

GreenSpec

www.greenspec.co.uk

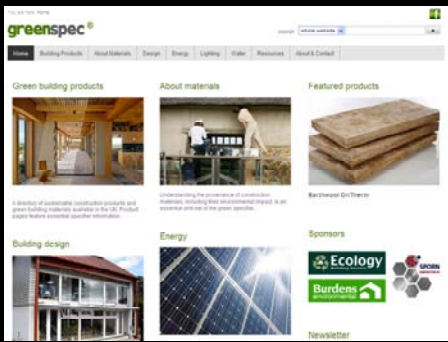
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GreenSpec's Product Evaluation



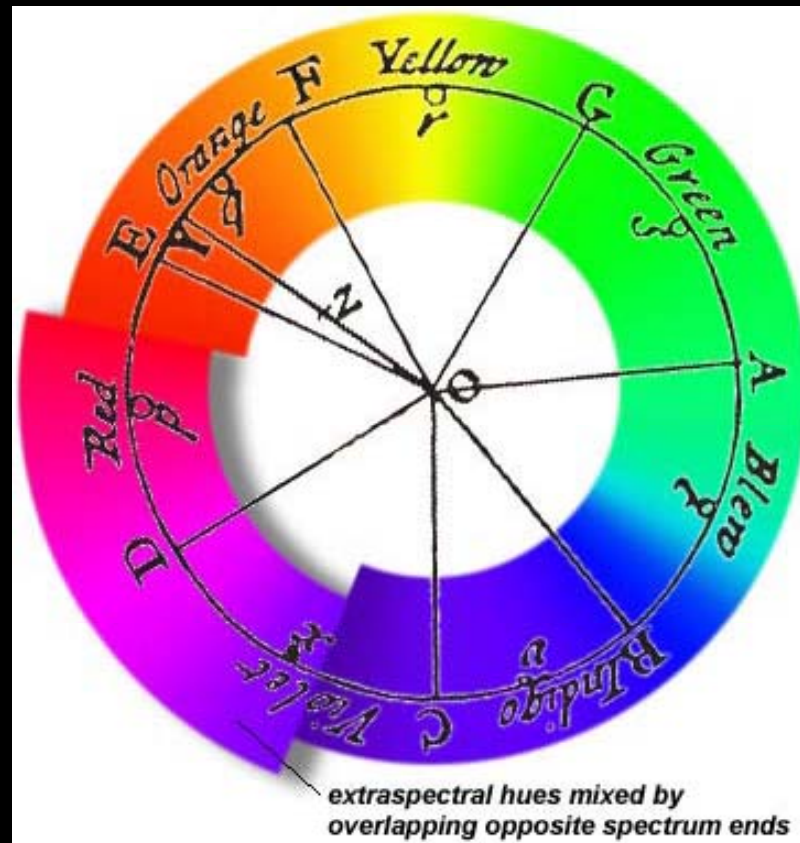
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GreenSpec's Definitions Jargon Busting

Sustainable
Eco
Green



Violet
Violent
Violate

'Violet'

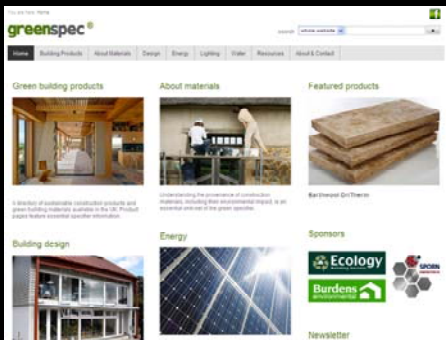
- 'Violet' chosen as it is at the opposite end of the spectrum from 'Green'
- Not far from violent and violate
- Others prefer Green-Brown, Green-Red, Green-Black,
- Not Purple

'Violet' Materials

- 'Violet' meaning:
- 'any material, construction product, construction method or building
- unfriendly to humans or the environment or
- whose performance diminishes in use or over time'

'Violet' Industry

- Clients/employers, developers, designers, Quantity Surveyors, contractors, manufacturers, applicators/installers
- anyone that does not care about the environment
- or anyone that does not act on its behalf
- Virtually the whole industry
- But its changing
- Too slowly



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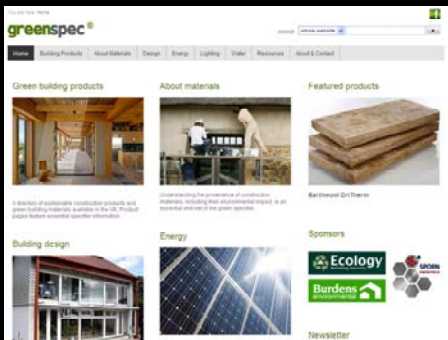
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**Much of the current legislation
is simply a stop-gap solution
BRE**

**“Being less bad is no good”
William McDonough**

We need step-changes

- We need rapid changes in behaviour
- We need good easy to use guidance
- We need to have confidence in it
 - to be able to trust it
- It needs to facilitate change
 - And not to discourage
- It needs to look at materials first
 - and then look at them in the context of construction
 - Competent construction assemblies
 - that we may be unfamiliar with
 - To give is confidence to go there



GreenSpec: Many Parts & Development Projects



Green building products



A directory of sustainable construction products and green building materials available in the UK. Product pages feature essential specifier information.

Building design



About materials



Understanding the provenance of construction materials, including their environmental impact, is an essential skill-set of the green specifier.

Energy



Featured products



Earthwool DriTherm

Sponsors



Newsletter



Design guidance includes sections on [housing refurb/retrofit](#), [Passivhaus](#), [inspirational images](#) and articles that promote energy and material efficiency.

Inspirational images



A collection of images of buildings that feature green attributes. Represented are buildings varying across a spectrum of scale from houses to offices and schools.



Guide to renewable energy systems such as wind turbines, ground source heat pumps, biomass boilers, solar PV, solar hot water, micro CHP etc.

