Tarmac Topblock

Sustainability Factsheet No. 2

Tarmac

Code for Sustainable Homes

The Department for Communities and Local Government launched the Code for Sustainable Homes (the Code) in December 2006.

The Code, which will be mandatory for Government-funded housing schemes through English Partnerships and the Housing Corporation, will be advisory for the private sector. For Government-funded housing the scheme will come into effect in April 2007. It is anticipated that a technical manual will be available in March 2007.The private sector is being encouraged to comply with the Code, pending future mandatory assessment under the Code Standards.

The Code is seen by Government as a step change towards encouraging developers to offer more innovative solutions and empowering homebuyers. The Code is an assessment based on the BRE EcoHomes scheme, against a mix of essential and optional elements with a resulting classification against a star rating system. This rating system, similar to that currently used for white goods, will enable homebuyers to compare the sustainability credentials of new homes offered for sale.

The essential requirements of each category of the Code have been shown in the following table:

Category	Essential Element	Standard
1	**Energy/CO_2** - efficiency (conservation of fuel and power)	Minimum standard (% better than Building Regulations Part L1 A 2006) at each level of the Code
2	**Water** - efficiency (use of potable water)	Minimum standard at each level of the Code
3	**Materials**	Minimum standard at Code entry level - BRE Green Guide rating of at least D on 3 out of the 5 specified building elements
4	**Surface water run-off**	Minimum standard at Code entry level - Peak and annual run-off should be no greater than for the site prior to development
5	**Waste** a. Site waste management (during construction) b. Household waste management (during occupation and use)	Minimum standard at Code entry level - Adopt and implement a site waste management plan (including monitoring of waste) Adequate space for containment of waste storage
6	**Pollution** – Reducing global warming potential	No minimum standard
7	**Health & well-being** – daylight, sound insulation etc.	No minimum standard
8	**Management**	No minimum standard
9	**Ecology**	No minimum standard

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The table opposite shows the minimum standards, and number of points required in order to achieve each level of the Code.

From April 2007, a 3-star rating is required for Government-funded homes. This rating is said to represent the best balance of sustainability credentials and the inevitable additional costs.

To achieve a 3-star rating, points are awarded for meeting the specified minimum for energy and water targets and an extra 46.7 points would need to be earned from a combination of the optional elements.

To achieve the 25% reduction in CO_2 the builder will need to consider a range of improvements to the specification:

- Reducing the U-value of the exposed elements of the building.
- Reducing the air permeability of the structure.
- Installing a high efficiency-condensing boiler.
- Low or zero carbon technologies such as solar panels or biomass boilers as an option.

The additional 46.7 points will need to be gained by adopting some of the measures detailed in Categories 3-9 of the Code (including those that are a minimum entry requirement), and by improving on the minimum standards within categories 1 & 2.

One important aspect, from Category 3, is the environmental impacts of construction materials which can attract up to 4.5 points. Similarly, the responsible sourcing of materials can earn up to 3.6 points. Our products are well placed to score highly against these two criteria.

Tarmac Topblock products can also be used to efficiently improve the Part L performance, provide a means of constructing a durable internal drying space, control construction costs,

Minimum Standards

	Energy		Water		
Code Level	Standard (percentage better than Part L 2006)[1]	Points Awarded	Standard (litres per person per day)	Points awarded	Other points awarded
1 ★	10	1.2	120	1.5	33.3
2 ★★	18	3.5	120	1.5	43.0
3 ★★★	25	5.8	105	4.5	46.7
4 ★★★★	44	9.4	105	4.5	54.1
5 ★★★★★	100 [2]	16.4	80	7.5	60.1
6 ★★★★★★	A zero carbon home[3]	17.6	80	7.5	64.9

Notes

1. Building Regulations: Approved Document L (2006) – 'Conservation of Fuel and Power.'

2. Zero emissions in relation to Building Regulations issues (i.e. zero emissions from heating, hot water, ventilation and lighting).

