Celotex Sustainability & The Road to Zero Carbon

“We shape our buildings and afterwards, our buildings shape us”

(Winston Churchill)
As the brand leader of PIR insulation, Celotex’ sustainability message is driven by facts not emotion. We fully understand the importance of sustainability and are perfectly positioned to provide all the information you need.

This guide provides the background on sustainability and the road to zero carbon as well as detailing the sustainability credentials of Celotex insulation boards. It will also set out how the use of Celotex can help meet the criteria detailed in BREEAM & the Code for Sustainable Homes.

**The Challenge**

**The Road to Zero Carbon (and beyond)**

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

(The Brundtland Commission)

In November 2008, the UK agreed to reduce its CO₂ emissions by 80% by 2050 as part of the Climate Change Act. This Act represents the world’s first legally binding agreement for the reduction of CO₂.

An essential step to achieving this is by reducing the CO₂ emissions from homes and buildings. In support of this, 2016 has been set as the date by which all new homes must be built to ‘zero carbon’. Chancellor of the Exchequer Alistair Darling introduced the ambition that by 2019 all new buildings must be built to zero carbon and all new public buildings by 2018.

Zero carbon relies on ensuring the building fabric is well insulated to reduce the amount of energy required for heating and cooling. The Code for Sustainable Homes and other BREEAM schemes set out the requirements for achieving a zero carbon home and future proofing energy performance. Major sections of the Code and BREEAM call for increased insulation to reduce CO₂ emissions as well as the specification of materials with a low environmental impact.

“We have to show leadership in protecting our environment so that we have a future for our children and grandchildren”

(38th Governor of California)
The Road to Zero Carbon

April 2006 - 2006 Building Regulations Part L

April 2007
Voluntary for private housing

April 2007
Code Level 3 25% reduction

May 2008
Declared Code Level or nil rated certificate

2010 - Code Level 3 25% reduction

2013 - Code Level 4 44% reduction

2016 Zero Carbon Homes

2013 - Zero Carbon Homes

2010 - Zero Carbon Definition

2019 - Zero Carbon Buildings

2018 - Zero Carbon Public Buildings

2010 - Code Level 4 44% reduction

2010 - Zero Carbon Definition

2013 - Code Level 4 44% reduction

2013 - Zero Carbon Homes

2016 Zero Carbon Homes

% reduction in CO₂ emissions based on 2006 Building Regulations
The Facts about CO₂ Emissions

“We need a new environmental consciousness on a global basis. To do this, we need to educate people”

(Mikhail Gorbachev)

**FACT 1:** The homes and buildings we live and work in plus the manufacture of the materials used to build them account for over half of the total UK CO₂ emissions.

<table>
<thead>
<tr>
<th>CO₂ Emissions - Sector</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Domestic Buildings</td>
<td>27%</td>
</tr>
<tr>
<td>Commercial &amp; Public Buildings</td>
<td>14%</td>
</tr>
<tr>
<td>Industrial Buildings</td>
<td>3%</td>
</tr>
<tr>
<td>Manufacturing (Iron &amp; Steel)</td>
<td>4%</td>
</tr>
<tr>
<td>Manufacturing (Other)</td>
<td>22%</td>
</tr>
<tr>
<td>Road Transport</td>
<td>25%</td>
</tr>
<tr>
<td>Transport (Other)</td>
<td>2%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>1%</td>
</tr>
<tr>
<td>Exports</td>
<td>2%</td>
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Source: DEFRA

**FACT 2:** 53% of the total emissions from a UK home are lost via space heating (the heating and cooling of a home).

<table>
<thead>
<tr>
<th>CO₂ Emissions - UK Homes</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Space Heating</td>
<td>53%</td>
</tr>
<tr>
<td>Cooking</td>
<td>5%</td>
</tr>
<tr>
<td>Appliances &amp; Lighting</td>
<td>22%</td>
</tr>
<tr>
<td>Water Heating</td>
<td>20%</td>
</tr>
</tbody>
</table>

Source: Climate Change The UK Programme

**FACT 3:** 33% of emissions from offices and commercial buildings are also lost via space heating.

<table>
<thead>
<tr>
<th>CO₂ Emissions - Commercial Offices</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Heating &amp; Hot Water</td>
<td>22%</td>
</tr>
<tr>
<td>Cooling</td>
<td>11%</td>
</tr>
<tr>
<td>Fans, Pumps &amp; Controls</td>
<td>21%</td>
</tr>
<tr>
<td>Humidification</td>
<td>6%</td>
</tr>
<tr>
<td>Lighting</td>
<td>18%</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>11%</td>
</tr>
<tr>
<td>Catering</td>
<td>2%</td>
</tr>
<tr>
<td>Other Electricity</td>
<td>3%</td>
</tr>
<tr>
<td>Computer Room</td>
<td>6%</td>
</tr>
</tbody>
</table>

Source: The Carbon Trust
The Importance of Insulation

The Informed Choice

Research published in the McKinsey Quarterly highlights building insulation as the most cost effective method of improving energy efficiency and reducing CO₂ emissions in houses and other building stock.

