on changes to the Building Regulations in England: Section two - Part L'. This sets out the proposed changes to the Regulation, the reasoning and the background.

'2012 consultation on changes to the Building Regulations in England. Section two – Part L. Proposed changes to technical guidance' This sets out the proposed changes to the technical guidance, the Approved Document ADL1A, to reflect the proposed changes in the regulation.

This Document

This document summarises the consultation proposals for new dwellings (Part L1A) in relation to:

1. CO₂ and energy reductions
2. Publicly Available Standards (PAS) to improve compliance

1. Consultation proposals for CO₂ and energy reductions

Headlines

- **Maintain CO₂ target based on notional building.** Government's preference is to maintain the approach of a CO₂ target derived from a notional build (with the same geometry as the actual building).
- **8% aggregate CO₂ reduction – averaged across 5 common dwelling types** However, this average does not appear to account for the *proportion* of each dwelling type (the estimated reduction for apartments is 0% reduction).
- **New Energy Efficiency Target** Government propose to introduce a minimum energy efficiency target alongside the CO₂ target

Selected Details

- **CO₂ target type:** 2 options are set out (see also table 1 below):
 1. **Current 'notional building' target** with the same shape and size as the actual building
 2. **Absolute target** independent of the building geometry

Government's preference is to maintain the 'notional building' approach.

- **CO₂ target level:** 2 options are set out (also see tables 1 and 2 below):
 1. **'FEES plus services'** approximately equivalent to:
 - achieving an overall fabric energy efficiency of 39 kWh/m²/year for flats and mid terraces and 46 kWh/m²/year for semi's, end of terraces and detached dwellings. These are the Fabric Energy Efficiency Standards (FEES) recommended by the Zero Carbon Hub. Plus,
 - specifying efficient services including a condensing boiler and 100% low energy lighting.

It is stated that this target achieves an **aggregate 8% reduction** from 2010 Part L across 5 common dwelling types, though this average does **not include an estimate of the proportion of each dwelling type** likely to be built, and the estimated reduction for gas fuelled apartments is 0%.

¹ www.communities.gov.uk/publications/planningandbuilding/brconsultationsection2

2. **'Halfway point'** This is a CO₂ target which is (approximately) half way between the Part L 2010 target and the full on site carbon compliance target, to be achieved through on-site fabric, systems and renewables, being proposed by Zero Carbon Hub for 2016 for each dwelling type.

It is stated that this target achieves an **aggregate 26% reduction** from 2010 Part L.

Government's preference is the 'Fees plus services' target. The main argument is that the previous proposal for a 25% reduction *'introduces a higher cost for housebuilders at a time when Government has a commitment to reduce the burden on the housebuilding industry over the course of this parliament'* (Consultation paragraph 47 and table 3 below).

- **New energy target type:** Government propose to introduce an **absolute Energy Target in kWh/m²/yr** alongside the CO₂ target to ensure a good level of fabric efficiency is achieved as part of compliance (Table 1).
- **Energy target level:** 2 options are set out:
 1. **39 kWh/m²/year for flats and mid terraces and 46 kWh/m²/year for semi's, end of terraces and detached dwellings**
 2. **43 kWh/m²/year for flats and mid terraces and 52 kWh/m²/ year for semi's, end of terraces and detached dwellings.**

Though not explicit the impression is of a government preference for the less efficient 43/52 kWh/m²/year (Table 1 below and Consultation paragraphs 52, 55, 57 – 59) to enable design flexibility.

- **Fuel factor:** Building Regulations currently includes a 'Fuel Factor' applied to dwellings heated by electricity to *'provide some relief for those who have to use more carbon intensive fuels'*. Government proposes 3 options for this fuel factor:
 1. **Maintaining the fuel factor** – Maintaining the current relief for electrically heated dwellings.
 2. **Halfling the fuel factor** – Halfling the relief for electrically heated dwellings.
 3. **Removing the fuel factor** – Removing any relief for electrically heated dwellings.

Government expresses no preference but the stated estimated CO₂ reductions are based on the 2nd option.

- **Back stop/limiting fabric parameters: Reductions** in roof, floor, wall, windows & doors U values. **No Change** in party wall U value and air permeability rate.

TABLE 1, P.23, 2012 CONSULTATION ON CHANGES TO THE BUILDING REGULATIONS IN ENGLAND SECTION TWO, PART L (CONSERVATION OF FUEL AND POWER)

		Government preference	
	2010	2013 'FEES plus services' option and hybrid approach	2013 'Halfway point' option and full absolute approach
Metric for regulatory CO ₂ target	Relative improvement on 2002 notional building (same shape and size as actual building)	Concurrent notional building (same shape and size as actual building)	Absolute kgCO ₂ / m ² /yr
Metric for regulatory energy target	No energy target	Absolute kWh/m ² /yr	Absolute kWh/m ² /yr
Set the regulatory energy target at...		'Full FEES' levels of 39/46 kWh/m ² /year*	'Full FEES' levels of 39/46 kWh/m ² /year*
...or...	n/a	'Interim FEES' levels of 43/52 kWh/m ² / year*	'Interim FEES' levels of 43/52 kWh/m ² / year*
Elemental backstops	Yes	Yes	Yes