3. A completely zero carbon home (i.e. zero net emissions of carbon dioxide (CO_2) from all energy use in the home).

provide enhanced sound insulation and form the basis of a building which could be readily extended or altered for a 'lifetime' home.

Sustainable solutions

Some practical guidance and examples of how Tarmac Topblock products can be used in meeting the Code Standards are summarised below:

Category 1 – Energy/CO_2

Tarmac Topblock products can be used to achieve enhanced levels of thermal insulation for external walls and beam and block ground floors. Some examples are illustrated below:

Category 3 - Materials

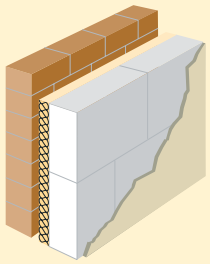
Environmental impact of material

Where required, elemental environmental ratings for Topblock constructions can be assessed in accordance with the Green Guide to Housing Specification. The constructions shown on the right are based on the 2005 version, which is to be revised during 2007.

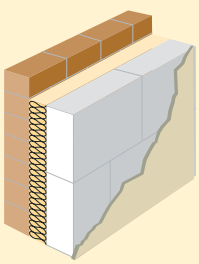
Responsible sourcing of materials – basic elements

For some time specifiers have had the opportunity to consider the environmental impact of building

Example constructions - thermal insulation



Partial cavity fill	0.30 W/m²K or better	0.27 W/m²K or better	0.24 W/m²K or better
Facing brick 50mm clear cavity Partial cavity fill	Durox Supabloc or Toplite GTI plus 35mm Kingspan TW50	Durox Supabloc or Toplite GTI plus 45mm Kingspan TW50	Durox Supabloc plus or Toplite GTI plus 50mm Kooltherm K8
Block 12.5mm plasterboard on dabs	Hemelite Standard plus 45mm Kingspan TW50	Hemelite Standard plus 50mm Kooltherm K8	Hemelite Standard plus 65mm Kooltherm K8



Full cavity fill	0.30 W/m²K or better	0.27 W/m²K or better	0.24 W/m²K or better
Facing brick Full cavity fill	Durox Supabloc or Toplite GTI plus 75mm Isowool Hi-Cav	Durox Supabloc or Toplite GTI plus 85mm Isowool Hi-Cav	Durox Supabloc plus or Toplite GTI plus 100mm Isowool Hi-Cav
Block 12.5mm plasterboard on dabs	Hemelite Standard plus 100mm Isowool Hi-Cav	Hemelite Standard plus 100mm Dritherm 32	Hemelite Standard plus 125mm Dritherm 32

As a guide, the typical wall U-value for regulation compliance is envisaged to be in the range of 0.27 - 0.30W/m²K, but to be confirmed by SAP or other whole building energy calculation.

materials in their designs, through the use of environmental rating methods such as The Building Research Establishment's (BRE) BREEAM and EcoHomes environmental rating schemes.

In addition, attention is focusing on whether the materials that are specified are responsibly sourced. The implication being that irresponsible material sourcing can at best have unknown environmental consequences, and at worst a disastrous environmental impact.

Responsible sourcing of materials was considered to be an issue primarily concerned with imported timber and the consequences of illegal logging. Although the focus has long been on timber, it is natural to question the origins of all key building materials when conducting environmental assessments of buildings.

Between 0.3 & 1.8 points are awarded where materials used in key elements, such as walls and floors, are responsibly sourced.

Demonstrating responsible sourcing

Generally for products and raw materials extensively sourced from within the UK, current employment, environmental and safety legislation should in the main provide the means of ensuring that responsible sourcing is achieved.

For imported materials, particularly from under-developed countries, it will be necessary to obtain knowledge and assurances on the prevailing working and social conditions.