Housing refurb and retrofit



Improving on the energy efficiency of existing housing is one of the UK's major challenges if it is to meet with key carbon reduction targets.

facebook

Sandy Patience likes

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Newsletter

Sign-up for your Free email updates to ensure you never miss our latest products and articles

Name

Email

GreenSpec Position

- We are Architects & Specifiers with 25-35 years experience each
- Serving Architects & Specifiers
- We look at environmental issues as if Architects & Specifiers serving clients
- But we have 10 years of dedicated environmental specialism each
- So we are aware of GreenWash and ask more detailed questions
- We have an LCA specialist in the team

Architect's Basic needs:

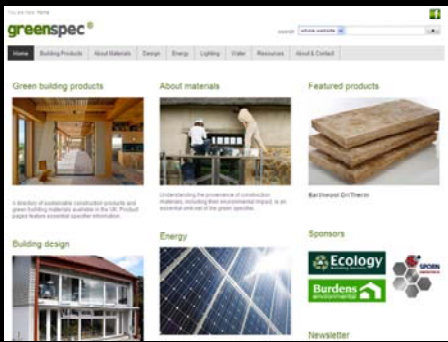
- **Basic Product Information**
 - Advantages/Disadvantages
 - Right or wrong for project to enable short listing
- **Avoidance of Liability**
 - **Competent construction assemblies**
 - All the parts
 - In the right order
 - **Complying with:**
 - Building & Environmental Regulations
 - Code of Practice
 - Manufacturer's recommendations and requirements
 - BBA Certificate requirements
 - Industry Best Practice

Architect's basic wants

- **Application Specification**
 - For contract documents
- **CAD files of assemblies or products**
- **Eco-System/Label with quick overview**
 - Positive attributes taken into account
 - Not just least negative impacts
 - Results compare well with gut instinct
 - Confidence in the system/label
- **Eco scores for materials/products**
 - Enable unique assembly/building scores
 - Do own calculations instantly

If interested in more:

- Access to the data source
- Ability to interpolate between results
- Comprehensive declaration of content of substances
- LCA Life Cycle Assessment
- EPD Environmental Product Declaration



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GreenSpec: Many Parts in Context

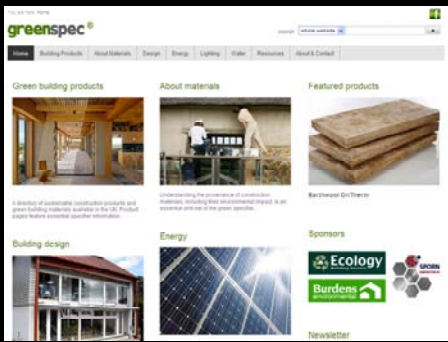
Legend

Current

Developing

Planning

No Plans



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GreenSpec: So Far

GreenSpec Website: Existing Content

Building Products		Generic Materials		Design Guidance		Energy	Lighting	Water
6000 identified	Suppliers	Manufacturing Impacts	Durability	New Build	Green Labels	Demand reduction	White Light	Carbon load
450 Product Pages included	Enquiries	Use Impacts	Life expectancy	Refurbishment & Retrofit	Passivhaus	Increased Efficiency	Energy Efficiency	Efficiency
Technical Information Certificates	Price	Disposal impacts	Failure Modes	Strategies	Image Bank	Low Carbon	Product Database	Recycling
Linked files Literature CAD files	Availability	Embodied Energy	Maintenance Processes	Methods	Opinion	Renewable Energy		Product Database
Contact information T F E W	Stock levels	Embodied Carbon	Whole Life Costs	Materials	Design for Deconstruction & reuse	Renewable Heat		
Technical Enquiries Form	No Purchasing	LCA Data		Services	Passive Solar Design	Thermal Storage		

GreenSpec Product Pages

- List products in similar categories and applications together
- Each gets its own Product Page
- It presents information about the product useful to designers
 - collected by GreenSpec
- Properties are listed
- Environmental Characteristics are listed
- Designers and Specifiers one stop shop

GreenSpec: Product Page

Properties

Environmental Characteristics

Contact details listed and linked

Supplier Information & Enquiries

Download information (created by others)

2D & 3D CAD

Literature

Brochure

H&S DS

Specifications

(GreenSpec can write or edit them)

LCAs (+CAP'EM soon)

Test Certification

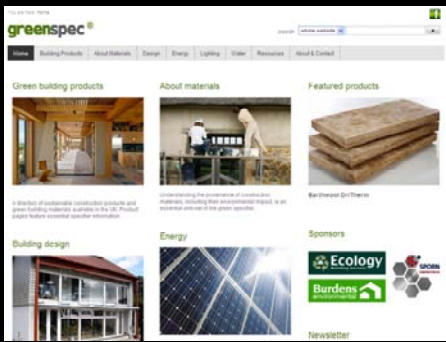
Accreditations

Endorsements

Accolades

Green Labels

EPDs (in Product Data Sheet)



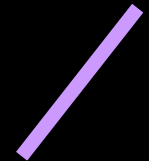
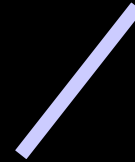
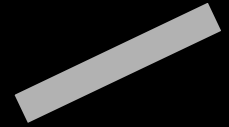
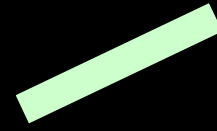
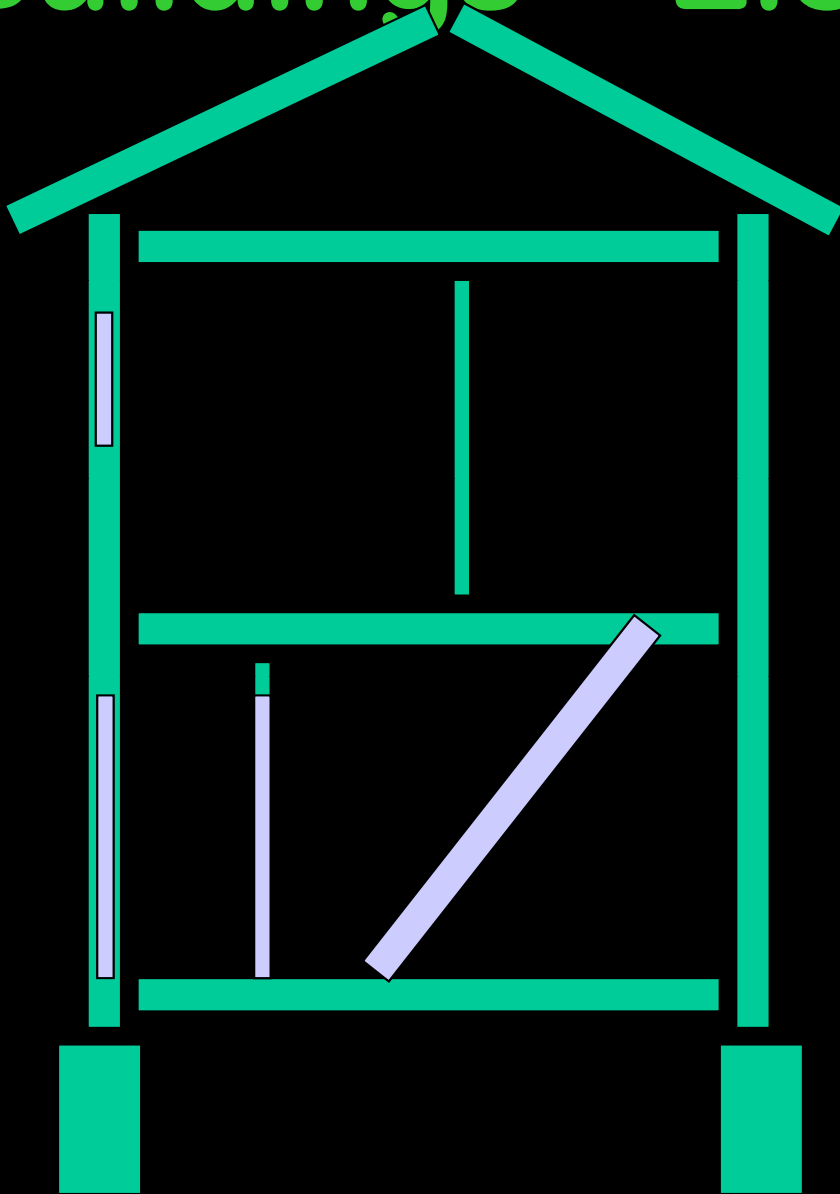
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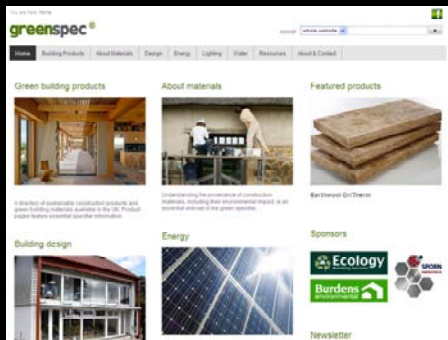
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Materials & Products Screening & Scoring

