How Green is Green

Richard Hardy
BRE Global Sustainability Director
How Green is Green

Many ‘green’ claims for building materials are made, but how can you be sure of their accuracy?
Agenda

• 16.10 Environmental Profiling explained
  Victoria Blake, Associate Director, BRE Global
  Jane Anderson, Principal Consultant, BRE Global

• 17.00 Manufacturer Benefits
  Alan Joss, Sales & Marketing Director, Gradus Ltd

• 17.15 Specifier Needs
  Isabel Carmona, Code Assessor, Green Architect, and Chairman of the RIBA South Green Group

• 17.30 Questions & Answers

• 18.00 Close
Environmental Profiling Explained

Jane Anderson
BREEAM Materials, BRE Global

26th October 2009
Overview

• What is an Environmental Profile?
• What is Life Cycle Assessment (LCA)?
• What is behind an Environmental Profile?
• What information do you need to provide?
• How do we calculate an Environmental Profile?
• How do Environmental Profiles link to Green Guide ratings?
• Summary
Environmental Labels and Declarations

- ISO14020 – Environmental labels and declarations

- **Type I – Ecolabel - voluntary**
  - widely recognised environmental labels e.g. Nordic Swan (ISO 14024)

- **Type II – self declared environmental claim**

- **Type III – LCA approach**
  - ‘nutritional label’
  - quantified environmental data - linkage to ISO14040 series & LCA
  - BRE Global Environmental Profiles Certification Scheme
Type 1 Environmental Labelling

- Nordic Swan, EU Eco-label, Terrachoice etc
- ISO 14024: 2000
- Sets environmental criteria for a particular product group to identify products which can use the ecolabel
- Criteria based on life cycle assessment
- Third party verification
- Stakeholder involvement
- Voluntary
Type 2 Environmental Labelling

• Self declared Environmental Claims, eg
  • Recycled content
  • Recyclable
  • Renewable,
  • Low energy...

• ISO 14021: 2001: where term is covered, standard provides usage, qualifications and evaluation methodology
• Claims should be capable of being verified
• Single issue
Carbon Footprint

- Cradle to Grave
- No Standards yet
- Greenhouse gas emissions...
- No resource use, pollution, toxicity...

- LCA based?
- Common data and method?
- Verification?
Type 3 Environmental Labels

- Environmental Product Declarations (EPDs)
- Based on Life Cycle Assessment
- ISO Standards
- Program Operator
- Product Category Rules
- Third party verified

Environmental Profiles (UK), MRPI (Netherlands), IBU (Germany), INIES (France)...

Protecting People, Property and the Planet

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**Approved Environmental Profile**

Characterised and Normalised Data for: 1 square metre over 60 Year Study Period: Floor Finishes: Soft floor covering: 1 m² of Burnmatex Tufted Polypropylene Bitumen Backed Carpet Tiles (Tivoli Online and Tivoli 24) 466g/m²