Energy Performance Certificates

Energy Performance Certificates (EPCs) have been introduced to highlight a home’s energy efficiency to potential buyers. The certificate will provide a rating of the energy performance and carbon emissions of a building from A to G, where A is the most efficient and should have the lowest fuel bills and therefore less environmental impact.

EPCs will also recommend ways of improving the efficiency of a home. An important part of this is the requirement for increased levels of insulation.

Our industry-leading Celotex Technical Centre can provide Energy Performance Certificates produced by in-house accredited assessors.

Building insulation is the key deliverable for achieving the current and future targets of sustainable legislation. Meeting Code Level 3 and Code Level 4 is achievable by concentrating specifically on the building fabric and ensuring better levels of insulation. The Celotex range is available in thicknesses up to 200mm helping achieve lower U-values than ever before and in a single layer eliminating the extra cost and time of installing two layer systems.

From Code Level 5 and upwards, the use of insulation should be supplemented with renewable energy technologies.
Celotex PIR insulation has been independently assessed by BRE Global. The results show that Celotex offers a lower environmental impact than other typical PIR manufacturers. This profiling drives our A+ rating when compared to the BRE Green Guide 2008, allowing credits to be earned under the relevant sections of the Code for Sustainable Homes and BREEAM. As the products are low GWP and zero ODP rated further credits can also be gained in other relevant categories.

Celotex offers the widest range of thicknesses amongst all PIR insulation providers. With products available from 12mm – 200mm, this unrivalled product offering provides thermal insulation solutions for a variety of applications.

Celotex FR4000 has been realised through ongoing product innovation and ground-breaking technology. The product combines premium thermal performance with excellent sustainability credentials including low GWP and also provides Class O fire performance throughout the entire product. FR4000 will offer you a higher level of insulation performance compared with typical PIR.

Celotex TB3000, GA3000 & XR3000 ranges provide multi-purpose solutions for use within floor, wall and roof applications. Our thinner products provide the solution for overcoming localised thermal bridging whereas our XR3000 range helps achieve even better U-values than previously possible. All of these products come with an A+ rating when compared to the BRE Green Guide 2008.

With specialist solutions also available for cavity walls, underfloor heating, internal dry lining and flat roofing, Celotex products are already helping to reduce CO₂ emissions from homes, buildings and offices.

Through our A+ Green Guide rating, low environmental impact score and depth of product offering, Celotex offers low carbon sustainable solutions.

“We have used 140mm of Celotex insulation throughout our zero carbon house and have been astounded by the thermal efficiency of the product. Celotex is making a major contribution to the reduction of the carbon footprint of the project. We cannot recommend it highly enough”

(Michael Rea, Zero Carbon House Project, Shetland)
“Through ongoing investment and monitoring of our own carbon footprint, we will continue to improve our own environment as well as that of our local community and stakeholders”

(Richard Pemberton, Chief Executive, Celotex)

Operating within the construction sector and specialising in insulation products we are acutely aware of the energy efficiency and carbon emission impact of our industry and activities. We continue to concentrate on energy efficiency and reducing our CO₂ emissions through our own activities and working in conjunction with our trade partners and the supply chain process.

The use and specification of Celotex products will offer:

- A lower environmental impact than other typical PIR manufacturers.
- An Approved Environmental Profile from BRE Global featuring a low Ecopoint score per m².
- An A+ Rating when compared to the BRE Green Guide 2008.
- Credits in the relevant Energy, Materials & Pollution categories of the Code for Sustainable Homes/BREEAM.
- The broadest range of PIR product thicknesses helping achieve maximum U-values, minimise air leakage and overcome thermal bridging.
- Products with a low GWP and zero ODP rating.
- Low carbon sustainable solutions.

Celotex will at all times pursue strategies within its operations, product development and commercial activities which adhere to the principles of sustainability. Specific attention will be paid to:

- Compliance with future environmental legislation and approved codes of practice.
- Minimising environmentally harmful emissions and noise from our manufacturing processes.
- Waste management initiatives which continue to ensure minimum levels of waste from our production and packaging.
- Developing strategies to enable the Company’s products to be used and re-used in an environmentally sensitive way, or recycled at the end of their useful life.
- Liaising with employees and the local community to raise awareness and encourage participation in environmental matters, specifically in waste reduction, recycling and reducing CO₂ emissions.
- Optimising the use of energy in all manufacturing and business activities in order to reduce related carbon dioxide emissions.

For further information on Celotex and Sustainability, including a downloadable copy of this brochure, please visit the ‘Sustainability’ section of our website, celotex.co.uk. Alternatively, please contact the Celotex Technical Centre on 0901 996 0100* to find out how we can help reduce your carbon emissions and achieve regulatory compliance.