THOMAS ARMSTRONG
(CONCRETE BLOCKS)
LIMITED

Technical Guidance 01/08: June 2008

The Code for Sustainable Homes

A Simple Guide

Meeting the Challenges with Thomas Armstrong Concrete Blocks

About this Guide

This guide is intended to be a simplified introduction to the overall process of achieving a Code for Sustainable Homes Rating and to help clarify a rather complex subject. Examples are given of the way in which walls and floors constructed with products from Thomas Armstrong Concrete Blocks Ltd can help meet Code level requirements.

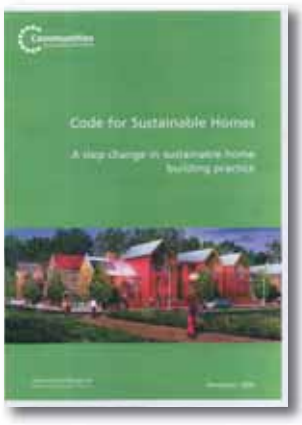
The Code and other requirements are subject to change and therefore the information contained here is not guaranteed to remain accurate - always seek expert and up to date guidance.

For more detailed guidance, please refer to the 'Further Information' section at the end.

Contents

Introduction to the Code

The Code for Sustainable Homes is a government supported initiative to ensure that new homes are built to minimise carbon dioxide emissions and environmental impact over the lifetime of the construction. This code will be used by designers, builders and buyers to easily determine the sustainability & environmental credentials of the house. The code will also form the basis of future developments of Building Regulations.



From April 2007, the Code for Sustainable Homes became mandatory for English Partnerships and Housing Corporation work. From May 2008, all new homes are required to have a Code Rating carried out in order to produce a Code Certificate.

The Code for Sustainable Homes is based on the BRE 'EcoHomes' system and is intended to provide a single national standard. The code builds upon EcoHomes in a number of ways:

- The code introduces minimum standards for energy and water efficiency at every level of the code; higher levels of sustainability achieve a higher code level.
- The code uses a simple star-rating system.
- The code includes new areas of sustainability designs such as 'Lifetime Homes' and the inclusion of composting facilities.
- The code is closely linked to Building Regulations which specifies the minimum building standards required by law.
- It is intended that the Code will act as a benchmark for future regulation changes for carbon emissions and energy usage.

Timescales for Implementation

In 2006, the Government announced a 10-year timetable towards a target that all new homes from 2016 onwards must be built to 'Zero Carbon' standards. This would be achieved through a step-by-step tightening of the Building Regulations.

From May 2008 it became compulsory for every new home to have undergone an assessment for the Code and to be included in the Home Information Packs (HIP's) for prospective buyers.

Achieving a Code level is not yet compulsory for private housing so the developer can choose to acquire a 'Nil-Rated Certificate' showing that the home has only been designed to meet current Building Regulations.

Year	Target	Private Sector	Public Sector
2008	The Code becomes mandatory 1st May 2008	Rating now Mandatory	Level 3 Mandatory
2010	**Code level 3** (★★★) A 25% improvement in energy efficiency compared to Part L of the Building Regs 2006.	Level 3 Mandatory	Level 4 Mandatory
2013	**Code Level 4** (★★★★) A 44% improvement in energy efficiency compared to Part L of the Building Regs 2006.	Level 4 Mandatory	Level 6 Mandatory
2016	**Code Level 6** (★★★★★★) An approximately 150% improvement in energy efficiency compared to Part L of the Building Regs 2006. The Zero Carbon Home.	Level 6 Mandatory	Level 6 Mandatory

How does the Code work?

The 'Code Rating' of a home is based on a star-rating system of 1 to 6, the entry level being the 1 (★) rating and the 6 (★★★★★★) rating being the highest achievable level, reflecting exemplary sustainability credentials i.e. the 'Zero Carbon' home.

This star-rating system is intended to communicate in a simple fashion the overall sustainability performance of a new home.

The Code Assessment can only be carried out by a licensed and accredited Code Assessor ensuring that the rating is independent and credible.

The Code has been adopted by the government to measure and award points across 9 separate Design Categories from which the final Code Level is determined.

These 9 Design Categories are shown in Table 1 below. In each of these categories there are points available; the more energy efficient and sustainable, the higher the points achieved.