<table>
<thead>
<tr>
<th>Quality of Data for Profiled Material (Data for other constituent materials are available from BREE Global)</th>
</tr>
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<tr>
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<tr>
<td>End Date: 31/12/2008</td>
</tr>
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<td>Source of Data: Company production records</td>
</tr>
<tr>
<td>Company: BREE Global Limited</td>
</tr>
<tr>
<td>Geography: UK</td>
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<tr>
<td>LCA Methodology: BREE Environmental Profiles Methodology 2007</td>
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<tr>
<td>Allocation: 100% to product</td>
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<td>Date of Data Entry: 07/09/2009</td>
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<td>Boundary: Cradle to Grave over 60 Year Study Period</td>
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<td>Applicable Standards: Domestic</td>
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<table>
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<td>kg CO₂ eq. (100yr)</td>
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<td>Water Extraction</td>
<td>0.62</td>
<td>m³</td>
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<td>Mineral Resource Extraction</td>
<td>0.021</td>
<td>tonnes</td>
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<td>0.000856</td>
<td>kg CFC11 eq.</td>
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<td>Human Toxicity</td>
<td>13</td>
<td>kg 1,4-DB eq</td>
</tr>
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<td>Ecotoxicity to Freshwater</td>
<td>1.5</td>
<td>kg 1,4-DB eq</td>
</tr>
<tr>
<td>Nuclear Waste (Higher level)</td>
<td>0.0000014</td>
<td>m³ high level waste</td>
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<tr>
<td>Ecotoxicity to Land</td>
<td>0.17</td>
<td>kg 1,4-DB eq</td>
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<td>Waste Disposal</td>
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<td>kg</td>
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<td>Fossil Fuel Depletion</td>
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<td>MJ</td>
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<td>Eutrophication</td>
<td>0.03</td>
<td>kg PO₄ eq.</td>
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<tr>
<td>Photochemical Ozone Creation</td>
<td>0.043</td>
<td>kg ethene eq.</td>
</tr>
<tr>
<td>Acidification</td>
<td>0.39</td>
<td>kg SO₂ eq.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Issue</th>
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<th>Western European Category Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
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<td>12360 kg CO₂ eq. (100yr)</td>
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<td>6.27 kg CFC11 eq.</td>
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<td>Human Toxicity</td>
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<td>Ecotoxicity to Freshwater</td>
<td>0.0011</td>
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<td>Ecotoxicity to Land</td>
<td>0.0014</td>
<td>234 kg 1,4-DB eq</td>
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<td>Nuclear Waste (Higher level)</td>
<td>0.0009</td>
<td>2.37E-05 m³ high level waste</td>
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<td>Waste Disposal</td>
<td>0.0004</td>
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<td>Fossil Fuel Depletion</td>
<td>0.0002</td>
<td>773 1J</td>
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<td>Eutrophication</td>
<td>0.0001</td>
<td>22.5 kg PO₄ eq.</td>
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<tr>
<td>Photochemical Ozone Creation</td>
<td>0.002</td>
<td>24.5 kg ethene eq.</td>
</tr>
<tr>
<td>Acidification</td>
<td>0.0025</td>
<td>71.2 kg SO₂ eq.</td>
</tr>
</tbody>
</table>

**BREE Enpoints Score:** 6.32  **Ecopoints**
What is Life Cycle Assessment (LCA)

Extraction

Manufacture

Environmental impacts

Maintenance

Disposal
Life Cycle Assessment

System Boundary

Extraction
Processing
Manufacture
Use
Disposal
End of Life

Recycling/Reuse

Water
Energy
Raw materials

Emissions to air
Emissions to soil
Emissions to water

‘Cradle to gate’

‘Cradle to grave’

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How do we calculate an Environmental Profile?

- ISO 14025: 2006 Type 3 Environmental Labels
- ISO 21930: 2007 Environmental Product Declarations for Construction Products
- CEN TC 350 Sustainability of Construction Works

- Environmental Profiles Methodology
- Peer reviewed Product Category Rules
- ISO Compliant
- Level playing field approach
The Environmental Profiles Process

1. Application and Proposal: Client and BRE Global
2. Data collection: Client
3. Data review: BRE Global with Client support
4. Verification site visit: Client and BRE Global
5. Producing the Environmental Profile: BRE Global
6. Annual Verification: Client and BRE Global
What’s behind an Environmental Profile?

Factory Data

- Outputs
- Inputs
- Energy
- Transport
- Emissions
- Waste

Protecting People, Property and the Planet
Data collection

- **Questionnaire**
- **Filled in by Manufacturer – Technical Data**
- **Important document**
  - Accuracy
  - BRE Global can request to see evidence of data
- **Company declaration – signature required**
- **Raw data**
- **Allocation to products**
What are common trip-ups?

• **Manufacturing Period**
  – Minimum of 3 months production data

• **Production output**
  – Additional products
  – Measured units

• **Input materials**
  – All inputs, including packaging
  – MSDS sheets, Concentrations, Units etc

• **Transport section**
  – Type – sea, rail, road – distance, return journeys, track to manufacturer

• **Other sections:**
  – Energy – Units, transport if delivered
  – Emissions – which fuels, how calculated?
How to assist Certification

- Always state calculations, conversions, assumptions and allocations
- Always state UNITS
- State total site or product specific data
- Use primary data whenever possible and practical
- Keep records of all documents used
  - evidence for verification
  - photocopies
  - Reference your documents and keep them in order
- Think about how you record the data and how you can demonstrate this to BRE Global
- Have one point of contact to co-ordinate
What’s behind an Environmental Profile?