Buildings > Elements > Materials





Deconstruction & Reconstruction

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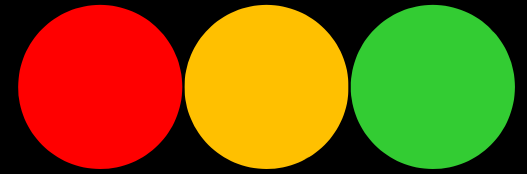
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- GreenSpec consider each individual part
- Just like a specifier
- GreenSpec do not ignore any part of the whole
- GreenSpec look at all issues and tries to find greener products for every part
- If you can make an environmental choice in all parts, why wouldn't you?
- GreenSpec then looks at them in elemental assemblies & then in buildings
- GreenSpec aims to promote competent assemblies and avoid compromising materials within their assembly

Traffic Light Systems



- When you put all the issues on a *traffic light system* it's actually very useful in order to make a decision
 - *BDP* have done something similar for interior design products
 - *Ska* uses a screening system for office fit-outs which includes: does it have an *EPD*?
 - *OneEcoHome* website had one but the site and shop is closed, until better time perhaps.
 - *Betternest* are developing a sustainability easy screening system for refurbishment, finding ways to make it lightweight to use.

PLASTIC (HDPE)



SUSTAINABLE FEATURE

SCORE

Embodied Energy (w/kg)

84.4

Embodied Carbon (w/kg)

2

Landfill Decomposition (yr)

never

Recyclability (%)

80

Toxicity (medium/low/high)

high

Durability (yr)

20

Top Trumps



- A card game where the players choose between characteristics hoping to find one that is higher scoring than their opponent
- The same game that manufacturers play in advertising
 - Promoting only one characteristic over all others
- LCA & low price is also used by D&B Contractors to choose products,
 - with little consideration for other characteristics

Level Playing Field?

- LCA provides an opportunity for comparison of all materials on an equal basis
- LCA and EPD are done for any product
- Creating a level playing field
- But only if all materials are considered
- And only if all are compared on an equal basis
- Its unfair to only have one team on the pitch
- If one team is missing the other team look good on their own

GreenSpec Screening

- GreenSpec will consider all products for screening
- Judging strengths and weaknesses
- This will highlight areas of potential development and improvement
- GreenSpec only includes them in GreenSpec Product Pages if they are good enough
 - In GreenSpec's opinion based on screening scores against many issues

Screening Objectives

- Specifiers need to select products for conformance with performance requirements of the element or a project before engaging with LCAs
- Don't forget the bigger picture and project strategies that it is opportune to consider first
 - e.g. *Local sourcing, Recyclability, Ease of disassembly,*
- GreenSpec use a screening system to find appropriate products or materials
 - At the same time filter out violet products.

GreenSpec Product Screening Issues (63 of 256)

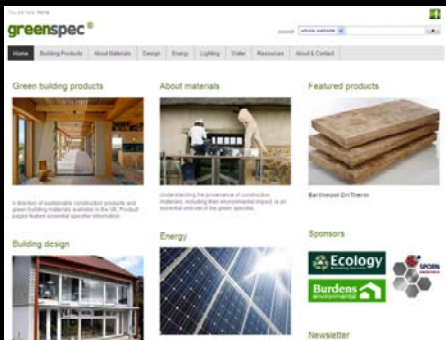
Products Competence		Company	Materials		Resource Efficiency	Energy	Lighting	Water
BSI Kitemark	Applications	Environmental Policy or Culture	Renewable	Low impact manufacture	Design for Deconstruction	Demand reduction	RoHS	Demand reduction
BBA	Durability	ISO 9000	Not Petro-chemical	Low Embodied Carbon	Reuse	Increased Efficiency	Zhaga Compliant	Low Carbon load
ETA	Life expectancy	ISO 14001	Not Hydro-carbon	Low Embodied Energy	Remanufactured	Low Carbon	Demand reduction	Efficiency
CE Mark	Maintenance	BES 6001	Natural	Traditional Methods	Recycled Content	Low emissions	Energy Efficiency	Harvesting
Guarantees	Failure Modes	Manufacturing Impacts	Plant/Tree based	Local materials	Take Back schemes	Renewable Energy	Life expectancy	Recycling
Warranties	End of Life Scenarios	LCA Data	Carbon Sequestration	Local supply chain	Packaging	Renewable Heat	WEEE	Chemical avoidance
Whole Life Costs	Disposal Impacts	Social Policies	Abundant	Local Craftsmen	Stewardship	Thermal Storage	Take back	Biological

Screening Systems relation to LCA

- *GreenSpec* adopts a screening system for material assessment using *traffic light system* which includes:
 - does it have an LCA or EPD?
- Any system of screening might be 'crude' by LCA standards but it is important to have the parameters that really matter in order to make sensible choices,
- This should not be lost even in presence of reliable and strong LCA data.

Screening: avoid need for LCA

- By screening out products with bad ingredients or having bad performance or which are unhealthy to anybody in its life cycle
- The short-listed products will be good
- The LCA of the short-listed products will be good
- Did you need to do the LCA at all?