Table 1: The 9 Design Categories

Category	Aims	
1. Energy / CO_2	To minimise CO_2 emissions to the atmosphere arising from the operation of the home.	**Mandatory Standards at All Code Levels**
2. Water	To reduce consumption of water in the home.	
3. Materials	To encourage the use of materials that have less impact on the environment taking into account the full life cycle and to encourage use of responsibility sourced material.	**Minimum Standards at Code 1 Entry Level**
4. Surface Water Runoff	To ensure that peak run-off rates and annual volumes of run-off will be no greater than the previous conditions for the development site.	
5. Waste	To encourage the use of recycled household waste.	
6. Pollution	To reduce the potential global warming from substances used in the manufacture or composition of building materials and to reduce nitrous oxides emissions.	No Minimum Standard
7. Health & Wellbeing	To improve the quality of life in houses including good natural daylight, sound insulation and private-space lifetime homes.	**Minimum Standard at Code 6 Level Only**
8. Management	Concerns the management of the home (during construction and use).	No Minimum Standard
9. Ecology	To encourage development on land that already has limited ecological value, enhance the ecological value of a site, protect existing ecological features, minimise reduction in ecological value and to minimise building footprint.	No Minimum Standard

Achieving a Sustainability Rating

The sustainability rating which a home achieves represents its overall performance across the 9 design categories as outlined in Table 1 above.

Energy Efficiency and Water Efficiency categories are deemed the most critical to sustainability and have been given minimum standards that must be achieved in all cases. The other 7 design categories make up the 'other points required' which reflect the flexible nature of the code.

An overall good star-rating can be achieved by maximising points in one of these categories if limited points can only be gained from another. However, the higher the Code Rating required, the less room for manoeuvre This is summarised below.

Table 2: Achieving a Sustainability Rating

	ENERGY Minimum Standard		WATER Minimum Standard			
Code Level	% better than Part L 2006 **(Note 1)**	Available Points	Litres per person per day	Available Points	Other Points Req'd **(Note 4)**	Total Points Score Req'd
1 (★)	10%	1.2	120	1.5	33.3	36
2 (★★)	18%	3.5	120	1.5	43.0	48
3 (★★★)	25%	5.8	105	4.5	46.7	57
4 (★★★★)	44%	9.4	105	4.5	54.1	68
5 (★★★★★)	100% **(Note 2)**	16.4	80	7.5	60.1	84
6 (★★★★★★)	A Zero Carbon Home **(Note 3)**	17.6	80	7.5	64.9	90

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 lighting).
3. A completely zero carbon home (i.e. zero net emissions of Caron Dioxide CO_2 from *all* energy use in the home).
4. Points from the remaining design categories 3 to 9 as outlined in Table 1 allows design flexibility.

Determining the Total Points Score

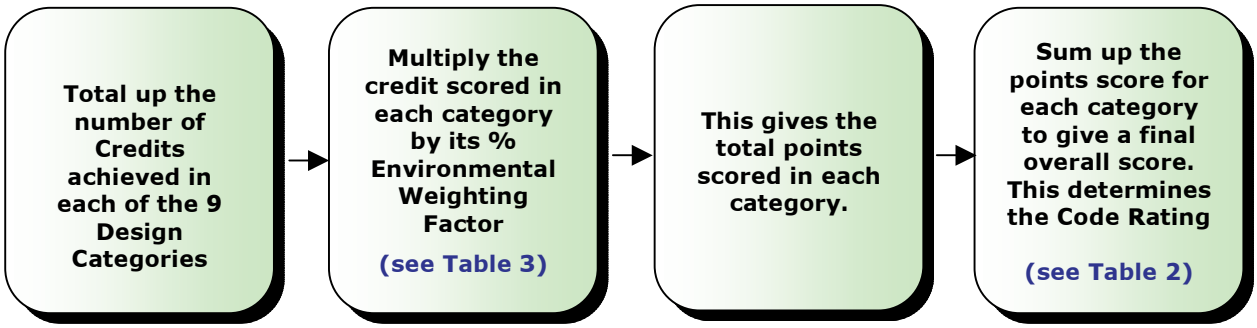
Within each of the 9 Design Categories as described in Table 1, there are a number of 'credits' available. These credits are for specific design details and again reflect the importance placed on their environmental impact. Describing each of these credits in each category is beyond the scope of this guide; please refer to the 'Further Reading' list at the end where such detail is available.