Construction Data

- Where and how is the material used?
- How much is needed per square metre?
- How much is wasted?
- What other materials are used?
- How is it maintained?
- How long does it last?
- What happens to it at the end of its life?
Preparing for the Certification visit

• **BRE Global selects a sample of data from data collection form**
  – Representative of each section (Part 1 only)

• **Certification checklist**
  – Lists sample data from data collection form to be verified

• **Certification visit letter**
  – Explanation of purpose of visit, data to be sampled, evidence required

• **Agenda** – *(meeting, site tour, data verification)*

• **Sent to client at least 2 weeks before visit**
At the Certification visit

• All evidence provided must be for specified time period
• Site tour – need to see all relevant areas of site covered by certification
• BRE Global will ask for:
  – Evidence for time period
  – Bills, delivery notes, production records, meters
  – Verified figure to correspond with figure supplied in questionnaire
• BRE Global will also ask for photocopies or print-outs of all evidence
• Ideally, those who supplied data are present for visit
How we calculate an Environmental Profile?

Issues → Measurement → Normalisation → Weighting

Protecting People, Property and the Planet
Impacts assessed

- Not just embodied energy or embodied carbon
- 13 impacts assessed
- 5 impacts core to all EPDs (marked *)

- Extensive consultation on impacts and measurement systems

<table>
<thead>
<tr>
<th>Environmental Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change*</td>
</tr>
<tr>
<td>Water extraction</td>
</tr>
<tr>
<td>Mineral extraction</td>
</tr>
<tr>
<td>Stratospheric ozone depletion*</td>
</tr>
<tr>
<td>Human toxicity</td>
</tr>
<tr>
<td>Ecotoxicity to freshwater</td>
</tr>
<tr>
<td>Higher level nuclear waste</td>
</tr>
<tr>
<td>Ecotoxicity to land</td>
</tr>
<tr>
<td>Waste disposal</td>
</tr>
<tr>
<td>Fossil fuel depletion</td>
</tr>
<tr>
<td>Eutrophication*</td>
</tr>
<tr>
<td>Photochemical ozone creation*</td>
</tr>
<tr>
<td>Acidification*</td>
</tr>
</tbody>
</table>
Measurement

- **Cradle to grave**
- **Impacts cover all relevant emissions or resource use, eg**
  - Climate change covers all greenhouse gases, eg carbon dioxide, methane, nitrous oxide, HFCs etc
- **Characterisation measures relative impact**

```
Carbon Dioxide → 1 → Global Warming
Methane        → 23 → Photochemical Ozone Creation
                  ↓                      ↓
Sulphur Dioxide →   → Acid Rain
```
Normalisation

- The impact of one European citizen per year
- Allows direct comparison of impacts

<table>
<thead>
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<tbody>
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<td>Climate Change</td>
<td>12.3 t CO(_2) eq. (100 yr)</td>
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<tr>
<td>Water extraction</td>
<td>377m(^3)</td>
</tr>
<tr>
<td>Mineral extraction</td>
<td>24.4 tonnes</td>
</tr>
<tr>
<td>Stratospheric ozone depletion</td>
<td>0.217 kg CFC-11 eq.</td>
</tr>
<tr>
<td>Human toxicity</td>
<td>19.7 t 1,4-DB eq.</td>
</tr>
<tr>
<td>Ecotoxicity to freshwater</td>
<td>13.2 t 1,4-DB eq.</td>
</tr>
<tr>
<td>Higher level nuclear waste</td>
<td>23700 mm(^3)</td>
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<td>Ecotoxicity to land</td>
<td>123 kg 1,4-DB eq.</td>
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<td>Waste disposal</td>
<td>3.75 tonnes</td>
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<td>Fossil fuel depletion</td>
<td>6.51 toe</td>
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<td>Eutrophication</td>
<td>32.5 kg PO(_4) eq.</td>
</tr>
<tr>
<td>Photochemical ozone creation</td>
<td>21.5 kg C(_2)H(_4) eq.</td>
</tr>
<tr>
<td>Acidification</td>
<td>71.2 kg SO(_2) eq.</td>
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</table>
Weightings