TABLE 2, P.25, 2012 CONSULTATION ON CHANGES TO THE BUILDING REGULATIONS IN ENGLAND SECTION TWO, PART L (CONSERVATION OF FUEL AND POWER)

	Mid terrace house	End of terrace house	Detached House	4-storey apartment block	4-storey apartment block	Aggregate % reduction from 2010
Gov. preference	4%	7%	15%	0%	12%	8%
	26%	28%	29%	19%	28%	26%
Fuel assumed	Gas	Gas	Gas	Gas	Electricity*	Mix

*If the fuel factor was retained at 2010 levels these figures would be as for the gas heated 4 storey block.'

TABLE 3, P.25, 2012 CONSULTATION ON CHANGES TO THE BUILDING REGULATIONS IN ENGLAND SECTION TWO, PART L (CONSERVATION OF FUEL AND POWER)

	Mid terrace house	End of terrace house	Detached House	4-storey apartment block	Average cost per dwelling
FEES plus efficient services	£294	£755	£2,622	£248	£795
Half-way point	£2,517	£3,131	£4,910	£1,959	£2,866
Fuel Assumed	Gas	Gas	Gas	Gas	

'The cost figures are for fabric and services improvements only, and do not include the costs of introducing a new quality assurance process. All the figures assume building to the full FEES targets, and are based on 2014 prices.'

TABLE 2 LIMITING FABRIC PARAMETERS, P.33, PROPOSED CHANGES TO TECHNICAL GUIDANCE

	Part L 2012	Proposed change
Roof	0.20 W/m ² K	0.16 W/m ² K
Wall	0.30 W/m ² K	0.20 W/m ² K
Floor	0.25 W/m ² K	0.18 W/m ² K
Party wall	0.20 W/m ² K	None
Windows, roof windows, glazed rooflights, curtain walling and pedestrian doors	2.0 W/m ² K	1.60 W/m ² K
Air Permeability	10 m ³ /h.m ² @ 50Pa	None

'These revised values in Table 2 are based on a TFEE [Total Fabric Energy Efficiency] of 39 and 46 kWh/m²/yr. If TFEE was selected to be 43 and 52 kWh/m²/yr, the roof, wall and floor values would be increased by 0.02 W/m².K and the glazing elements increased by 0.2 W/m².K.'

Proposed Changes To Technical Guidance, P.33

Passivhaus Trust Response

THE METRIC

An absolute standard is preferable, as this reflects the influence of building form, orientation etc in reducing energy demand; the PHT therefore supports the idea of an absolute energy efficiency target and would prefer an absolute CO2 target. However, a hybrid approach would allow the industry to understand the challenge of achieving FEES, while using the same calculation methodology, so may be acceptable as an interim step.

THE TARGET

It is crucial that this opportunity to improve practice regarding building fabric is taken. When the 2016 targets are introduced later, people will need to both improve fabric performance and adopt renewables at that stage; if we don't learn how to deliver fabric improvements now, it will make it much harder to achieve the 2016 target later.

In addition, the Passivhaus Trust recommends that DCLG grant Passivhaus compliant dwellings a 'deemed-to-satisfy' status for Part L1A 2013.

Passivhaus performance is unquestionably in advance of the energy efficiency standards under consideration for 2013, and it should also meet any of the proposed carbon targets, without renewable devices.

LIMITING FABRIC PARAMETERS

Air Permeability

The house building industry has established its ability to consistently build homes with an air permeability substantially lower than 10m³/h.m² @ 50Pa. The Passivhaus Trust proposes a target maximum air permeability of 3 to 5m³/h.m², as a step in driving air permeability down towards Passivhaus levels.

FUEL FACTOR

Removal of the fuel factor will allow the industry to prepare for 2016 standards in the most effective way. By introducing the need to improve the building fabric and reduce heat loss further, or consider alternative to higher carbon fuels.

2. Proposals for a 'robust quality assurance process'

Headlines

- **Introduction of a robust quality assurance process** The Government proposes to introduce the option for house builders to adopt robust quality assurance to verify that homes are built to the standards set out in design.

Selected Details

- **Penalise unless robust quality assurance is applied:** *'include confidence margins unless the developer can demonstrate that they have in place a robust quality assurance process designed to ensure that the intended performance will be delivered through the design and build process.'* (Consultation para 152).

