


Shades of Green in Materials Specification

from BRE's Green Guide to Hyper Green

GreenSpec areas of interest

- Renewable
- Natural
- Healthy
- Allergy-free,
- Energy efficient,
- Resource efficient
- Waste efficient
- Local sourcing
- Recycled
- Recyclable
- Traditional
- Conservation quality

Positive Attributes include:

- Airtightness & moisture permeability
- Thermal Mass
- G values & Decrement in insulation
- Hygroscopicity & Breathing Walls
- Moisture Mass
- Low Allergy
- Anti-septic
- Anti-bacterial coatings
- Reuse
- Stewardship:
  - Timber
  - Metals
  - Plastics
  - Stone

Negative Attributes

- Low Toxicity
- PVC-free
- Low VOC v Natural
- Recycling v reuse

Another GreenSpec CPD seminar to consider

Envi able

Another GreenSpec CPD seminar to consider

'criteria for success' 'level of success'

- often comes from:
- client's brief,
- design process,
- designer's aspirations,
- Designer's technical know-how
- how robustly they can defend against:
  - QS's Value Engineering (posh for cost cutting)
  - Contractor's specification substitution
- Solutions will be discussed

CPA's Perspective

- NGS GreenSpec is irrelevant
- BRE Environmental Profiles are robust
- NGS GreenSpec is not
- GreenSpec review robust & other information & reviewers make judgements like an informed architect
- BRE start with technically robust information and finishes with a committee
- What is the difference?
- GreenSpec are only Architects!

BRE's Perspective

- Dr David Strong (recently left BRE)
  - "If it has not been assessed by BRE then it cannot be assumed to be green"
- Not even:
  - subsoil dug from site, not sent to landfill,
  - No materials imported, make rammed earth walls on site
- "No"
- BRE's arrogance is unbelievable
- BRE's monopoly is unacceptable

BRE's Perspective

- RIBA's Sustainable Futures Committee
- BRE's representative:
- "BedZED is irrelevant"
- "Its so far removed from normal practice"
- "It will never be replicated"
- 2016 Zero Carbon Buildings will be the norm and will go beyond BedZED

BRE ling

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BRE Env. Profiles

- BRE have a strong hold on Environmental Profiling adopting a published formal methodology that concentrates on the negative impacts of materials,
- that is way beyond many peoples comprehension (especially in the little time available to assimilate it)
- they have books and a website to disseminate the results.
- Regrettably BRE have only managed to persuade manufacturers of about 30 products to hand over the considerable amounts of money for their profiling.

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Method of generation

- Uses industry sector provided figures
- Resources in: Energy, Water, Materials
- Emissions out: Exhaust, Effluent, Waste
- Determine average per player in the sector
- Create Generic Profile for materials
- Individual companies can engage BRE to determine Env. Prof. for actual figure compared with generic figure

BRE's 13 GGtS issues

- Abiotic depletion
- Global warming
- Ozone layer depletion
- Human Toxicity
- Fresh water aquatic ecotoxicity
- Terrestrial ecotoxicity
- Petrochemical oxidation
- Acidification
- Eutrofication
- Solid waste
- Radioactivity
- Mineral extraction
- Water extraction

Scope of BRE GGtS

- Anybody who has used the Green Guides will know how infrequently they find the methods of construction with the particular mix of materials they are using are recorded there.
- BRE have been working with NBS to try to embrace a broader range of construction assemblies, 7-800 I think, but even this is still not enough
- the real risk is that in order to gain EcoHomes credits the designer is limited to the conventional methods and materials listed in NBS and BRE's joint outputs.
- Status Quo Prevails!