Each design Category is given an 'Environmental Weighting Factor' which has been devised to ensure that those design details with the most environmental impact are given greater importance.

Table 3 opposite summarises the credits available for each Design Category along with their associated Environmental Weighting Factor. The schematic overleaf shows how the credits achieved in each category are converted into the final total points score and the ultimate Code Rating.

Table 3: Environmental Weighting Factors

Design Category	Number of Available Credits	Weighting Factor
1. Energy / CO_2	29	36.4%
2. Water	6	9.0%
3. Materials	24	7.2%
4. Surface Water Run Off	4	2.2%
5. Waste	7	6.4%
6. Pollution	4	2.8%
7. Health & Well Being	12	14.0%
8. Management	9	10.0%
9. Ecology	9	12.0%



The Process of Obtaining a Code Rating

1. Registering a Site (This is done before the detailed designs are finished)

The client chooses a Service Provider for the Code from the register at the website www.communities.gov.uk. The Service Provider will offer a register of licensed and trained Code Assessors from which the client can choose from and appoint.

The Code Assessor registers the development formally with the Service Provider and this registration remains valid for 5 years. It is only possible to register developments against the current version of the Code for Sustainable Homes. Sites already registered under a previous version can be re-registered under the current version.

At the time of writing, two such Service Providers are BRE Global (www.breeam.org) and Stroma (www.stroma.com).

2. Performing Code Assessments

Stage 1 - Design Stage (DS)

The aim of this stage is to:

- Assess the design specifications before construction begins for each individual dwelling to determine the Design stage or Interim Rating.
- Award a Design stage or Interim Certificate.

Stage 2 - Post Construction Stage (PCS)

The aim of the PCS assessment is to assess each individual dwelling 'as built' to determine the final score for its Code Rating.

Using the DS assessment as a starting point, the PCS assessment is carried out to confirm that houses are either built to the DS specifications or that any variances from the DS are documented, reassessed and a new score and Code level calculated accordingly.

Nil-Rated Certificates

Until 2010 when Code Level 3 becomes mandatory for all new private homes, the developer can choose to include a 'Nil-Rated Certificate' in the Home Information Pack.

This means that the developer has chosen not to have the dwelling assessed for a Code level but has acquired this certificate to confirm that the building has been designed in conformance to the current Building Regulations.

Meeting the Code with Thomas Armstrong Blocks

Concrete blocks from Thomas Armstrong Ltd can be used in achieving credits in the Design Categories leading to a Code 3 or Code 4 rating in the following ways:

Category 1: Energy / CO2

This is by far the most influential Code category of all. Concrete blocks from Thomas Armstrong Ltd can be used to achieve enhanced thermal insulation and air-tightness targets in walls and floors. More points are available as the % improvement over Part L 2006 requirements increases, calculated using SAP: 2005.

We offer a wide variety of block types. With our Airtec range of aerated concrete blocks, we manufacture the most thermally insulating concrete block currently available in the UK making lower U-Values easier for the developer to achieve. Some examples are shown on Page 8 overleaf.

Category 3: Materials

Environmental Impact of Materials

With 4.5 credits available, there is a mandatory requirement to achieve a Green Guide Rating of between A+ and D for at least three of the following five elements of the building envelope:

- Roof
- External Walls
- Internal Walls (including separating walls)
- Upper and Ground Floors (including separating floors)
- Windows

Thomas Armstrong Concrete Blocks Ltd supply a range of Aerated, Ultralite, Lightweight and Dense concrete blocks which can easily achieve a range of BRE Green Guide ratings from A+ (3 Code credits) to B (1 Code credit) for walls and block and beam floors. The majority of common constructions will meet the A to A+ rating in the Green Guide 2008.

Responsible Sourcing of Materials

Responsible sourcing of materials can be awarded with 3.6 credits in this category. Any sourcing from within the UK will generally comply with this standard and Thomas Armstrong's extensive network of supply points throughout Northern England ensures local sourcing of building materials for the developer.

Materials imported from abroad and third world countries such as timber will be required to provide evidence of the chain of supply compliance. It is therefore incumbent upon the designer to ensure that all social, ethical and environmental aspects of the supply chain are satisfactory. The vast majority of materials used in masonry construction are sourced locally.