- Required to achieve *relative* importance
- And for a single score
- Created by a panel of 10 European experts.
- Peer reviewed
- Geographically specific to Europe

- Basis of BRE Ecopoints

<table>
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<tr>
<th>Environmental Issue</th>
<th>Weighting (%)</th>
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<td>Water extraction</td>
<td>11.7</td>
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<td>Mineral extraction</td>
<td>9.8</td>
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<td>Stratospheric ozone depletion</td>
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<td>Human toxicity</td>
<td>8.6</td>
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<tr>
<td>Ecotoxicity to freshwater</td>
<td>8.6</td>
</tr>
<tr>
<td>Higher level nuclear waste</td>
<td>8.2</td>
</tr>
<tr>
<td>Ecotoxicity to land</td>
<td>8.0</td>
</tr>
<tr>
<td>Waste disposal</td>
<td>7.7</td>
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<tr>
<td>Fossil fuel depletion</td>
<td>3.3</td>
</tr>
<tr>
<td>Eutrophication</td>
<td>3.0</td>
</tr>
<tr>
<td>Photochemical ozone creation</td>
<td>0.20</td>
</tr>
<tr>
<td>Acidification</td>
<td>0.05</td>
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</tbody>
</table>
Generic product impacts

- Gather data from several manufacturers of the same product, often via trade associations
- Verify against each other, existing datasets, or request evidence
- Measure the impact of each
- Create a generic average impact for that product
- Apply normalisations, weightings to calculate Ecopoints in the normal way
Certified (product specific) declarations

- Gather data from a single manufacturer for a single product
- Verify data
- Measure the impact
- Apply normalisations, weightings to calculate Ecopoints
Building Level Environmental Profiles

Bricks vs bricks

Blocks vs blocks

Wall specifications

Protecting People, Property and the Planet
The Green Guide to Specification

- Building elements and functional units established via consultation
- Range of ‘specifications’ for each building element established via consultation
- Ecopoints for products/materials within each specification calculated and added together
- Generic specifications compared to apply A+ to E ratings
- Used in BREEAM and Code for Sustainable Homes
The Ecopoint and A+ to E ratings

- Different specifications applicable to one element
- Maximum Ecopoint rating
- Minimum Ecopoint rating

Ecopoints per m² vs. years

- High relative environmental impact
- Low relative environmental impact

Protecting People, Property and the Planet
Green Guide ratings for Certified products

- After certified profiling
- Certified product is included within an element specification and Ecopoints are calculated
- Green Guide rating is calculated by comparison to the existing generic range for the same element

![Graph showing Ecopoints per m² over years](image)
Ecopoint scale

- Different scale of ecopoints for each building element, and sometimes different scales for each building type
- Based on generic profiles
### Specification ratings

**Green Guide 2008 ratings**

- **Building type**: Domestic
- **Category**: External Wall Construction
- **Sub-category**: Loadbearing Precast Concrete
- **Element type**: Loadbearing Precast Concrete Systems

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<td>806230067</td>
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<td>806230094</td>
<td>D</td>
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<td>806230088</td>
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<td>806230295</td>
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<td>806360059</td>
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<td>806360021</td>
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<td>806360296</td>
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*Protecting People, Property and the Planet*
Summary

- Environmental Profiles are a Type 3 Environmental Product Declaration
- Based on Life Cycle Assessment
- Methodology developed in consultation with industry
- Robust, ISO compliant and peer reviewed
- Industry data underpins the work
- Certification is Third party verified
- Environmental Profiles and Green Guide allow Building Level comparison of products and constructions
Environmental Profiling Explained

Victoria Blake
BREEAM Materials, BRE Global

26th October 2009
Overview

- What does an Environmental Profile tell you?
- What an Environmental Profile doesn’t tell you
- How can you use an Environmental Profile?
- Summary
What does an Environmental Profile tell you?