BRE's Green

- The downfall is that the 'level playing field' is skewed towards the big manufacturers who have a large market share
- normal products score well in the absence of the greener materials appearing on the same scale in the Green Guide
- This is about the greenest of the Violet (conventional non-green) materials
- very little to do with innovative green materials trying to enter the market place

Limitations: workmanship

- It analyses the impact of the materials in an assembly
- but fails to acknowledge the practical limitations of the construction methods and UK workmanship
- Drylining is bad for air tightness but scores better than plaster which is airtight
- Airtightness is a fundamental for Zero Carbon buildings
- As is cold bridging

Limitations: Percentage of element

- Whilst roofs are considered as a whole the proportion of the impact of single layer membrane is a low percentage
- PVC, EPDM and TPO all score the same A rating despite the fundamental differences in the materials
- Solvent based, water based, low-VOC paints and natural paints are assumed to be equal
- Insulation material sheep's wool through to foamed plastics are all assumed to be equal

Limitations: Missing materials

- The choice of materials is still limited to violet construction
- Missing materials:
  - Clay plasters, boards and finishes
  - Gypsum screeds
  - Limecrete
  - Lime:sand screeds
  - Unfired clay bricks and blocks
  - Hemp-lime
  - Breathing materials
- Renewable and natural insulation

Limitations: Missing construction

- The number of element descriptions may have increased as has the permutation of materials in the element assemblies
- It does not embrace other methods of construction :
- breathing wall construction,
- Hemp-lime walls, roofs, insulation, blockwork
- Rammed earth walls
- Unfired clay brickwork and blockwork,
- Limecrete foundations and ground floors,

Limitations: lack of transparency and no apparent logic

- Its difficult to find obvious correlations or patterns in the tables
- Its is therefore difficult to interpolate or make assumptions about potential changes in materials in elements
- It needs to be in a clever calculator
- Envest2 could help but not yet

Limitations: If it isn't listed it wont score credits

- BRE's view of the world is that if its novel it wont be used in projects
- Therefore its not included in the GGtS
- It does not get an ABC rating
- EcoHomes does not credit unrated materials
- EcoHomes discourages choice of green environmental options

Practical Solution?

- BREEAM, EcoHomes and Code for Sustainable Homes assessors indicate that materials that are not covered by the published tables
- can be assessed by BRE and give a unique reference number
- This is helpful
- There must be many materials that have been assessed but not included in the tables
- This is not exactly helpful of BRE

EAM Environmental Assessment Methods

- BREEAM: Office, Warehouse, Retail, Schools
- EcoHomes
- EcoHomes XB Existing Buildings
- Bespoke BREEAM (many)
- NEET: National Health Buildings
- CEEQUAL: Civil Engineering
- DREAM: Defence Estates (BDP not BRE)

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How does BREEAM work?

BREEAM assesses the performance of buildings in the following areas:

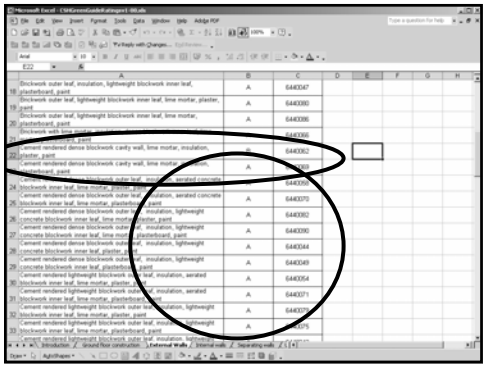
- Management
- Energy use
- Health and well-being
- Pollution
- Transport
- Land use
- Ecology
- Materials
- Water
- Environment

EcoHomes

- EAM for new homes
- Offers credits for meeting set targets
- Similar to BREEAM but different mix
- Materials choices based on GGtHS
- Credits for A rated materials
- Existing reused gets A rated

Replacement: Code of Sustainable Homes

- Draft tables published
- Just as unfathomable
- Adopts the A* A+ A-G of the latest GGtS
- The 'level playing field' is now distorted to avoid the green stuff skewing the data
- So conventional stuff does not look bad compared to the green stuff
- A* for 'especially green and irrelevant' stuff



Envest2

- Environmental Estimator
- Crude modelling tool for building designs
- Uses GGtS, ABC rating and Environmental Profiling data
- Allows material comparative analysis
- Not accurate building modelling
- Limited to non-housing

Envest2

GreenSpec www.greenspec.co.uk

- Software to evaluate whole building
- W http://www.bre.co.uk/envest
- Product are scored with EcoPoints
- 100 = the environmental impact of 1 person in one year
  E csc@bre.co.uk

