The Green Guide and BES 6001: Responsible Sourcing for Construction Products

Jane Anderson
BREEAM Materials, BRE Global
Our goal at BRE Global

• to allow industry the recognition for its sustainability endeavours; give a certifiable framework for its measurement, and to produce meaningful messages for stakeholders and specifiers alike.
Where do the Green Guide and BES 6001 fit?

- BREEAM
- Code for Sustainable Homes
- Quantitative and qualitative impacts
- Environmental and Social impacts
- Supply Chain
- Product Stewardship
BREEAM Offices – Credits relating to materials

- Mat 1, 2 & 6 Green Guide ratings: Major elements, Landscaping & Insulation (6.2%)
- Mat 3 & 4 Reuse of Façade and Building Structure (2%)
- Mat 5 & 6 Responsible Sourcing Major elements & Insulation (4.1%)
- Mat 7 Design for Robustness (1%)
- Wst 1 Construction Site Waste Management (4.3%)
- Wst 2 Recycled Aggregate usage (1.1%)
- Wst 6 Floor finishes (1.1%)
- Man 3 Construction Site Impacts (4.8%)
- Hea 9 VOCs (1.1%)
- Hea 10 Thermal Comfort (1.1%)
- Hea 13 Acoustic Performance (1.1%)
BES 6001

- Framework Standard for the Responsible Sourcing of Construction Products
- Launched 2008
- www.greenbooklive.com
Drivers for development of BES 6001

- Target within joint Government/Industry Strategy for Sustainable Construction (released June 08)
- Key target for Construction Products Association in 08/09
- BREEAM/CSH Materials credits
- ODA, Bovis Lend Lease, UKGBC, Eden project etc
Requirements of BES 6001

• Assessed against requirements within three categories:
  – Organisational Management Requirements
  – Supply Chain Management Requirements
  – Environmental and Social Requirements

• Some requirements are compulsory and must be met in order to achieve a ‘Pass’ Level. Points are awarded for voluntary performance beyond compulsory requirements to reach ‘Good’, ‘Very Good’ and ‘Excellent’ levels.
Organisational Management Requirements

• Compulsory
  – Documented responsible sourcing policy
  – Procedure to identify and meet legal requirements
  – Documented quality management system
  – Documented supplier management system and risk assessments for all suppliers outside EU/OECD.

• Voluntary
  – Certified quality management system to ISO 9001 (or equivalent)
Supply Chain Management Requirements

• Compulsory
  – 60% constituent materials traceable to source
  – Traceable constituent materials from organisation with documented EMS
  – Traceable constituent materials from organisation with documented H&S management system

• Voluntary
  – 75% or 90% constituent materials traceable to source
  – 60%, 75% or 90% traceable constituent materials from organisation with certified EMS
  – 60%, 75% or 90% traceable constituent materials from organisation with certified H&S management system
Environmental/Social Requirements

• Based on hierarchy of requirements:
  – Policy and metrics
  – Objectives and targets
  – Stakeholder reporting
  – External verification of data/information

• Compulsory (but points awarded)
  – Policy and metrics for reduction of GHG emissions
  – Policy and metrics for use of primary raw materials and stewardship at source
Certification options

- Sector Specific
- Company Specific
Life Cycle Assessment

BRE methodology for environmental profiles

THE GREEN GUIDE TO SPECIFICATION

breeam

Protecting People, Property and the Planet
Life Cycle Assessment (LCA)

- A method to measure and evaluate the environmental burdens associated with a product system or activity, by describing and assessing the energy and materials used and released to the environment over the life cycle

- “cradle to cradle” or “cradle to grave” assessment
Environmental Profiles Methodology

• Originally published in 1999
• LCA method for built environment
• Scope is “cradle to grave”
• “Level playing field”
• Funded by Government
• Extensive Industry Involvement in Steering Group
Updating the Environmental Profiles Methodology

- Evolving ISO standards
- Developing CEN agenda – Mandate 350
- New impact assessment methods
- Normalisation approach now European based
- Change in environmental priorities
- Detailed methodology application evolved
- Greater transparency
- A firmer platform for future years
- Founded on principle of industry consultation and consensus
- Developed as a transparent approach
- Independent governance process
Update Process

• Key Areas identified
• Briefing papers issued online
• Circulated to broad distribution list
• Responses collated and published
• BRE responses provided
• Ongoing dialogue
• BRE Global Sustainability Board Governance process
• Methodology published online 2007

• www.bre.co.uk/greenguide
Methodology Aspects

- Cut Off Criteria - >98%
- Data sources
- Carbon Sequestration
- Green Energy Tariffs
- Co-Product Allocation
- End of life recycling Allocation
- Recycled content
- Infrastructure
- Site Wastage
- Minerals Extraction
- etc…
### Updating the Green Guide