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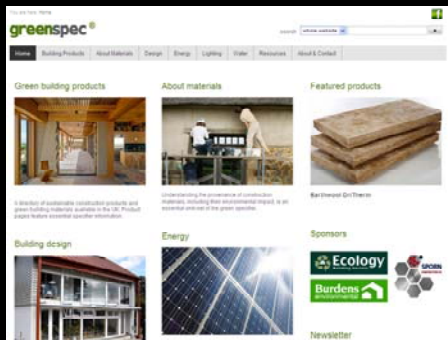
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Screening Issues:

- 57 published criteria on GreenSpec
- many other issues tabulated, 256 total
- Positives as well as negatives
- Many aspects inside and outside of LCA
- Does material/product engage with issue?
- Is the issue relevant?



GreenSpec

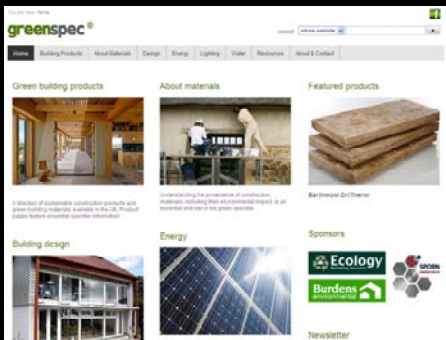
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Screening Issues: Responsive

- GreenSpec screening issues list grows all the time
- Every time we assess something new
- As we become aware of issues or campaigns
- Work out how to apply them
- We add them
- We can act immediately
- Available to all existing materials screenings



GreenSpec

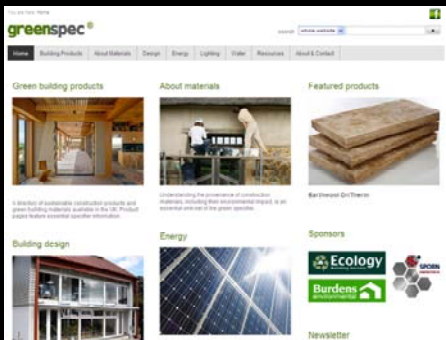
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Screening Issues: Life cycle stages

- **Production:**
 - Raw materials, Recycled materials, Bi-product, Co-product
 - Primary Energy
 - Manufacture
 - Distribution
- **Utilisation:**
 - Construction, Installation, Use, Cleaning, Maintenance
- **Renewal:**
 - Renovation/Refurbishment/Rehabilitation
 - Demolition/Deconstruction,
 - Restructuring/Alteration
- **End of Life:**
 - Reuse/Reconstruction, Recycling
 - Recovery
 - Nutrient/Composting ,
 - Energy: Incineration , Energy: AnD/AD
 - materials
 - Landfill



Screening Issues: Scope

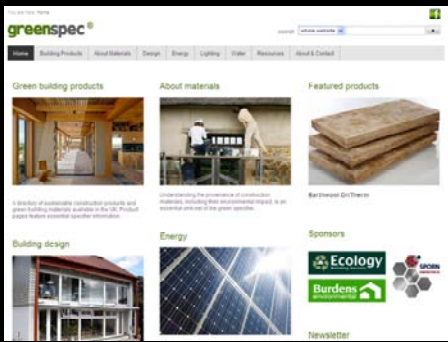
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- Manufacturer
- Materials/Product
- Systems & Services
- Elemental Assemblies
- Buildings
- Site/Landscape
- Infrastructure
- Development/Redevelopment/Change of Use
- Occupation
- Deconstruction/Reuse/Disposal



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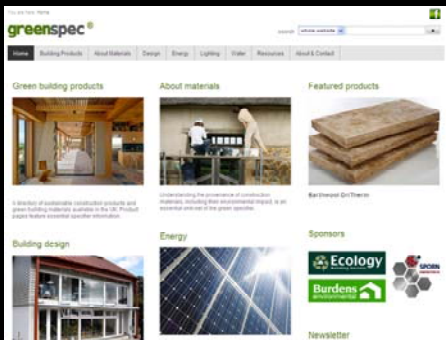
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Screening Issues: Sub groups

- **Air Impacts:**
 - Indoor, Local, Global
- **Water impacts:**
 - Ground water, Surface water, Water courses, Potable water
- **Soil Impacts:**
 - On Site, Off site, Global
- **Landscape Issues:**
 - Forestry & Plantation, Mining, Landfill,
- **Landscape:**
 - Soft, Hard & Wet
- **Flora and Fauna:**
 - Biodiversity, Endangered species, Habitat



Screening Issues: Sub groups

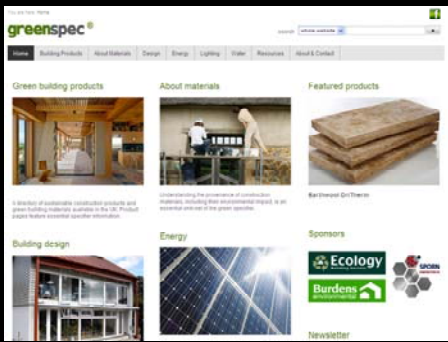
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- Infrastructure
- Energy Consumption:
 - Manufacture, Construction, In use
- Transportation
- Packaging
- Refuse/Waste:
 - Design, On site, Off site/Waste Transfer station, Landfill site
- Trouble Risk
- Health Risk & Stress
 - Wellbeing



Screening Issues: Sub groups

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- Society
- Economy
- Sustainability
 - Abundance, Reduce, Renewable ingredients, Reusable, Recycled content, Recyclable, Recoverable,
- Competence
- Application
- Maintainable
- Company

Assessment Hierarchy

- **GA = Generic Application**
 - Window
- **SMA = Specific Material Application**
 - Plastic, timber, composite
- **MPS = Manufacturer Product Specific**
 - Velfac: SuperCompo, location
- **PDS = Project Design Specific**
 - Design, resourcefulness, specification
- **SS = Site Specific**
 - SWMP, waste, off-cuts, segregation, reuse

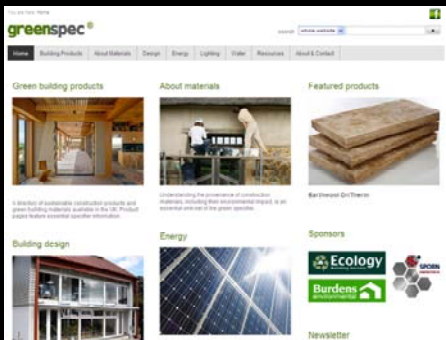
Screening Opportunities

- Possible to score and compare different flooring types generically:
 - Wooden floor boards
 - Carpet
 - Flexible Sheet flooring
 - PVC v Linoleum
- Score variations:
 - Sheet v tiles
- Compare manufacturers & products
- Consider the designers input
- Consider the site issues