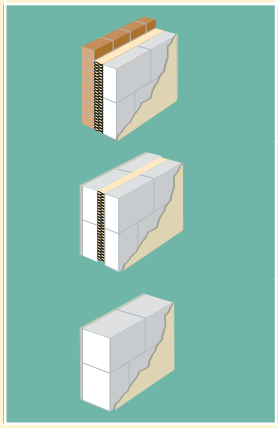
For building products generally there is currently no fully agreed method of determining what constitutes responsible sourcing. Work is underway at BRE /Industry level in the form of a pilot study to scope and examine the ways in which responsible sourcing might be interpreted for buildings, and for products.

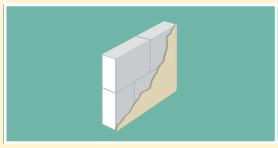
Any resulting scheme will undoubtedly require a knowledge of the supply chain and chain of custody. Third-party accreditation or schemes developed by industry sectors are likely to be used to demonstrate the responsible sourcing of a supplier's products.

In the meantime, through the practices and procedures operated by Tarmac Topblock, we believe that specifiers can have the confidence to continue to specify our products, safe in the knowledge that we meet all current criteria that would be regarded as constituting responsible sourcing. In particular the following are applicable to our company.

- We comply with all relevant employment, environmental and health & safety legislation.
- All factories operate environmental, health & safety and quality systems to recognised standards.
- The environmental and quality systems that we operate are third-party accredited by BSI.
- We only use cement and aggregate from suppliers that operate to ISO 14001 Environmental Management System.
- Traceability of product to raw materials and their suppliers is assured via our Quality Managment System.
- Over 95% of raw materials are sourced within the UK.

Environmental performance example constructions - ratings according to the Green Guide to Housing

External walls	Wall construction	Summary rating
	Facing brick, cavity insulation, Durox/Toplite aircrete inner leaf, plasterboard/plaster finish	A
	Render on Topcrete dense, cavity insulation, Durox/Toplite inner leaf, plasterboard/plaster finish	A
	Render, Durox/Toplite aircrete solid wall, plasterboard/plaster finish	A

Internal walls	Wall construction	Summary rating
	Durox/Toplite aircrete partition, plasterboard/plaster finish	A

The above constructions are based on the Green Guide to Housing Specification, which should be consulted for full specification details. The Green Guide is expected to be revised during 2007.

Category 6 – Pollution

Topblock products do not contain substances that have any global warming potential (GWP) in either their manufacture or composition. They can be used in constructions to achieve the maximum points awarded if the associated products also comply.

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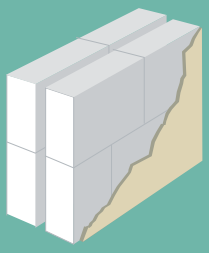
Category 7 – Health & well-being

Tarmac Topblock products can be used in separating wall constructions to achieve higher standards of sound insulation than required by Part E of the Building Regulations.

Up to 4 points are awarded depending on the level of pre-completion testing undertaken and a commitment to achieve specified levels of acoustic performance.

Some examples are shown of separating walls that should be capable of achieving enhanced sound insulation.

Example constructions - enhanced sound insulation

	Solution	Performance Range dB, DnTw & Ctr
75mm minimum cavity Wall finish as described 	2 x 100mm Durox Supabloc 4 or 7 / Toplite Standard or 7 finished with plasterboard on dabs (8kg/m²) on 8mm thickness render scratch coat	48-56
	2 x 100mm Hemelite Standard finished with plaster	48-55
	2 x 100mm Topcrete Standard finished with plaster	47-60
	2 x 100mm Hemelite Standard, 35mm Isowool Hi-Therm 35 partial fill, finished with plasterboard	47-58

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Where do I find out more?

Tarmac Topblock offer a complete range of aircrete, lightweight and dense products. As a UK market leader, our blocks meet the most demanding of building regulations and requirements. To make contact:

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Call us on: 0845 606 2468

Technical Helpline
Call us on: 0870 2421489
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