- Working with industry
- Detailed LCA database

---

<table>
<thead>
<tr>
<th>Trade Association or Body</th>
<th>LCA Environmental Profile data</th>
<th>Building and material specification design details</th>
<th>Material and component service life</th>
<th>Material site waste rates</th>
<th>Material waste disposal routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPCF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPF, Plastics Europe</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRMCA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRUFMA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BWF</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAB, EAA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDAP, Deutsches Kupferinstitut</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSMA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPIC</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eurisol</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPDA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GUT</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpave</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFF</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QPA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCI / IISI / Corus</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFGB</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPRA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWA</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCC</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UKFPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UKOAFA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UKRFA, ERFMI</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WPIF</td>
<td>P</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Certified Environmental Profiles

- Data verification process – evidence checked
- Supports external claims
- 3 years validity
- An independent environmental product declaration
- www.thegreenbooklive.com
**The Environmental Profile – An Environmental Product Declaration**

**Approved Environmental Profile**

**Quality of Data and Certifiable National Data for other constituent materials are avoided from BRE**

<table>
<thead>
<tr>
<th>Source of Data</th>
<th>BREQ</th>
<th>BREQ2</th>
<th>BREQ3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREQ1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREQ2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREQ3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material Code</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Add Deposition</td>
<td>0.2 kg</td>
</tr>
<tr>
<td>B</td>
<td>Add Emissions</td>
<td>0.0012 kg</td>
</tr>
<tr>
<td>C</td>
<td>Polycell Air Volume</td>
<td>0.32 kg</td>
</tr>
<tr>
<td>D</td>
<td>Polycell Emissions</td>
<td>0.0029 kg</td>
</tr>
<tr>
<td>E</td>
<td>Polycell Humidity</td>
<td>0 kg</td>
</tr>
<tr>
<td>F</td>
<td>Polycell Water Emissivity</td>
<td>0.015 kg</td>
</tr>
<tr>
<td>G</td>
<td>Polycell Emissions</td>
<td>0.0013 kg</td>
</tr>
<tr>
<td>H</td>
<td>Transport Emissions</td>
<td>0.003 kg</td>
</tr>
<tr>
<td>I</td>
<td>Transport Emissions</td>
<td>0.006 kg</td>
</tr>
<tr>
<td>J</td>
<td>Primary Energy</td>
<td>3.7 kW</td>
</tr>
</tbody>
</table>

**Environmental Impact**

<table>
<thead>
<tr>
<th>Impact Category</th>
<th>Normalized Data (g CO2eq.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
<td>0.002</td>
</tr>
<tr>
<td>Human Health</td>
<td>0.001</td>
</tr>
<tr>
<td>Ecological Impact</td>
<td>0.003</td>
</tr>
<tr>
<td>Acid Deposition</td>
<td>0.002</td>
</tr>
<tr>
<td>Ozone Depletion</td>
<td>0.001</td>
</tr>
<tr>
<td>Water Emissivity</td>
<td>0.001</td>
</tr>
<tr>
<td>Water Emissions</td>
<td>0.001</td>
</tr>
<tr>
<td>Water Use</td>
<td>0.001</td>
</tr>
<tr>
<td>Primary Energy</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**BREglobal**

Protecting People, Property and the Planet
How can we use Environmental Profiles

Manufacturers – Environmental Management
• To measure existing performance and monitor improvements
• To identify hot spots in the supply chain
• To understand implications of product stewardship
• To assess benefits of innovative processes

Architects – As Environmental Profiles or in Green Guide
• To compare materials which offer the similar functions, eg facing bricks
• To compare specifications which offer similar functions, eg external walls
• To compare building designs over their expected lifetimes
The Green Guide to Specification: Background

- Post Office Internal Publication 1995
Impact categories

1. Climate Change
2. Water extraction
3. Mineral extraction
4. Ozone depletion
5. Human toxicity
6. Ecotoxicity to water
7. Nuclear waste (higher level)
8. Ecotoxicity to land
9. Waste generation
10. Fossil fuel depletion
11. Eutrophication
12. Low level ozone creation
13. Acid deposition
Derivation of Ecopoints
The Ecopoint and A+ to E ratings

Ecopoint scores range from 0 to 2.5 points per m². A+ to E ratings indicate the relative environmental impact, with E being the highest impact and A+ the lowest. The graph shows the Ecopoint score over time, with years on the x-axis and Ecopoints per m² on the y-axis. The data points are color-coded from low to high impact, with colors ranging from green to red. The graph illustrates the progression of Ecopoint scores over the years, with the highest score reached at 61 years. The tagline at the bottom reads, "Protecting People, Property and the Planet."
Updating the Green Guide to Specification

• Methodology updated
• Updated manufacturing information
• Building Regulations have changed
• Functional unit update
• New versions of BREEAM, EcoHomes and Code for Sustainable Homes demand more sophisticated specifications:
  – Commercial
  – Domestic
  – Retail
  – Health
  – Education
  – Industrial
The Green Guide to Specification

- 1300+ generic specifications
- 1800+ Summary Ratings
- Ratings A+ to E
- Online version (free)
- www.thegreenguide.org.uk
- Paper version (£69.50)
  www.brebookshop.com
Green Guide 2008 ratings

Building type > **Domestic**
Category > **External Wall Construction**

External Walls

External wall ratings are the same for the following building types:
Domestic, Health, Commercial, Retail, Industrial, Education

Functional unit for External Walls:
1m² of external wall construction, to satisfy current building regulations, and a U value of 0.3 W/m²K. Where relevant, the specification will also include an internal wall finish.

