

DRAFT TCC response to Environment Agency consultation

6 Sustainable construction and design

DEFRA network lead; Environment Agency

We agree with the range of issues noted as important for consideration in sustainable construction and design and in particular the emphasis on design for future impacts of climate change BUT with there are a few areas of concern. The most significant aspect is the specific reference to using wood as a sustainable construction material and the distinct lack of guidance for developers to understand the importance of reducing energy and carbon use through the choice of building materials and design.

We concur with the point to 'consider reducing overall lifetime carbon costs'. ONE WAY is through the use of renewable energy technologies, ANOTHER is through the choice of material to reduce operational carbon use i.e. through the use of thermal mass. There are many studies and built examples supporting this.

The reduction of carbon through reduction in energy use of buildings is a key priority for sustainable design and deserves to be a separate point for consideration. It is an important part of the Code for Sustainable Homes assessment, but so are some of the other points listed.

The 'opportunities to reduce the carbon footprint' through the use of the EA Carbon Calculator just focus on the EMBODIED part of the carbon footprint. To the unenlightened this, together with the lack of focus on operational use and the only focus on the Carbon calculator is misleading by its omission. This could lead to missed opportunities to reduce lifetime carbon costs by over emphasis on the less significant embodied footprint.

The covering sheet of the Carbon calculator refers directly to reconsideration of the use of concrete for lower carbon solutions again reinforcing the emphasis on embodied carbon rather than considering true whole life carbon costs.

There is no mention of Responsible sourcing .The concrete Industry can show that 92% of concrete production is certified to BRE BES 9001.

Timber is not always a sustainable solution for construction

Alternative uses for timber can be more sustainable and land use assessments need to underpin any expansion of forestry.

Environmental assessments at the material level

Sustainable construction can only be carried over the whole life cycle of a building. The properties of a construction material can have impacts which are not just confined to the manufacturing phase of the life cycle. This is fully recognized in BS EN 15978 and overall weighting of materials in BREEAM attempts to reflect the overriding importance of the in use phase of the life cycle.

The EA carbon calculator which is based on the ICE Bath University data provides a balanced comparison of the embodied carbon content during manufacture and transport to site. It does not however take account of any positive or negative contributions during the remaining life

cycle phases. Research has demonstrated that any differences in the total embodied carbon content of houses can be reversed early in the expected lifespan of the building.

Multi government agency promotion of a single material for construction;

The document is flawed in terms of the true whole life sustainability of every type of built development and will have an anti-competitive effect on the construction materials market.

It will have significant unintended consequences in both the materials and construction market and may well lead to a negative impact on the provision of housing and building of all types in the UK.

The appropriateness of materials must be gauged on a case-by-case basis. Timber is not a sustainable construction method in all cases. The implied presumption against materials other than timber is therefore seriously misguided.

All major building materials have sustainability benefits and issues that have to be effectively managed both in the provision of the materials and in the design stage. An unequivocal presumption in favour of timber construction cannot be supported at any significant level due to the competitive demands on land for food and biomass resources.

Other key issues not addressed by this document include;

- **Minimising energy-** Concrete and masonry solutions can provide the highest levels of energy performance in thermal performance including insulation, and airtightness. Concrete has the added potential of providing thermal mass which can provide additional energy savings in properties designed to high thermal performance.
- **Reducing overall lifetime carbon costs and carbon footprint:** NHBC report concluded that for housing the difference in embodied carbon between timber framed and concrete blocks was insignificant: A study by Arup showed the small additional carbon investment was worth while when considering whole life costs and in fact savings were possible after relatively short time span compared to the design life of the buildings.
- Concrete is fully recyclable and at end of life reabsorbs 20% of its embodied carbon. Timber when land filled produces methane a greenhouse gas 23 times more damaging than CO₂.
- **Climate change and building adaptation:**
(
- **Overheating:** The use of thermal mass is a recognised and effective means of reducing the amount of cooling required in buildings when used as part of a low energy heating and ventilation strategy. It has a significant role to play in reducing overheating due to climate change.

7 Managing the risk of flood

DEFRA network lead; Environment Agency

Concrete is an essential material for flood resilience and flood protection. Please refer to the referenced document below;

Title: Concrete and Flooding **ISBN:**978-1-904818-89-2**Published:** 2009 **Publisher:** The Concrete Centre, part of the Mineral Products Association

8 Managing surface water

DEFRA network lead; Environment Agency

Concrete products paving and drainage systems are key to the provision of sustainable urban drainage systems

Refer to

Understanding Permeable Paving
Design and Construction Information
Paving for Rain
published by Interpave.

12 Managing waste

- **DEFRA network lead; Environment Agency**
- **Waste production and efficient use of resources**
- - More Concrete = Less Waste. The concrete industry is a net user of waste. In 2011 it used 63 times more waste than it produced. Concrete is manufactured using efficient low waste processes and concrete mixes contain recycled materials diverted from the waste streams of other industries. Concrete is 100 per cent recyclable and facilitates waste avoidance and minimisation. Design strategies can maximise the benefits of pared-down construction, making best use of concrete performance. Exposed soffits and fair-faced concrete, for example, reduce the need for additional finishes as their associated waste, whilst optimising the thermal mass. Further more, the long life and robustness facilitate the re-use of existing concrete structures, therefore reducing future demolition waste. 90% of concrete products are estimated to be reused or recycled. (ref 16 in mat efficiency)

Concrete is fully recyclable and at end of life reabsorbs 20% of its embodied carbon

Timber when land filled produces methane a greenhouse gas 23 times more damaging than CO₂

13 Woodlands and Trees

DEFRA network lead; Forestry Commission

Context; benefits are not defined; by using wood and wood products e.g. In construction where complex but generally accepted methodologies such as BREEAM and The Code for Sustainable Homes allow for a pan material solution to sustainable construction.

Further opportunities; assertion not supported by using wood as a sustainable construction material as supported by generally accepted methodologies such as BREEAM and The Code for Sustainable Homes which allow for a pan material solution to sustainable construction.

Reference; Good practice Guidance; Sustainable Design and construction published by TCPA, BRE and others (Cross Sector Group on Sustainable design and construction)