Screening other issues

- Sustainability is broader than Environmental:
 - Social issue
 - 3rd Sector employment,
 - employment practices
 - CSR activity
 - Economic issues
 - Supporting local economy
- All can be taken into account in Screening systems but not LCAs
- GreenSpec screening includes these types of issues too

		Applicable?		Applicable?		Applicable?		Applicable?	Issue	Applicable?	Total
Issue	Toxic content free		Energy saving		Decrement delay		Carbon Sequestration		Score	Score	Total Score
Material											
Generic	1	1	1	1	1	1	1	1	4	4	1.00
Specific											
Mineral wool	0	1	1	1	0	1	0	1	1	4	0.25
Dense Wood fibre	1	1	1	1	1	1	1	1	4	4	1.00
Products											
Generic											
Window	0	0	1	1	0	0	0	0	1	1	1.00
Specific											
PVC window	0	1	1	1	0	0	0	1	1	3	0.33
Hardwood window	0	1	1	1	1	1	1	1	3	4	0.75
Project Specific	1	1	1	1	1	1	1	1	4	4	1.00



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Scoring system

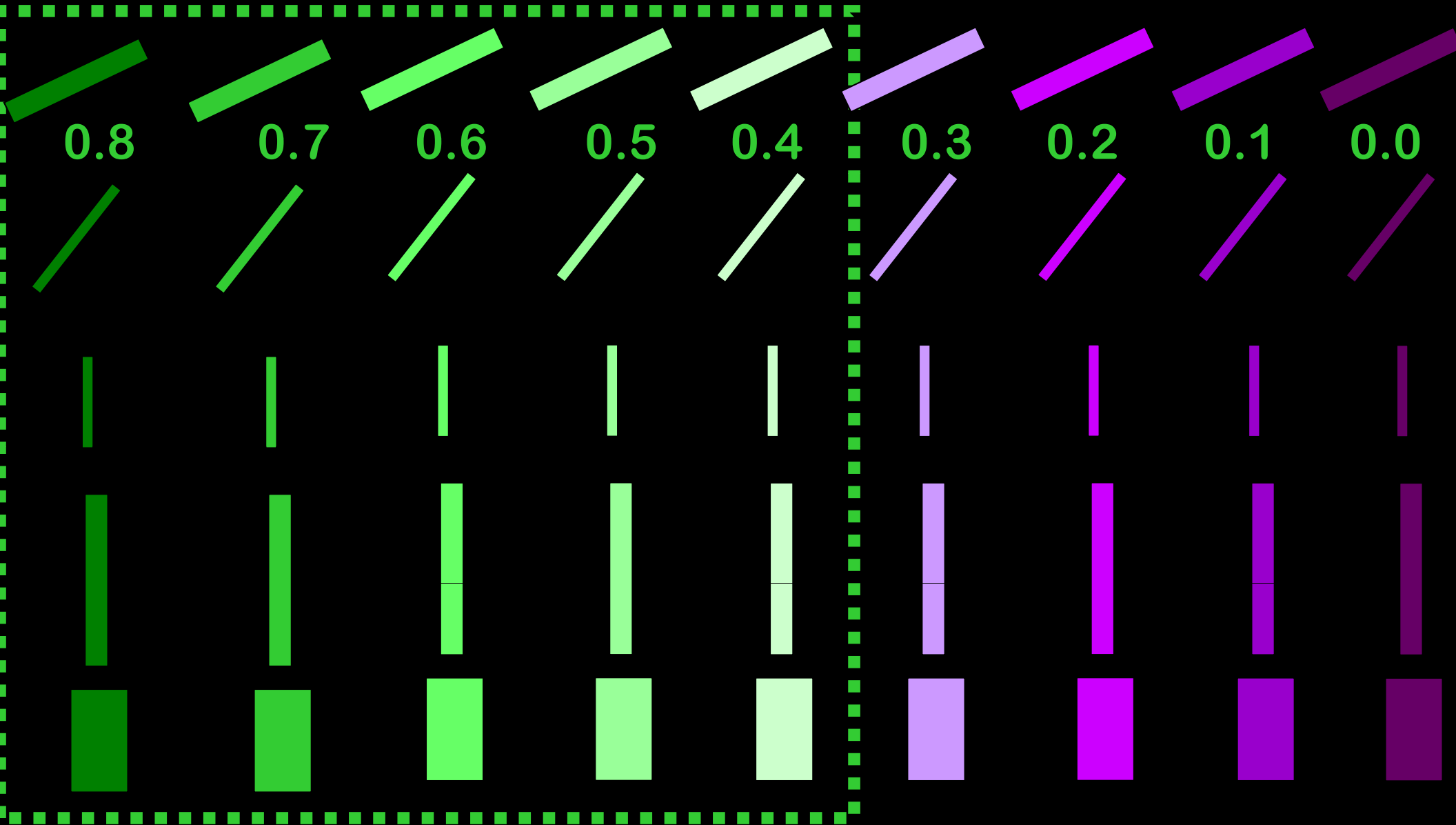
- 256 issues currently addressed
- Does the material engage with the issue?
- Yes = 1, No = 0; total up score
- Is the issue applicable to the material?
- Applicable = 1, Not = 0; total up score
- Divide Engagement score by Applicable score
- Most score will be from 0 to 1
 - (a fraction of 1)
- Exceptional companies and exceptional products can score above 1
- This helps to find and highlight the best

Scoring System: Refinement

- **Scoring in assessment Hierarchy**
 - Applicable, To be determined, Not Applicable
- **Positive = 1, Neutral = 0, Negative = -1**
- **From Site = 6 from World = 0**
- **Good issue: High = 1, Low = 0**
- **Bad issue: High = -1, Low = 1**
- **Code for Sustainable Homes:**
 - Code 1 = -3, Code 4 = 0, Code 6 = +2

Screening: Scoring

Dark green, light green avoid violet

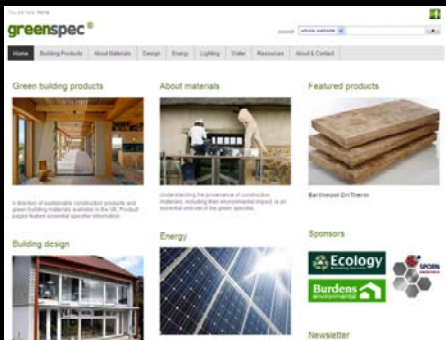


Screening scoring options

- Types of screening/scoring can be carried out in stages:
 - Generic Application:
 - E.g. window
 - Particular material in same application
 - E.g. PVC window v composite window
 - Manufacturer & Product specific
 - Velfac, EcoPlus
 - Project specific variations
 - Specification, Design efficiencies, SWMP, transport

Screening advantages:

- **Easy: Yes = 1/No = 0**
- **Progressive Assessment Hierarchy**
 - Default scores established
 - Product and Project scores to add
- **No experts needed**
 - architects can do this
- **Low expense (no LCA fees)**
- **Bespoke assemblies possible:**
 - By the architect
- **Whole buildings possible:**
 - By the architect

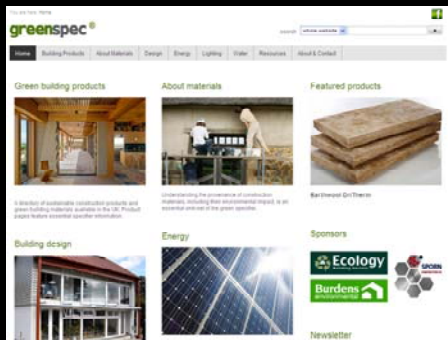


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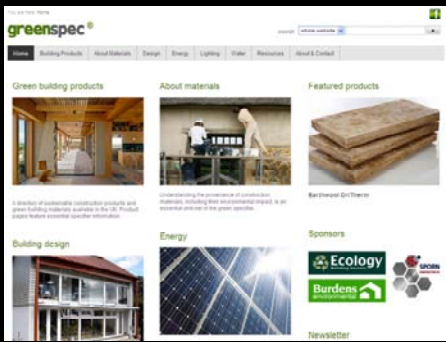
Less is More, does More = Less?

- More insulation is better for building use running costs
- LCA says more insulation is worse
- Screening gives credit where credit is dew
- Scoring can enhance this
- Code 1 = -3, Code 4 = 0, Code 6 = +2



Screening time

- 1 day total
- Update/refine criteria: 1 hour
- Application scoring: >1 hour
- Material in application scoring: 1 hour
 - More than 1 for comparison: +1 hour each
- Manufacturer & Product: <1 hour
 - if known, or research literature/website/rep
- Project specific issues: <1 hour
 - By Architect/specifier (or by us with them)



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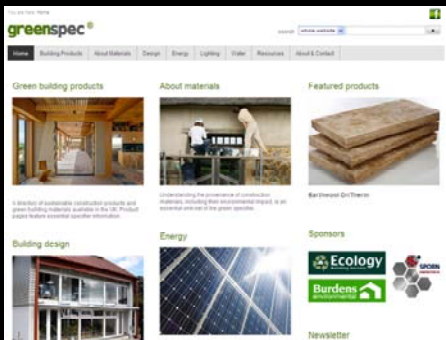
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Screening costs

- To manufacturer
 - £350.00 per product
 - If factory visit required
 - +fares +accommodation +time?
 - Multiple products of same materials
 - Much faster, big discounts
- Annually
 - Review additional screening issues
 - Since last screening
 - Review any product changes since last year
 - 1 hour £35 to 1 day £350 +VAT



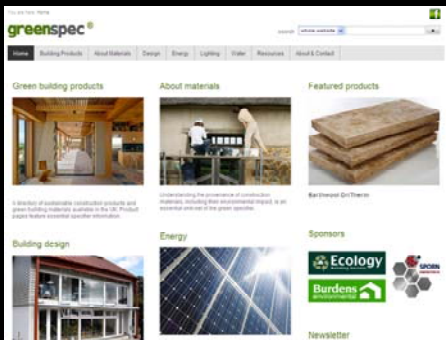
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Screening: costs

- Yes we take money for doing work
- Just like any LCA service does
- But we do a screening and charge accordingly
- Screening costs £350
- LCAs cost £7000-£60,000
- Who does not charge for their service?
- GreenSpec will also offer LCA based on CAP'EM method in due course



GreenSpec

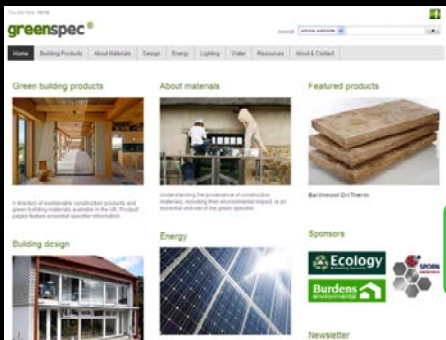
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Weighting?

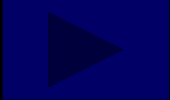
- **GreenSpec does not normally do weightings**
 - but it could be added to the scoring system
- **This brings into play human judgement**
- **This forces you to committee thinking**
 - If you have the wrong mix of committee members the outcomes can be off balance
 - a strong chairman
 - Too many manufacturer interests
 - e.g. BSI Technical Committees & BS 0 standard
 - LCA committees?



Project Weightings

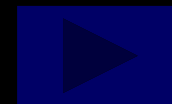
- We feel that having a committee at the LCA organisation decide your priorities seems a little strange
- Your client may be an:
 - asthmatic family
 - Priority is low allergy materials
 - Energy intensive manufacturer
 - Priority is energy efficiency or carbon reduction
- Screenings in the Assessment Hierarchy, at project level
 - engage with client requirements

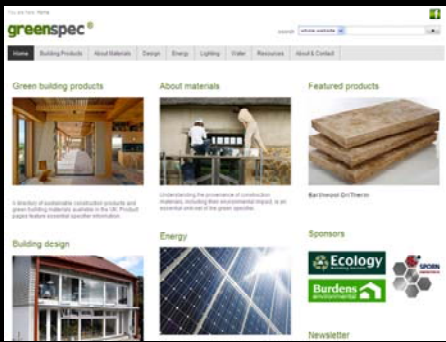
LCA Life Cycle Assessment

- Having gone through a screening process you end up with a shortlist
- Then you can compare the results of LCA of your choice(s) to pick the one from a shortlist
- For this reason GreenSpec and 10 organisations in EU (NWE) are developing a simplified LCA to support our offering.
-  CAP'EM

LCA Strength/Weaknesses

- LCAs are good in concept
 - Good solid number crunching
- but done wrong (with bias or inconsistency) OR
- buried under weighting systems OR
- missing the best (Greenest) products
- = no improvements
- = business as usual,
- and a barrier to trade
 - for those not in the club
 - More on this later





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LCA limitations

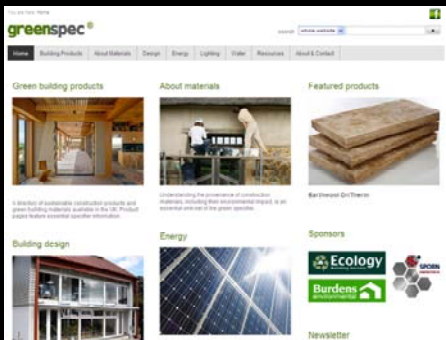
- LCA studies and scores negative impacts of manufacture, use and disposal of materials and products
- LCA does not look at positives impacts of manufacture use and reuse of materials since there are very few in normal build

LCA & Carbon Sequestration

- LCA does not normally look at carbon sequestration during the growing stage
- LCA of Bio-based products should have the benefit of Carbon Sequestration in the assessments
- PAS 2050 has guidance on its inclusion
- LCA with carbon sequestration will give well rounded results

LCA Green or Violet?