Certificate of Approval
Environmental Profiles
J B Bricks
Kiln Way

Certificate No.: 100466
Issue No.: 1
Date of Issue: October 2009

Certificate Environmental Product Declaration

Environmental Profiles Report

Protecting People, Property and the Planet
Environmental Product Declaration

- **Product Declaration**
  - Cradle to Factory Gate
  - Not Green Guide Rated

- **In Use Product Declaration**
  - Includes impact of ALL materials used in 1m² of specification
  - Cradle to Grave over 60 year study period
  - Used to create Green Guide Rating
  - Certified

- **Common to Both**
  - Impacts listed by impact type
  - Ecopoint score
Environmental Product Declaration

- Cradle to Factory Gate
- Not Green Guide Rated
- In Use Product Declaration
- Includes impact of all Materials used in 1m² installed
- Cradle to Grave over 60 years
- Green Guide Rated
- Common to Both
- Impacts listed by impact type
- Eco point score

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<tr>
<th>Issue</th>
<th>Normalised Data</th>
<th>Western European Citizen’s Impacts</th>
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<td>Climate Change</td>
<td>0.0044</td>
<td>12300 kg CO2 eq. (100yr)</td>
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<td>Water Extraction</td>
<td>0.0017</td>
<td>378 m³</td>
</tr>
<tr>
<td>Mineral Resource Extraction</td>
<td>0.00043</td>
<td>24.4 tonnes</td>
</tr>
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<td>Stratospheric Ozone Depletion</td>
<td>0.0002</td>
<td>0.217 kg CFC11 eq.</td>
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<tr>
<td>Human Toxicity</td>
<td>0.0004</td>
<td>19700 kg 1,4-DB eq.</td>
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<td>Ecotoxicity to Freshwater</td>
<td>0.001</td>
<td>1320 kg 1,4-DB eq.</td>
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<tr>
<td>Nuclear Waste (higher level)</td>
<td>0.0075</td>
<td>2.37E-05 m² high level waste</td>
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<tr>
<td>Ecotoxicity to Land</td>
<td>0.0012</td>
<td>123 kg 1,4-DB eq.</td>
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<td>Waste Disposal</td>
<td>0.0046</td>
<td>3750 kg</td>
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<td>Fossil Fuel Depletion</td>
<td>0.0041</td>
<td>273 GJ</td>
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<td>Eutrophication</td>
<td>0.00074</td>
<td>32.5 kg PO4 eq.</td>
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<td>Photochemical Ozone Creation</td>
<td>0.0014</td>
<td>21.5 kg ethene eq.</td>
</tr>
<tr>
<td>Acidification</td>
<td>0.0045</td>
<td>71.2 kg SO2 eq.</td>
</tr>
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</table>

BRE Ecopoints Score: 0.26

Signed On Behalf of BRE Global: B Randall
Valid From: 06/07/2009
Last Revised: 06/07/2009

Protecting People, Property and the Planet
Environmental Profiles Report
What it tells you

Figure 2. Environmental impacts by input material (Ecopoints per tonne)

Figure 4. Breakdown of environmental impacts by input materials (Ecopoints per tonne)
What an environmental profile doesn’t tell you

- **Qualitative Impacts**
  - Responsible sourcing
  - Social impacts

- **Economic Impacts**

- **Physical Properties**
  - Thermal properties
  - Acoustic properties

- **Emissions Insitu**
  - VOC’s

- **Responsible Sourcing of Materials**
- **BREEAM**
- **Code for Sustainable Homes**
- **Centre for Whole Life Costing**
How can you use an Environmental Profile?

- **Green Guide to Specification Rating**
- **Comparisons**
  - Materials with similar functions
  - Specifications with similar functions
  - Building designs over their expected lifetimes
- **BREEAM and CfSH**
- **Product differentiation**
- **Competitive advantage**
- **Open new markets**
How can you use an Environmental Profile?

• Independent third party certification to prove environmental performance

• Fulfils ISO14001 / EMAS continual improvement requirements

• Responsible Sourcing of Materials

• Product stewardship

• Focuses you on your significant sources of environmental impact
  – Allows you to allocate your resources for greatest benefit
Summary

- Environmental Profiles gives you.....
  - Independent 3rd party certified
  - Certificate giving you credibility
  - Environmental Product Declaration which contains more information which your clients may need to know
  - An Ecopoint score
  - Green Guide rating
  - An Environmental Profiles Report which gives focus for the future
  - Product differentiation and competitive advantage
  - A means to cut through green claims and counter claims regarding products
Thank-you

