



Passivhaus in relation to UK policy

ENCOURAGING PASSIVHAUS ADOPTION IN THE UK

Influencing Consumer Behaviour



BMW 1 Series Hatchback 114 5dr

Price £18,875



Hatchback 1.4 100 Classic 5dr

Price £15,201

Price differential
£3,674?
...+24%



Influencing Consumer Behaviour

All 3 bed houses from a 1 mile radius

3 bedroom semi-detached house for sale

Main Street, West Hagbourne, Didcot

Sold STC
£345,000



3 bedroom detached house for sale

Easdale - Plot 79 at Atrium At Great Western Park,
Wantage Road, Didcot, OX11

From
£290,000



3 bedroom semi-detached house for sale

Icknield Close, Didcot

Sold STC
£325,000



3 bedroom semi-detached house for sale

Ashton G - Plot 73 at Atrium At Great Western Park,
Wantage Road, Didcot, OX11

From
£295,000





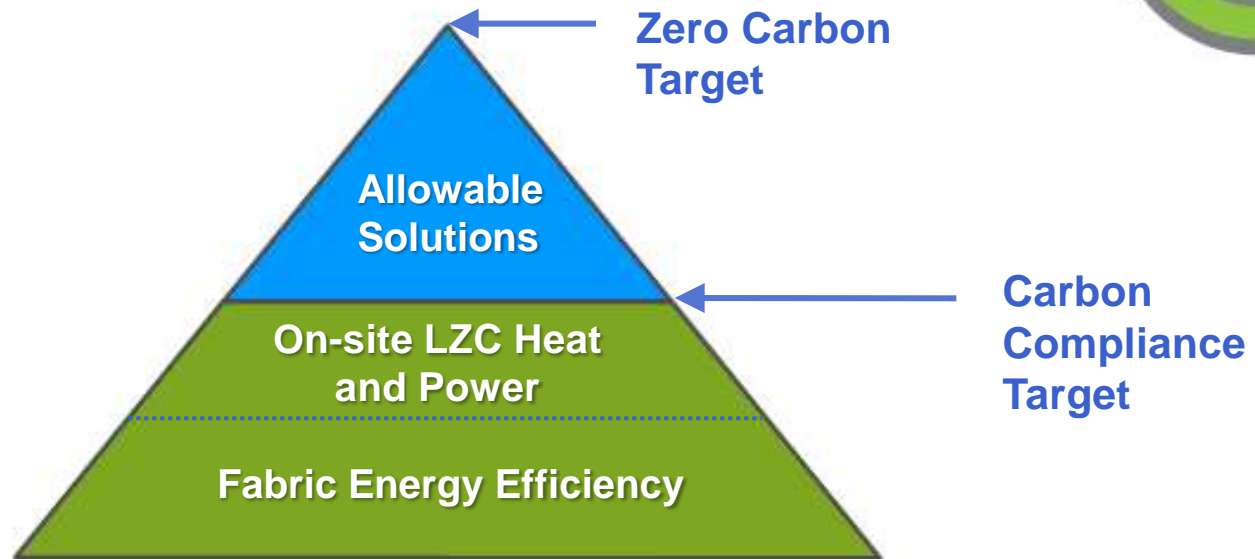
Zero Carbon



Zero carbon homes...
a quick reminder.....



ZERO CARBON POLICY HIERARCHY



The UK Government policy hierarchy for zero carbon homes:

- 1 **Reducing energy demand** by ensuring homes have an energy efficient fabric
- 2 Incorporating low carbon energy technologies to **decrease fossil fuel dependence**
- 3 A **realistic on-site Carbon Compliance target**
- 4 Providing options (Allowable Solutions) to ensure **zero carbon target is achievable**

STEP 1 2016 FEES



Fabric Energy Efficiency of **39 kWh/m²/year** for apartments & mid terrace

46 kWh/m²/year for end terrace, semi and detached



- **Performance not prescriptive** No U-value lists/limits on elements. Uses kWh/m²/yr. For simplicity - space heating and cooling only.
- **Two levels depending on dwelling type**
However same construction delivers 39 or 46, except in the case of the detached



STEP 2 2016 CARBON COMPLIANCE

Target Carbon Compliance of **10** kg CO₂/m²/year for detached homes

11 kg CO₂/m²/year for attached homes

14 kg CO₂/m²/year for apartments

Approach provides solutions for a range of practical situations:



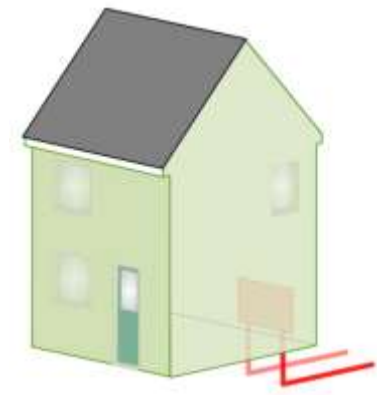
On gas grid
'PV'



On gas grid
'Fabric'



Off gas grid
Heat Pump



Community Heat
Network

As Built Performance.....