- LCA can find the greenest of the green materials
- LCA can help to find the **least violet**
- If Green materials are missing
 - LCA finds the **least violet** of the violets
 - Users might assume they are greenest
 - Especially if the Cover says so
- If the Greens are present?
 - LCA will sort the greens from the **violets**



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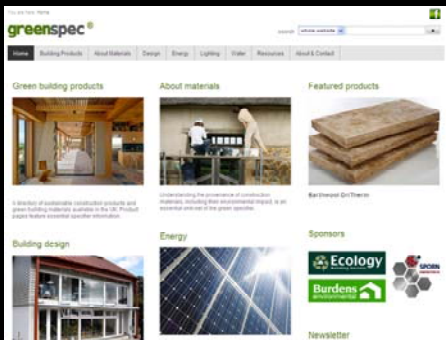
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Beyond LCA

- Impacts also include the Building process itself:
 - construction, maintenance, refurbishment, etc
 - This is beginning to be considered by LCA practitioners

Less bad is not good enough

- Design is a constructive process
- Designers need info on good materials
- Designers are looking for positive outcomes
- They can and do engage in positive environmental design
- They want credits for positive design
- not just credits for less bad materials
- LCA alone can not deliver this



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- Using LCA alone
- will result in decisions akin to laying a crazy paving play field because it was the cheapest one in a catalogue
- It's obviously the wrong catalogue
- our children want on play on a lawn.

There are positive materials

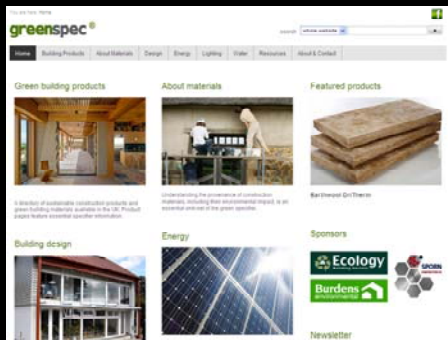
- But under LCA as they are today
- these positive materials often look bad
 - or less bad than other materials
- E.g. Taking Carbon sequestration into account
- Materials can be:
 - Low Carbon
 - Carbon neutral
 - Carbon negative
- But LCA will not normally show this

EPD Environmental Product Declaration

- An EPD is a statement of facts about the product or material, about its manufacturing processes in the period of the assessment,
- the company pays for the assessment to be carried out by an LCA/EPD specialist.
- All EPD methodology should ideally be consistent and comparable but often are not,
 - there are many variables including Product Category Rules, Declared Unit, System Boundaries, etc.

EPD Environmental Product Declaration

- EPD is the outcome of an LCA
- EPD is a declaration of negative environmental impacts in the creation of a product or a material;
- EPD is the summing up of the negative impacts of all the processes from extraction to packaging and is often but not always based on Cradle to Gate.



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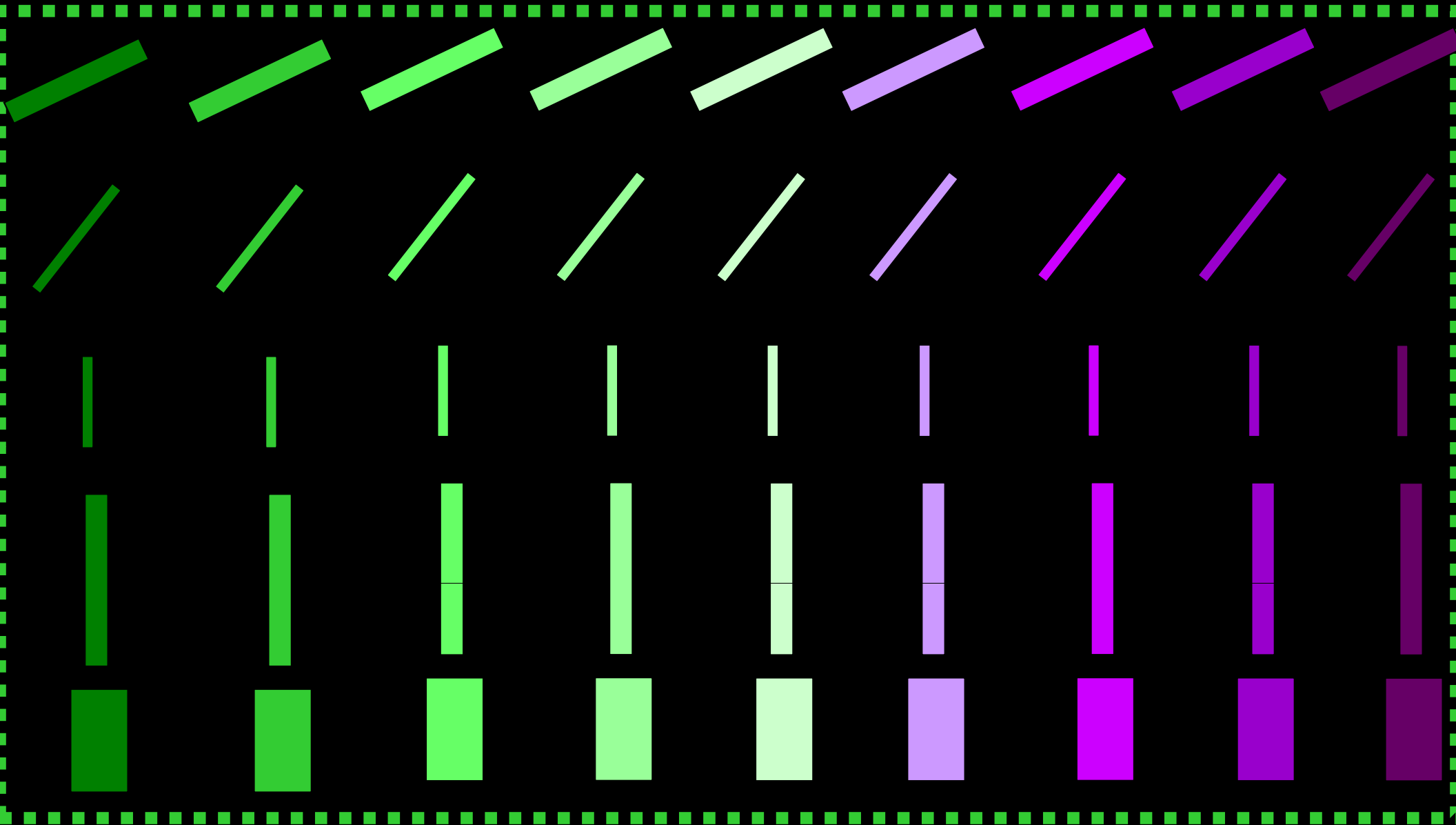
- EPDs could be brilliant
- they could put all the info you want to compare in one place
- without any weightings, etc.
- but due to their infancy there is currently a lack of prescribed method of assessment and presentation

Limitations of an EPD

- EPD is not:
 - a badge of honour,
 - a green label,
 - certificate of compliance
 - an endorsement
- Having an EPD should not be a criteria for acceptance,
 - only a means for comparison,
 - however the content may not be comparable.