Category 5: Waste

All Thomas Armstrong concrete blocks can be recycled and with our Airtec range of aerated blocks construction waste is minimised even further since they can be easily cut into smaller pieces thus maximizing yield.

Category 6: Pollution

Thomas Armstrong products do not contain any materials which have global warming potential; therefore maximum points can be achieved.

Category 7: Health & Well Being

Sound insulation between dwellings is a key issue here and all blocks from Thomas Armstrong Ltd are Part E and Robust Standard Detail compliant. Points are awarded for achieving higher standards of airborne and impact sound insulation than is required by Part E. 1 to 4 credits are available here depending on the level achieved.

Walls & Floors – Solutions for Code 3 and Code 4

Cavity Walls (using Traditional 10mm mortar joints)

The following examples avoid the need for expensive insulated plasterboards and utilise wider cavities than the current 100mm standard – a practice that is likely to become more and more widespread and typical. Furthermore we have included both inexpensive insulation options and the more expensive high performance insulation options as cost will become the major obstacle to achieving the necessary Code Levels.

Part-Filled Cavity

- Brick Outer Leaf
- Insulation (with 50mm clear cavity)
- Plasterboard on dot & dab

Fully-Filled Cavity

- Brick Outer Leaf
- Cavity 75mm – 165mm
- Plasterboard on dot & dab

Inner Leaf (100mm)	Cavity Insulation	U-Value W/m²K	Cavity Insulation		U-Value W/m²K
Airtec XL 2.9N (λ = 0.09)	0mm Kingspan TW50 or Celotex CW3000Z	0.27	90mm Blown Fibre 85mm Isover CWS 80mm Springvale Ecobead Platinum injected 75mm Isover Hi-Cav 32 or Knauf Dritherm 32		0.27
	5mm Kingspan TW50 or Celotex CW3000Z	0.23	115mm Blown Fibre 105mm Isover CWS 100mm Springvale Ecobead Platinum injected 100mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA	0.23
	0mm Kingspan TW50 or Celotex CW3000Z	0.20	140mm Blown Fibre 130mm Isover CWS 120mm Springvale Ecobead Platinum injected 115mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA D	0.20
Airtec Standard 3.6N (λ = 0.11)	5mm Kingspan TW50 or Celotex CW3000Z	0.27	95mm Blown Fibre 90mm Isover CWS 80mm Springvale Ecobead Platinum injected 80mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA NA	0.27
	5mm Kingspan TW50 or Celotex CW3000Z	0.23	120mm Blown Fibre 110mm Isover CWS 100mm Springvale Ecobead Platinum injected 100mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA	0.23
	0mm Kingspan TW50 or Celotex CW3000Z	0.20	145mm Blown Fibre 135mm Isover CWS 125mm Springvale Ecobead Platinum injected 120mm Isover Hi-Cav 32 or Knauf Dritherm 32	D NA	0.20
Airtec Seven 7.3N (λ = 0.17)	0mm Kingspan TW50 or Celotex CW3000Z	0.27	105mm Blown Fibre 100mm Isover CWS 90mm Springvale Ecobead Platinum injected 85mm Isover Hi-Cav 32 or Knauf Dritherm 32		0.27
	5mm Kingspan TW50 or Celotex CW3000Z	0.23	130mm Blown Fibre 120mm Isover CWS 110mm Springvale Ecobead Platinum injected 105mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA NA	0.23
	5mm Kingspan TW50 or Celotex CW3000Z	0.20	155mm Blown Fibre 140mm Isover CWS 130mm Springvale Ecobead Platinum injected 125mm Isover Hi-Cav 32 or Knauf Dritherm 32	D D	0.20
Lightweight Aggregate Block 7.3N (λ = 0.42)	5mm Kingspan TW50 or Celotex CW3000Z	0.27	115mm Blown Fibre 110mm Isover CWS 100mm Springvale Ecobead Platinum injected 100mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA	0.27
	0mm Kingspan TW50 or Celotex CW3000Z	0.23	140mm Blown Fibre 130mm Isover CWS 120mm Springvale Ecobead Platinum injected 115mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA D	0.23
	5mm Kingspan TW50 or Celotex CW3000Z	0.20	165mm Blown Fibre 150mm Isover CWS 140mm Springvale Ecobead Platinum injected 140mm Isover Hi-Cav 32 or Knauf Dritherm 32	D D	0.20

Key:

D : - Overall thickness shown can be achieved by putting together two thinner layers of currently available thickness.