Victoria Blake
blakev@bre.co.uk
AGENDA

q Introduction
q BRE – Accreditation
q Sales and Marketing Strategy
q Case Study
q Conclusion
INTRODUCTION

q Established 1966
q U.K. manufacturer of Stair Profiles, Matting, Wall Protection, Carpets and Fabrics
q Located in Macclesfield, Cheshire
q 300 employees
q Turnover £41 million
BRE - ACCREDITATION

q  Gradus achieved this in July, 2009
q  Achieved A+ for majority of product applications
q  Unique position for Gradus, as not just carpet tile format -
   q  broadloom
   q  impervious
   q  secondary matting
SALES AND MARKETING STRATEGY

“BREEAM is now required for all Government buildings representing over a third of construction in the U.K.”
SALES AND MARKETING STRATEGY

- Training - Sales Teams
- Customer Support Team

- Identify target markets / customers
  - ABI lead generation
  - Existing key client contacts

- Add BRE detail to sampling, literature, website
**genus**

**product range information**

**product information:**
Genus is a cut pile carpet that offers exceptional service across a variety of commercial installations. Combining durability and ease of maintenance with high levels of styling and a supported by a comprehensive warranty package. Genus has been designed to coordinate with the Vichy range of cut pile carpets.

**specification:**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Grade/colour</th>
<th>msupervision</th>
<th>Tile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Form</td>
<td>as</td>
<td>msupervision</td>
<td>Tile</td>
</tr>
<tr>
<td>Product Dimensions</td>
<td>85 x 50</td>
<td>msupervision</td>
<td>Tile</td>
</tr>
<tr>
<td>Total Weight</td>
<td>3600g/m²</td>
<td>msupervision</td>
<td>Tile</td>
</tr>
<tr>
<td>Nom. per cm</td>
<td>43-44</td>
<td>43-44</td>
<td>43-44</td>
</tr>
<tr>
<td>Secondary Top Cover</td>
<td>ActionFlex®</td>
<td>PVC</td>
<td>96mm</td>
</tr>
<tr>
<td>Top Carpet Thickness</td>
<td>3mm</td>
<td>3mm</td>
<td>3mm</td>
</tr>
</tbody>
</table>

**Performance Specification**

- **Classification:** Grade recommended heavy contract
- **N.B. Specification:** Irrespective of carpet, all materials comply with requirements to N.B. Specification
- **Impact Sound Reduction (ISO 140-2):** 2008

**Fire Resistance:**

- Light BS 5100: 5
- Rolling BS1000: 4 - 5
- Water BS 5100: 5
- Shampoo BS 1000: 5

- **Flammability:** Pass Metal Tact Test BS 476

For further information and recommended adhesives please contact the Technical Services on 0114 241 8161.

Gradus recommends the use of Gradus at 117 stair carpet layers (www.gradusworld.com) to provide durability, definition and safety for stairs in line with the Building Regulations and BS 5839.2004 and Gradus Stair Railing to maintain the appearance of the carpet and reduce maintenance costs.

**Light Intensity Values (CDM)**

These values have been determined with reference to the CIE (Commission Internationale de L’Eclairage) E-11.5. The CIE coordinate represents the lightness and extends from 0 (black) to 100 (white) and has been used as a measure of the light intensity levels (0 to 100). All Gradus products have an LMI value, giving an intensity of light, which is indicative of the lightness of the product.

For more information, please contact your local Gradus representative on 0114 241 8161.
SALES AND MARKETING STRATEGY

q Inform our key Agreement partners
q Laing O’Rourke – BSF School projects
q Morgan Ashurst - BSF School projects
q PR – via Edson Evers, our PR Agency

Features :
CFJ - Contract Flooring Journal – December
ABC&D - Architects Journal – December

Many press releases will result from above features
CASE STUDIES

Project: Ministry of Defence project for offices and single living accommodation

Architect: insisted on selecting products that had A+ BREEAM accreditation

Construction Company: Laing O’Rourke – supply chain partner with Gradus

Specification: Predator loop pile carpet tiles

Adventurer loop pile carpet tiles

35,000 m² - April-December, 2010
CONCLUSION

- As a business Gradus could not afford to ignore this essential process
- BREEAM extending to Private Sector, not just Government projects
- Improved the environmental credentials of Gradus as a manufacturer who is serious about lowering its impact on the environment
CONCLUSION