Variation for retail/industrial
1m² of external wall construction, to satisfy current building regulations, and a U value of 0.3 W/m²K.

Perhaps more than any decision facing the designer, the choice of the external wall specification is subject to the widest range of practical, economic and visual considerations, some of which may be beyond the control of the design team.

External walls can have a significant contribution to the impacts of the building. The external wall can also account for around 30% of building costs. External wall specifications include a diverse range of construction types and materials; it is therefore no surprise that a wide range of environmental impacts is exhibited with this element.
BREEAM Schemes to which this element applies:

<table>
<thead>
<tr>
<th>Elements</th>
<th>Non-residential</th>
<th>Residential</th>
<th>Semi-Domestic</th>
<th>Domestic</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Walls</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Walls</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Floor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boundary Wall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boundary Roof</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

View this as a full page (PDF file)

read more...

Please select the element type of External Wall

Construction ratings you wish to review:

- Blockwork Cavity Wall
- Rendered or Fairfaced Blockwork Cavity Wall
- Brickwork on Framed Construction
- Rendered or Fairfaced Blockwork
- Cladding on Framed Construction
- Cladding on Masonry
- Rainscreen Cladding
- Insulated Cladding
- Insulated Render Systems
- Curtainwalling
- Loadbearing Precast Concrete
<table>
<thead>
<tr>
<th>Element number</th>
<th>Summary rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>805290615</td>
<td>A</td>
</tr>
<tr>
<td>806290605</td>
<td>A</td>
</tr>
<tr>
<td>806290606</td>
<td>A</td>
</tr>
<tr>
<td>805290604</td>
<td>A</td>
</tr>
<tr>
<td>805290603</td>
<td>A</td>
</tr>
<tr>
<td>805290616</td>
<td>A</td>
</tr>
<tr>
<td>806290617</td>
<td>A+</td>
</tr>
<tr>
<td>806290614</td>
<td>A+</td>
</tr>
</tbody>
</table>

Green Guide 2008 ratings

**Building type:** Domestic

**Category:** External Wall Construction

**Sub-category:** Rainscreen Cladding

**Element type:** Masonry Cavity Wall

- Clay tiles on timber battens, aircrète block cavity wall, insulation, plasterboard on battens, paint
- Clay tiles on timber battens, lightweight solid block cavity wall, insulation, plasterboard on battens, paint
- Clay tiles on timber battens, lightweight solid block outer, insulation, aircrète block inner, plasterboard on battens, paint
- Clay tiles on timber battens, medium dense solid block outer, insulation, aircrète block inner, plasterboard on battens, paint
- Clay tiles on timber battens, medium dense solid block outer, insulation, lightweight solid block inner, plasterboard on battens, paint
- Clay tiles on timber battens, thin joint aircrète block cavity wall, insulation, plasterboard on battens, paint
- Treated softwood boarding on timber battens, aircrète blockwork cavity wall, insulation, plasterboard on battens, paint
- Treated softwood boarding on timber battens, lightweight solid block outer, insulation, aircrète block inner, plasterboard on battens, paint
<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay tiles on timber battens, thin joint</td>
<td>Aircr...</td>
</tr>
<tr>
<td>Water Extraction</td>
<td>A</td>
</tr>
<tr>
<td>Stratospheric Ozone Depletion</td>
<td>B</td>
</tr>
<tr>
<td>Ecotoxicity to Freshwater</td>
<td>A+</td>
</tr>
<tr>
<td>Nuclear Waste (higher level)</td>
<td>A</td>
</tr>
<tr>
<td>Ecotoxicity to Land</td>
<td>A+</td>
</tr>
<tr>
<td>Waste Disposal</td>
<td>A+</td>
</tr>
<tr>
<td>Fossil Fuel Depletion</td>
<td>B</td>
</tr>
<tr>
<td>Eutrophication</td>
<td>A+</td>
</tr>
</tbody>
</table>
Thank you

- Material manufacturers, trade associations and the Construction Products Association
- Project Steer Group
  - BERR
  - BRE Trust
  - Construction Products Association
  - DFES
  - English Partnerships
  - EST
  - Housing Corporation
  - HSBC
- BREEAM Materials Team
  - NBS
  - NHBC
  - OGC
  - Oxford Brookes University
  - Post Office/Royal Mail
  - RIBA
  - RICS
  - Royal Bank of Scotland
  - Taylor Woodrow
  - Willmott Dixon
  - WRAP
Thank you

andersonj@bre.co.uk

responsiblesourcing@bre.co.uk
greenguide@bre.co.uk

www.thegreenguide.org.uk
www.greenbooklive.com