NA : - Thickness stated not currently available from manufacturers. These examples illustrate the minimum thicknesses required to achieve the stated U-Value. In practice, the next available higher thickness will have to be used.

Cavity Walls (using Thin-Joint mortar construction)

Thin Joint mortar construction is a recognised Modern Method of Construction (MMC), a specific requirement for Social Housing. Thin Joint construction significantly improves thermal insulation and airtightness of the building envelope. This will lead to improved DER and Heat Loss Parameter values when calculated using SAP 2005 which in turn leads to achieving credits in Category 1 of the Code 'Energy and CO2 Emissions'.

Part-Filled Cavity

- Brick Outer Leaf
- Insulation (with a 50mm clear cavity)
- Thin Joint Mortar Inner Leaf
- Plasterboard on dot & dab

Fully-Filled Cavity

- Brick Outer Leaf
- Cavity 70mm – 150mm
- Thin Joint Mortar Inner Leaf
- Plasterboard on dot & dab

Inner Leaf (100mm)	Cavity Insulation	U-Value W/m²K	Cavity Insulation		U-Value W/m²K
Airtec XL 2.9N (λ = 0.09)	5mm Kingspan TW50 or Celotex CW3000Z	0.27	85mm Blown Fibre 80mm Isover CWS 70mm Springvale Ecobead Platinum injected 70mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA	0.27
	0mm Kingspan TW50 or Celotex CW3000Z	0.23	110mm Blown Fibre 100mm Isover CWS 90mm Springvale Ecobead Platinum injected 90mm Isover Hi-Cav 32 or Knauf Dritherm 32	 NA	0.23
	65mm Kingspan TW50 or Celotex CW3000Z	0.20	135mm Blown Fibre 125mm Isover CWS 115mm Springvale Ecobead Platinum injected 110mm Isover Hi-Cav 32 or Knauf Dritherm 32	D NA	0.20
Airtec Standard 3.6N (λ = 0.11)	0mm Kingspan TW50 or Celotex CW3000Z	0.27	90mm Blown Fibre 85mm Isover CWS 80mm Springvale Ecobead Platinum injected 75mm Isover Hi-Cav 32 or Knauf Dritherm 32		0.27
	5mm Kingspan TW50 or Celotex CW3000Z	0.23	115mm Blown Fibre 105mm Isover CWS 100mm Springvale Ecobead Platinum injected 95mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA NA	0.23
	70mm Kingspan TW50 or Celotex CW3000Z	0.20	140mm Blown Fibre 130mm Isover CWS 120mm Springvale Ecobead Platinum injected 115mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA D	0.20
Airtec Seven 7.3N (λ = 0.17)	5mm Kingspan TW50 or Celotex CW3000Z	0.27	105mm Blown Fibre 95mm Isover CWS 90mm Springvale Ecobead Platinum injected 85mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA	0.27
	0mm Kingspan TW50 or Celotex CW3000Z	0.23	125mm Blown Fibre 120mm Isover CWS 110mm Springvale Ecobead Platinum injected 105mm Isover Hi-Cav 32 or Knauf Dritherm 32	NA NA	0.23
	75mm Kingspan TW50 or Celotex CW3000Z	0.20	150mm Blown Fibre 140mm Isover CWS 130mm Springvale Ecobead Platinum injected 125mm Isover Hi-Cav 32 or Knauf Dritherm 32	D	0.20

Key:

D : - Overall thickness shown can be achieved by putting together two thinner layers of currently available thickness.

NA : - Thickness stated not currently available from manufacturers. These examples illustrate the minimum thicknesses required to achieve the stated U-Value. In practice, the next available higher thickness will have to be used.

Block & Beam Suspended Floors

Thomas Armstrong traditional lightweight concrete blocks and Airtec aerated concrete blocks can be used as infill for block and beam suspended floors.

This offers the builder the convenience of using the same block for the floor as well as the external, internal and separating walls throughout the dwelling.

This maintains the excellent thermal mass benefits of masonry construction associated with medium-heavy houses (see below) and also allows credits to be maximised in the 'Category 3 Materials: Responsible Sourcing' section of the Code.