- **Demonstration and level of penalty:**

'5.1a The person carrying out the building work can demonstrate that reasonable provision has been made by:

*a. **Demonstrating that a Publicly Available Specification²** quality assurance standard [XX] that codifies good practice in the design and construction of new homes has been followed. In this case, the calculated DER can be used directly in comparison with the TER; or*

*b. **Demonstrating that an alternative quality assurance standard** has been followed that is equivalent to the standard mentioned in (a). In this case, the calculated DER can be used directly in comparison with the TER; or*

² 'A PAS can be seen as a step in the process of standardization. It includes useful and practical information that can be made available quickly to suit the market need of the developers and users of a product, process or service.' BSI website <http://tiny.cc/qr4mcw>

c. Increasing the calculated DER by 3% prior to comparison with the TER, where no quality assurance scheme has been followed. '

Proposed Changes to Technical Guidance. P.36

- **Proposed Scope:**

*'161. Any standard would need to **cover the life cycle** of the house building process (design, procurement and supply, construction, commissioning and handover ... It could also **be supported by a representative element of physical testing** (on a sample basis) **and feedback** processes to aid continuous improvement.'*

Consultation P.50

For details of proposed scope refer to Consultation para's 162-168

- **Introduction of PAS:**

'169. It is assumed that a developer would need to demonstrate that they were able to operate in accordance with the PAS over a reasonable period of time. This increases the importance of starting the development work on the standard as soon as possible.'

Consultation P.51

Passivhaus Trust Response

THE INTRODUCTION OF QUALITY ASSURANCE PROCESSES

The Passivhaus Trust supports the introduction of a quality assurance process, as a robust QA process is already used on certified Passivhaus buildings and evidence shows that these achieve very close to their performance targets. However, the detail of such a QA process needs careful consideration, whether process based or end-point performance testing. We believe that existing proven QA systems, such as Passivhaus certification, should be acceptable as a compliant QA process.

DEVELOPING A QUALITY ASSURANCE PROCESS

The Passivhaus Trust believes that those involved in the development of a QA process should include representatives of those who will need to implement it, and those who will need to enforce it. Additionally, practitioners and assessors who have experience of such a process in the UK, such as Passivhaus developers and practitioners who have completed buildings and are in the process of monitoring the performance of their buildings and learning from experience to improve practice.

DEMONSTRATING THAT A QA PROCESS HAS BEEN ADOPTED

The Passivhaus Trust suggests that the following could demonstrate that a PAS or alternative QA process has been adopted:

Either: 1. Established Quality Assurance process such as Passivhaus, which can provide evidence regarding the real performance improvements achieved.

Or 2. Evidence demonstrating that the team (covering design, construction, installation, commissioning and operation) has the skills and experience to deliver real performance in line with predicted levels, and has done so on previous projects. This should relate to comfort and health as well as energy performance.

Or 3. Evidence of design details and specification etc prepared by appropriately trained team. Evidence of contractor and installer training at every level. Commitment to inspections and testing at appropriate stages, and ongoing monitoring to inform the process further.

PLUS commitment to post-construction testing of a sample of dwellings.

3. Additional comments

Passivhaus Trust Response

The Passivhaus Trust recommends that DCLG grant Passivhaus-compliant dwellings a 'deemed-to-satisfy' status for Part L1A 2013.

Passivhaus performance is unquestionably in advance of the energy efficiency standards under consideration for 2013, and it should also meet any of the proposed carbon targets, without renewable devices

The recommendation that Passivhaus compliant dwellings be granted deemed to comply status was discussed in Working Group 1 of the Building Regulations Advisory Committee (BRAC), received no opposition, and was included in the group's recommendation to BRAC. The Trust is surprised that this recommendation has not been included in the consultation documents, and believes that there is widespread support for this suggestion within the industry.

It is not proposed that Passivhaus replaces an existing methodology, as it is a different approach to that currently used for Part L compliance. In fact, the Trust supports the Fabric Energy Efficiency Standards (FEES) as part of the 2016 target. Passivhaus does not compete with FEES, but in fact does realistically achieve FEES (and more).

There are precedents for using alternative models for compliance in Part L2A. A designer can use SBEM or the twelve different DSMs, interfaces and MCORs listed in DCLG's 'Notice of Approval'. The Passivhaus Planning Package (PHPP) software is at least as complete and robust an energy model as the SAP. Additionally, the Trust recognises and accepts the separate requirements to produce SAP ratings and EPCs.

The Passivhaus community is designing and building to this standard in the UK already, and the movement is gathering momentum. Such pioneers should be encouraged and given some small reward for going beyond the call of duty.

The Passivhaus Trust therefore proposes that Passivhaus could provide an entirely optional alternative route for its proponents. 'Deemed-to-satisfy' 2013 status for Passivhaus is clearly appropriate.

Additionally, the Passivhaus Trust supports the introduction of quality assurance processes, and proposes that the Passivhaus certification process be accepted as an alternative equivalent quality assurance process for Part L1A 2013.

- Passivhaus is a clearly proven, robust, effective low-energy standard, with c.20,000 Passivhaus homes already up and running successfully on the continent.
- The Passivhaus process without doubt improves the outcome. As-built performance is much closer to design-stage prediction than is more normally the case.
- The whole concept of Passivhaus certification provides technical comfort and offers a significant knock-on benefit for building control bodies. Passivhaus compliance is very clearly defined, with a certification process already set up in the UK, there is a competitive market and the process is operating well.