File note - Designed v Built performance

As agreed – Task Group Meeting 09 Dec 2010

The Carbon Compliance level recommended by the Task Group is predicated on house builders and the wider industry working over time to close the potential gap between the designed and built energy / carbon performance.

This is a significant challenge to the industry as a whole and represents a 10 year programme. The recommendations from the Carbon Compliance for Tomorrows New Homes (CC4TNH) Task Group were:

- (P1) Government and industry should develop Carbon Compliance accreditation schemes for designers, systems suppliers/manufacturers, and builders of new dwellings that assure in-use performance of dwelling fabric and services.

[CCTG note: this means the verification of carbon performance, not of compliance]

- (P2) Whole house post-construction fabric and services audit tests should be developed and implemented on a sample basis as part of accreditation.

[CCTG note: this does not preclude the testing being on individual elements or at different stages of the process, nor should it be taken as meaning only co-heating tests]

- (P3) The Carbon Compliance regime for zero carbon should incorporate confidence factors* (for design, systems, build and post construction testing), scaled so as to provide an incentive for industry to improve its processes and to participate in an accredited compliance scheme**.

[CCTG note: This needs to be based on robust evidence and science]

- (P4) The use of confidence factors should be taken into account when reviewing the proposed Carbon Compliance level of a 70% reduction from 2006 levels.

The CC4TNH report recommendation P4 has been taken into account when the CCTG determined the recommended Carbon Compliance level.

To provide clarity to all CC Task Group members; as part of working to close the potential performance gap, the industry would arrange for the testing of actual energy / carbon performance of a statistically representative random sample of homes. This would be verified by third party measurement covering fabric, services and LZC technologies.

The approach taken to close the potential performance gap should be urgently developed by industry with regulatory support provided by government as appropriate. The first stage must be to collect data in order to establish the scope and scale of the issue.

A scheme should be developed to address any gaps identified by the research and applied to dwellings built from 2016. The results should inform industry and government with the aim that from 2020 the test results distribution would demonstrate that at least 90% of all dwellings would meet or perform better than the designed energy / carbon performance.

Therefore the industry invites partners and government to join in devising and committing to a process that investigates best ways to measure and address this and to make the new compliance procedures widely known in the industry and amongst regulators by no later than 2016. This should build upon the work done by the Carbon Compliance for Tomorrow's New Homes Task Group.

* as opposed to 'safety factors' which have no regard for the actual quality of the design / product / construction processes.

** The factor applied would reflect the level of confidence in the design / product / construction in delivering the stated performance.



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STEP 3 2016 ALLOWABLE SOLUTIONS



Developer makes an Allowable Solutions payment for a particular development

A workable, verifiable process

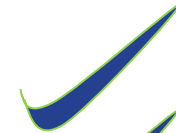
Developer receives a Certificate showing that the required carbon savings (to meet zero carbon standard) have been achieved

Passivhaus as a ZC Solution?



Required:

Fabric



Carbon emissions



As built performance



Allowable solutions



Passivhaus with
SHW and AS
(example)

Optional (?):

Comfort

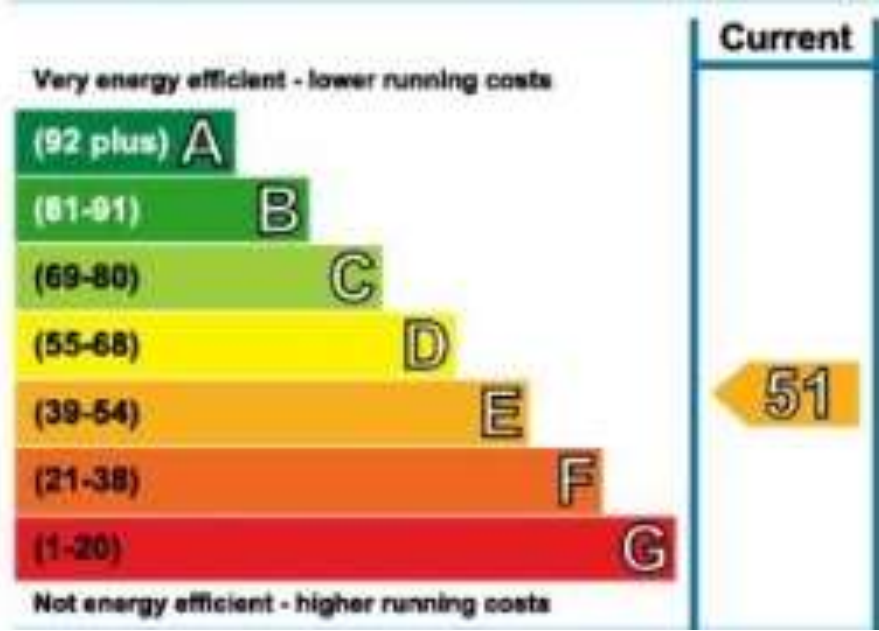


Low maintenance costs



Simple to operate







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