As with walls, for floors a range of U-Values between 0.15 and 0.22 W/m2K will satisfy for Code Levels 3 & 4 until Part L is revised in 2013. A range of examples are shown below using combinations of generic insulation types, block infill types and floor perimeter / area ratios (P/A) to cover typical terraced, semi and detached dwellings.

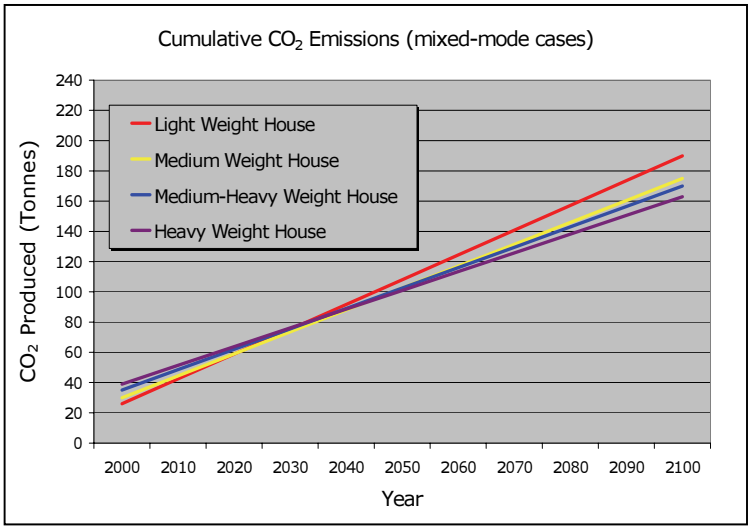
		0.22 W/m^{2}K		0.18 W/m^{2}K		0.15 W/m^{2}K	
P/A Ratio	Insulation Type	Airtec Floor Block Infill	Lightweight Concrete Block Infill	Airtec Floor Block Infill	Lightweight Concrete Block Infill	Airtec Floor Block Infill	Lightweight Concrete Block Infill
0.50	Expanded Polystyrene (λ = 0.040)	90mm	100mm	130mm	140mm	170mm	180mm
	Extruded Polystyrene (λ = 0.027)	60mm	70mm	85mm	95mm	115mm	125mm
	Polyurethane (λ = 0.025)	55mm	65mm	80mm	90mm	105mm	115mm
0.40	Expanded Polystyrene (λ = 0.040)	80mm	95mm	120mm	130mm	160mm	175mm
	Extruded Polystyrene (λ = 0.027)	55mm	65mm	80mm	90mm	110mm	120mm
	Polyurethane (λ = 0.025)	50mm	60mm	75mm	85mm	100mm	110mm
0.30	Expanded Polystyrene (λ = 0.040)	65mm	80mm	110mm	115mm	145mm	160mm
	Extruded Polystyrene (λ = 0.027)	45mm	55mm	70mm	80mm	100mm	110mm
	Polyurethane (λ = 0.025)	40mm	50mm	65mm	70mm	95mm	100mm

Note:
- Airtec blocks laid 620mm wide, concrete blocks laid 440mm wide

Thermal Mass – The Advantage of Masonry Construction

On a final note, future regulation changes and updates to SAP calculation procedures are likely to take more account of the excellent thermal mass benefits of medium to heavy weight masonry construction.

The thermal mass benefits of block products are supported by new research commissioned by The Concrete Centre which predicts that some lightweight homes with minimal thermal mass could experience problems in the future due to regular overheating as a result of higher temperatures. The research, carried out by Arup Research & Development, shows that conventional masonry houses that take advantage of their inherent thermal mass can save a significant amount of energy over their lifetime compared to lightweight timber frame housing. The research is the most comprehensive study to date to examine both embodied and Operational CO2 emissions.



Graph Reproduced Courtesy of 'The Concrete Centre' www.concretecentre.com

The research takes account of expert's predictions for climate change and demonstrates that the thermal mass in masonry homes reduces the need for air conditioning. It also highlights the additional savings that can be achieved through using thermal mass to capture solar gains in winter, therefore reducing the consumption of heating fuel. These savings can offset the slightly higher level of embodied CO2 in a masonry house in as little as 11 years and ultimately lead to lower whole life CO2 emissions.

Comparing lightweight timber homes with medium and heavyweight masonry and concrete homes, Arup found the latter can have the lowest total energy consumption and CO2 emissions over their lifecycle. This is achieved through using the thermal mass of block work in the walls to optimise the energy efficiency of the structure.