Envest3

GreenSpec www.greenspec.co.uk

- BRE have funding to develop a housing version

CD2 ...iling

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WRAP Green

- Waste & Resource Action Programme
- Don't change anything, Business as usual
- Many products have recycled content with or without your knowledge or permission!
- Obtain higher recycled percentage contents
- May need to change product or manufacturer
- Recycle at the expense of Reuse
- With government subsidy and powerful encouragement programme
- No Green

GreenSpec Green

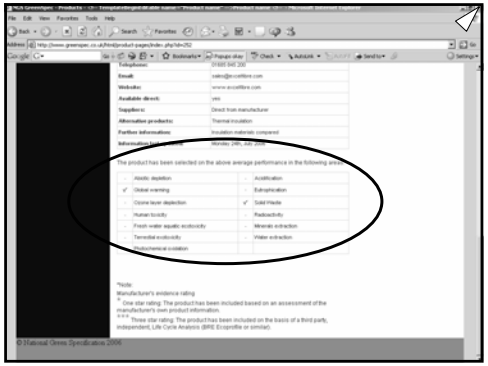
- GreenSpec lists 25 issues that are considered when choosing both the manufacturer and the products.
- Concentrate on positive attributes
- http://www.greenspec.co.uk/html/aboutus/aboutuscontent.html
- We also try to keep in mind the practical issues of specifying for real clients, real project brief in the real world and judge individual materials rather than assemblies
- but also embracing assemblies

GreenSpec Environmental Assessment Criteria Topics

- Energy, greenhouse gases and global warming
- Low embodied energy
- Less GHG/ODP in manufacture, use and/or demolition and disposal
- Low operational energy
- Natural Resources: Renewable & abundant
- Rapid renewal
- Post Consumer Recycled Content
- Post Industrial Recycled Content
- Commonly Recycled
- Agricultural By-products / Waste
- Durability
- Failure Modes
- Reclaim / Reuse potential
- Take-back/ Product Stewardship
- Extended Producer Responsibility (EPR)
- Eco Packaging
- Water conservation
- Waste reduction
- Habitat degradation Reduced land impact
- Reduced water impact
- Toxicity to the environment: Reduced Life Cycle Toxicity
- Eliminate Life Cycle Carcinogen
- Reduced Smog
- Manufacture, contractor and occupant health: low/Reduced Off-gassing
- Toxics or Carcinogens
- Moisture resistance
- Contaminants
- Air quality
- Maintenance

BRE info in GreenSpec

- Because of the relationship of BRE and Environmental Profiling to the Green Guide to (Housing) Specification (ABC rating) and EcoHomes, BREEAM, Envest2 software, etc.
- GreenSpec acknowledges BRE's systems by listing BRE ABC Rating, BRE EcoPoints, BRE Environmental Profile data and a table of their criteria indicating which the product addresses, on the GreenSpec product page.



Materials Property Comparison pages

- used to help speed the selection process.

ODP

- Ozone Depletion Potential
- Petrochemical Hydrocarbons Foamed Plastics
- Blowing Agents
  - Gradually outlawed after Montreal Summit
  - Montreal Protocol
  - CFC, HCFC, HFC, HFA-free
- Alternative blowing agents:
  - Carbon dioxide, Pentane
- But 20 years of ODP materials built into buildings waiting for demolition and a second ozone crisis

Hazardous Materials & Waste

- Containers indicate hazard groups
- COSHH and H&S data sheets indicate
- We continue to specify
- 250 materials recently reclassified as hazardous when waste
- European Waste Catalogue (in an NGS GBS appendix)
- Time to change

PVC Free

- ABS, PP, PE, Clay, Galvanized Steel
- Polypropylene Above Ground Drainage
  - Contractors surprised and wary at first
  - Extra versatility over other plastics
  - Like it once they have tried it
- LSZH Low Smoke Zero Halogen cable sheathing

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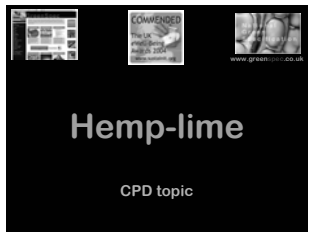

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