

## **AECB presses for recognition of Passivhaus in 2013 Regs**

AECB and the Passivhaus Trust are participating in the 2013 Part L1 Working Group, an all-sector industry group which is making technical recommendations to the Building Regulations Advisory Committee (BRAC) and hence onwards to DCLG. They are recommending to the group that it pushes for Passivhaus certification to be formally recognised within the revised building regs.

AECB and the Trust together are recommending to the working group that :

(1) DCLG grants Passivhaus-compliant dwellings a deemed-to-satisfy status for Part L1A 2013, and

(2) DCLG considers the view that Part L1A 2013 should be set at a FEES Plus standard which is essentially FEES with greater attention to draught-free construction.

The reasoning is as follows:

◆ Passivhaus certified homes will be more than good enough (both in terms of energy/carbon performance, and assurances that you'll actually get that performance) to meet the improved objectives of whatever Part L1 DCLG is likely to set in the current round - so if a home is a certified Passivhaus it should automatically pass Building Regs.

◆ In the new Part L1 itself, airtightness is a more logical area to tighten up than the specification of individual components such as insulation or windows because airtightness is currently where the biggest gap - literally - exists between current practice and the 2016 Zero Carbon target.

Below is the recommendation submitted to the working group, in full:

(1) we recommend that DCLG grants Passivhaus-compliant dwellings a 'deemed-to-satisfy' status for Part L1A 2013, and

(2) we broadly support the view that Part L1A 2013 should be set at a 'FEES Plus' standard which is essentially FEES with greater attention to draft-free construction.

### 1. Passivhaus 'deemed-to-satisfy'

1.1. We do not propose that Passivhaus replaces any existing methodology. Passivhaus is a different approach to the ENE1 method used in Part L compliance. Direct comparisons at the technical level are neither trivial nor particularly helpful. (Issues include:

- \* carbon vs. energy;
- \* regulated vs. unregulated;
- \* different treatment of gains;
- \* different treatment of bridging – external psi-values vs. internal psi and Y-values;
- \* different TFA conventions;
- \* different software models - Passivhaus Planning Package vs. SAP;
- \* etc....)

1.2. Passivhaus is clearly a proven, robust, effective low-energy standard. There are c. 20,000 Passivhaus homes on the continent to date.

1.3. With opaque U-values of typically 0.1-0.15 W/m<sup>2</sup>K and air permeability around 0.75 m<sup>3</sup>/m<sup>2</sup>hr @ 50Pa, Passivhaus performance is unquestionably in advance of anything that might credibly be proposed for 2013. (We assume that, in the current economic climate and with Government's desire to reduce the regulatory burden, the 2013 standard will not include any step-changes such as triple glazing or mandatory MVHR). This contention is supported by the Zero Carbon Hub's extensive modelling work, in which 'Spec C' essentially represents Passivhaus space heating demand.

1.4. The Passivhaus process (which includes photographically recording the build phase, pressure testing every unit, etc) without doubt improves the outcome (ie. as-built performance is much closer to design-stage prediction than is more normally the case). Moreover, the stringent requirement for air permeability needs great care from the design stage right through construction, and this leads to quality benefits that go considerably beyond a draught-free living environment.

1.5. The whole concept of Passivhaus certification provides technical comfort and offers a significant knock-on benefit for BCBs. Passivhaus compliance is very clearly defined, a certification process is already set up in the UK, there is a competitive market, and the process is operating well.

1.6. The PHPP software model is based upon sound building physics, and has been validated through extensive testing against field data. (See, for example, CEPHEUS or Passipedia)

1.7. There are precedents in Part L2A for using alternative models – a designer can use SBEM or the various commercial DSMs, interfaces and MCORs listed in DCLG's "Notice of Approval..." (12 of them as at October 2008). The Passivhaus Planning Package software is at least as complete and robust an energy model as the SAP, and arguably contains an improved overheating treatment.

1.8. We recognise and accept the separate requirement to produce SAP ratings and EPCs, so there are no issues to be resolved there either.

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

1.10. In conclusion, 'deemed-to-satisfy 2013' status for Passivhaus is clearly appropriate. We do not argue that this should replace other compliance routes, but that it could provide an entirely optional alternative route for its proponents.

## 2. 'FEES Plus' for Part L1A 2013

2.1. We support the view that the 2013 domestic Regs heat loss standard should be set at the FEES level as defined for 2016, with the additional recommendation that the air permeability be tightened up to around 3 m<sup>3</sup>/m<sup>2</sup>hr@50Pa rather than the figure of 5 which is broadly assumed in the Zero Carbon Hub modelling for FEES and Spec C.

2.2. This enhanced air permeability target would represent a pragmatic intermediate step on the journey to 2016, encouraging designers and builders to pay greater attention to detailing. At around 3 m<sup>3</sup>/m<sup>2</sup>hr it will not, however, necessarily lock them into using MVHR systems in 2013 (which are required at permeabilities around the Passivhaus level)<sup>1</sup>.

2.3. The FEES Plus approach would give the building industry and Government alike the opportunity to 'try out' the basic fabric requirements of 2016 three years early. In 2013 the compliance point could be at the design stage rather than via as-built performance, but with a suitable sample of dwellings checked for compliance and, ideally, monitored in use. The learning outcomes would then be disseminated to the industry, and if necessary FEES could be fine-tuned, in good time for 2016.

2.4. Overall, we contend that it is cheaper to rationalise design and construction to the point that these air permeability levels are met, than it is to further increase the specification of insulation and/or install high performance windows.

2.5. This suggestion is entirely consistent with the deemed-to-satisfy recommendation in section 1 above.

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on behalf of AECB and the Passivhaus Trust

<sup>1</sup> Nevertheless the maximum permeability should be limited to 3 m<sup>3</sup>/m<sup>2</sup>hr if a continuous mechanical extract system is specified, or, in fact, to 1.5 m<sup>3</sup>/m<sup>2</sup>hr if balanced MVHR is specified. There is little point in installing MV systems in leakier buildings than this (as reflected in other countries' practice and standards).

**27th May 2011**