Adding further thermal mass from concrete floors saves even more CO2 over the life of the house. Homes built using masonry and other concrete products such as precast flooring, with their inherent thermal mass, will be cooler in the summer than timber framed and so will not suffer overheating to such a degree.

Current technical codes of practice such as the BRE Green Guide are primarily based on the 'embodied' energy of a construction product i.e. the amount of CO2 generated in producing the product. However, greater recognition of the significant reduction in lifetime emissions of a home due to the thermal mass will be taken in future regulation and assessment updates in line with the Code for Sustainable Homes.

Further Information

The following websites and publications are excellent sources of detailed information on the Code for Sustainable Homes and related topics. The publications are free to download from the websites (or to purchase in printed form) and are essential reading for anybody involved in the house building sector.

We regularly update our own website with new topics and information on www.thomasarmstrong.co.uk

Useful Websites:

- www.communities.gov.uk
- www.info4local.gov.uk
- www.planningportal.gov.uk
- www.sustainablehomes.co.uk
- www.thegreenguide.org.uk
- www.concretecentre.com

Recommended Reading:

1. **The Code for Sustainable Homes – setting the standard in sustainability for new homes.**

   Published in February 2008 by Communities and Local Government, this 68 page document sets out the assessment process and the performance standards required for the Code.

2. **Code for Sustainable Homes: Technical guide – April 2008**

   Published in April 2008 by Communities and Local Government, this 302 page document underpins the requirements as set out in the document above. This technical guidance sets out the requirements for the Code and the process by which a Code assessment is reached. Its aim is to make gaining a Code rating as simple, transparent and rigorous as possible.

3. **Greener Homes for the Future**

   Published in May 2008 by Communities and Local Government, this 8 page leaflet highlights what the Code is, how it works and what it means to have a mandatory rating for new homes.

4. **Cracking the Code: How to achieve Code level three and above**

   Published in May 2008 by Sustainable Homes, this 64 page guide helps Housing Associations and developers to kick-start the process of attaining Code ratings and compliments the formal Code for Sustainable Homes Technical Guidance.

These are just some of the major publications relating to the Code and are subject to frequent updates, amendments and the publications of addenda.

About the Thomas Armstrong Group

Thomas Armstrong Concrete Blocks Ltd is a division of Thomas Armstrong Holdings Ltd comprising of a group of renowned local companies. We manufacture a wide range of Aerated, Ultralite, Lightweight and Dense concrete blocks in strategic locations throughout Northern England. Our commitment to quality and supporting local economies have sustained continued growth and progress for over 175 years.

Thomas Armstrong Concrete Blocks Ltd is committed to our environmental responsibilities and to achieving recognised Environmental Management Systems in all manufacturing locations.

Our Manufacturing Locations:

Thomas Armstrong Concrete Blocks Limited

Whinfield Works, Rowlands Gill, Newcastle upon Tyne. NE39 1EH	Tel: 01207 544214	Fax: 01207 541800
Unit G1, Park Road, Blackhill, Consett, Co. Durham. DH8 5SP	Tel: 01207 505655	Fax: 01207 592345
Cross Lane, Pickhill, Thirsk, North Yorkshire. YO7 4JQ	Tel: 01845 567282	Fax: 01845 567606
Bridge Rd, Brompton-on-Swale, Richmond, North Yorks. DL10 7HW	Tel: 01748 810204	Fax: 01748 813950

Stocks Bros. Limited

Ninelands Lane, Garforth, Leeds, West Yorkshire. LS25 1NT	Tel: 0113 2320022	Fax: 0113 2870839

William Rainford Limited

Heysham Road, Aintree, Liverpool, Merseyside. L30 6UQ	Tel: 0151 5255991	Fax: 0151 5301676

Coulthards Concrete Products (1980) Limited

Blackdyke, Silloth, Cumbria. CA5 4PD	Tel: 01697 331324	Fax: 01697 331418

Barnetts of Buglawton Limited

Brooke Street, Congleton, Cheshire. CW12 1RH	Tel: 01260 273170	Fax: 01260 298150

AIRTEC COULTHARDS Concrete Products (1980) BARNETTS (BUGLAWTON) LIMITED STOCKS BLOCKS

THOMAS ARMSTRONG
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