- Unique position for Gradus as accreditation achieved in all formats of carpeting and also secondary matting
- 60% of sales visits are to specifiers

AIM TO SPREAD THE MESSAGE ON BREEAM
How green is green
Environmental Profiling explained
Being confident about environmental claims
26th October 2009

Isabel Carmona
Specifier’s needs
Issues covered

Design considerations for materials
What we want to know?
GG ratings and C for SH
Unexpected GG ratings
Why rating differences?
GG ratings for innovative constructions
What we would like to know
Design Considerations for materials

Performance (thermal mass, insulation)
Construction thicknesses
Compliance with regulations (part E), Code for Sustainable Homes - BREEAM
Embodied energy
Sustainable sourcing
Traditions
Innovation
What we want to know?

U-value of Construction
Construction Green Guide Rating: not only the brick or block but the actual build up!
Sustainable sourcing (FSC or PEFC if timber) or
Environmental management system (ISO 14001) of main components
GG ratings and C for SH minimum requirement easy?

10 Mat1 credits = 3% of CSH overall rating [of a possible 4.5%]
### Unexpected GG results?

<table>
<thead>
<tr>
<th>Specification</th>
<th>% elemental area</th>
<th>Green Guide Rating</th>
<th>Required Ref. No.</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roof</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 2</td>
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<tr>
<td>Type 3</td>
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</tr>
<tr>
<td>Type 4</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>External walls</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Type 1</td>
<td></td>
<td>A</td>
<td>6994022</td>
<td>0.67</td>
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<tr>
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<tr>
<td>Type 4</td>
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<tr>
<td><strong>Internal walls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
<td></td>
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<tr>
<td>Type 2</td>
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<td>Type 3</td>
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<tr>
<td>Type 4</td>
<td></td>
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<tr>
<td><strong>Floor - Upper &amp; Ground</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Type 1</td>
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<td>Type 3</td>
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</tr>
<tr>
<td>Type 4</td>
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<tr>
<td><strong>Windows</strong></td>
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<tr>
<td>Type 4</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Total Number of Points**: 6.63
**Total Credits achieved**: 6.01 of 15

Minimum entry level requirements have been met.

6 Mat1 credits = 1.8% of CSH overall rating [of a possible 4.5%]
Need to understand why rating differences

**GF specifications**

**Functional unit for solid and suspended GF:**
1m² GF based on a dwelling with a GF area of 40m² and exposed perimeter of 18m to satisfy E & W B. Regs. U value of 0.22 W/m²K.
Need to understand why rating differences

GF specifications - improving the rating

Introducing B&B flooring and take out the screed, introduce timber floor components – ratings B to A+ - But less thermal mass!
Need to understand why rating differences

Roof specifications

**Functional unit for Domestic Roofs:**
1m² of roof area (measured horizontally), to satisfy England & Wales Building Regulations, particularly a U value of 0.16 W/m²K (pitched) or 0.25 W/m²K (flat). Span of 8m.

**What if?:**
Reclaimed – A+
European - assume worse?
Asian - assume worse?
Canadian - assume worse?
Need to know GG ratings for innovative constructions

- Floors with thick insulation and thermal mass
- Green Roofs with thick insulation
- Insulated thermaplan bricks
- Larger cavities full or partially filled with insulation
- Using wood fibre base insulation products
What would we like to know of a product?
3 examples

**Block**

Wall construction – GG rating - cavity, solid block
Floor construction (B&B) rating - with & without screed
ISO 14001? - manufacture & extraction or only manufacture?
U-value for various thickness of insulation
Thermal mass properties

**Slate**

Roof construction – GG rating – specially if not UK!
ISO 14001?

**Window**

TIMBER - GG rating – for the specific window, aim for A+ rating
FSC or PEFC for timber?
ISO 14001 for glass?
U-value for whole window
Light transmission factor for glass
uPVC – GG rating – for specific window - explain recycling content.
ISO 14001 for uPVC and for glass?
Isabel Carmona

Ca Sustainable Architecture

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www.ca-sa.co.uk
Thank you for attending this event

A full delegate pack will be e-mailed to you shortly