LCA & EPD

Dark green, light green & violet

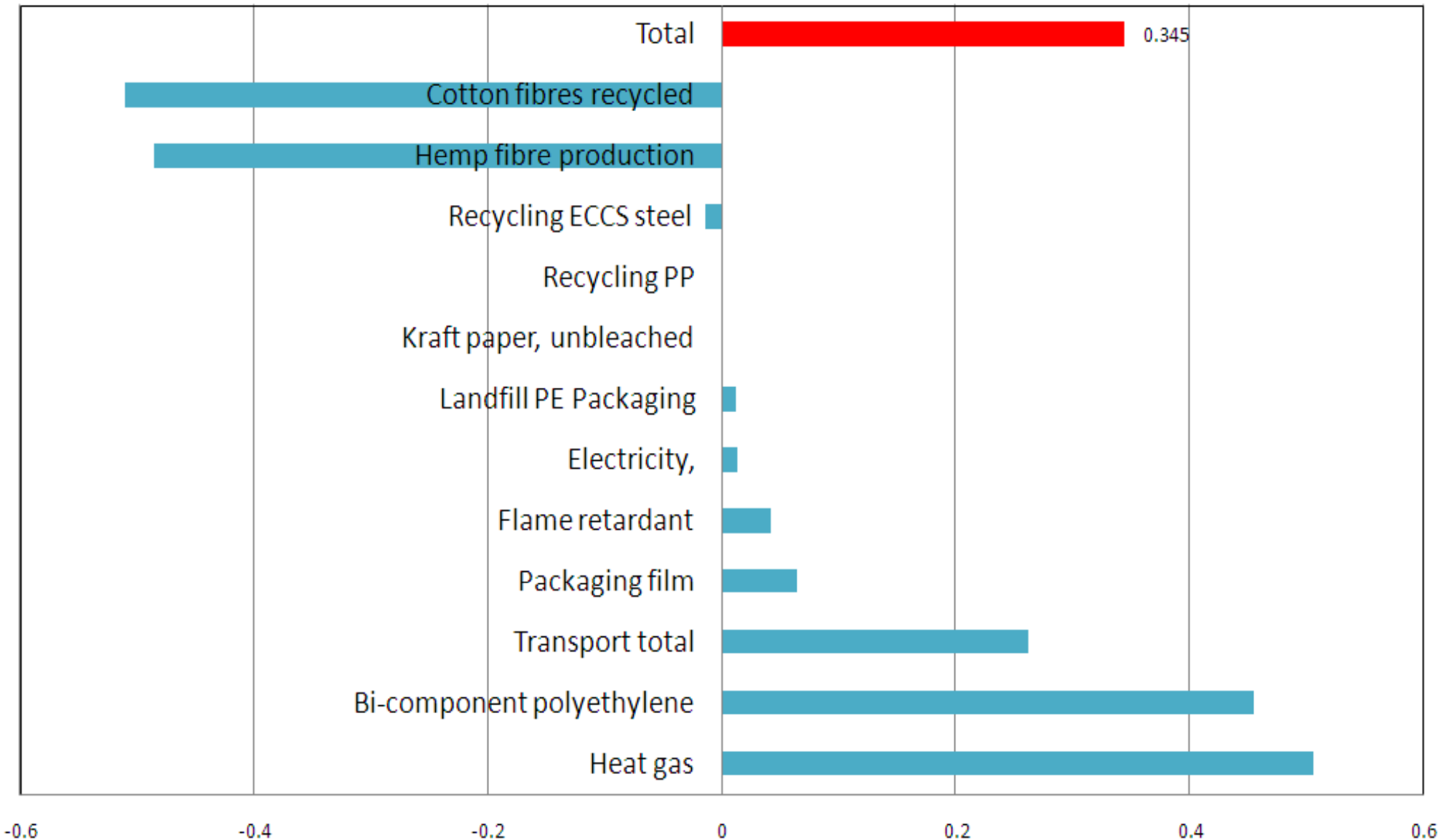


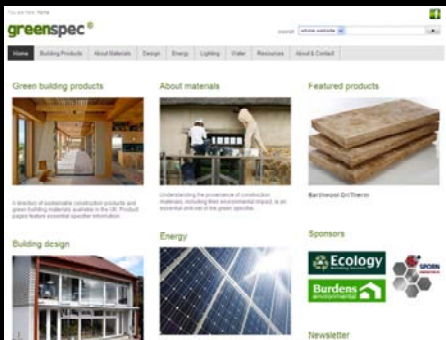
EPD & Marginal Analysis

- An EPC might raise awareness
 - manufacturer may use its results to help them identify problem ingredients,
 - find substitution materials to improve the product,
- Marginal Analysis shows which resource material have the greatest share of the impacts.
- The improved product will need a new EPD.

Marginal Analysis (Dr. A Norton)

Where do the impacts come from?





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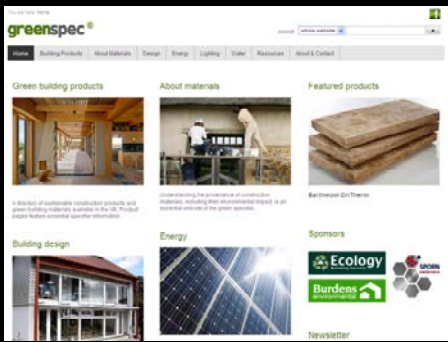
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Moving Targets

- LCAs by different organisation, or with differing Product Category Rules, System Boundaries, Cradle to *, result in incomparable LCA results.
- Compliance with ISO 14025 does not reduce the variability.
- CEN TC 350 aims to standardise LCA
 - Relate to CE marking & Essential Requirements
- EU Consumer Council challenged TC 350 not to favour manufacturers and to engage with human and societal issues or they would tell consumers to ignore LCA
 - CEN TC 350 is being revised
 - CEN TC 351 is engaging with issues of health
 - CEN TC 350 will need to embrace CEN TC 351 in due course
- All LCA will have to monitor CEN TCs and update at each revision
- Manufactures LCAs need updating at great expense
- Consumers than have to check the date of the LCA and if they include all the latest revisions



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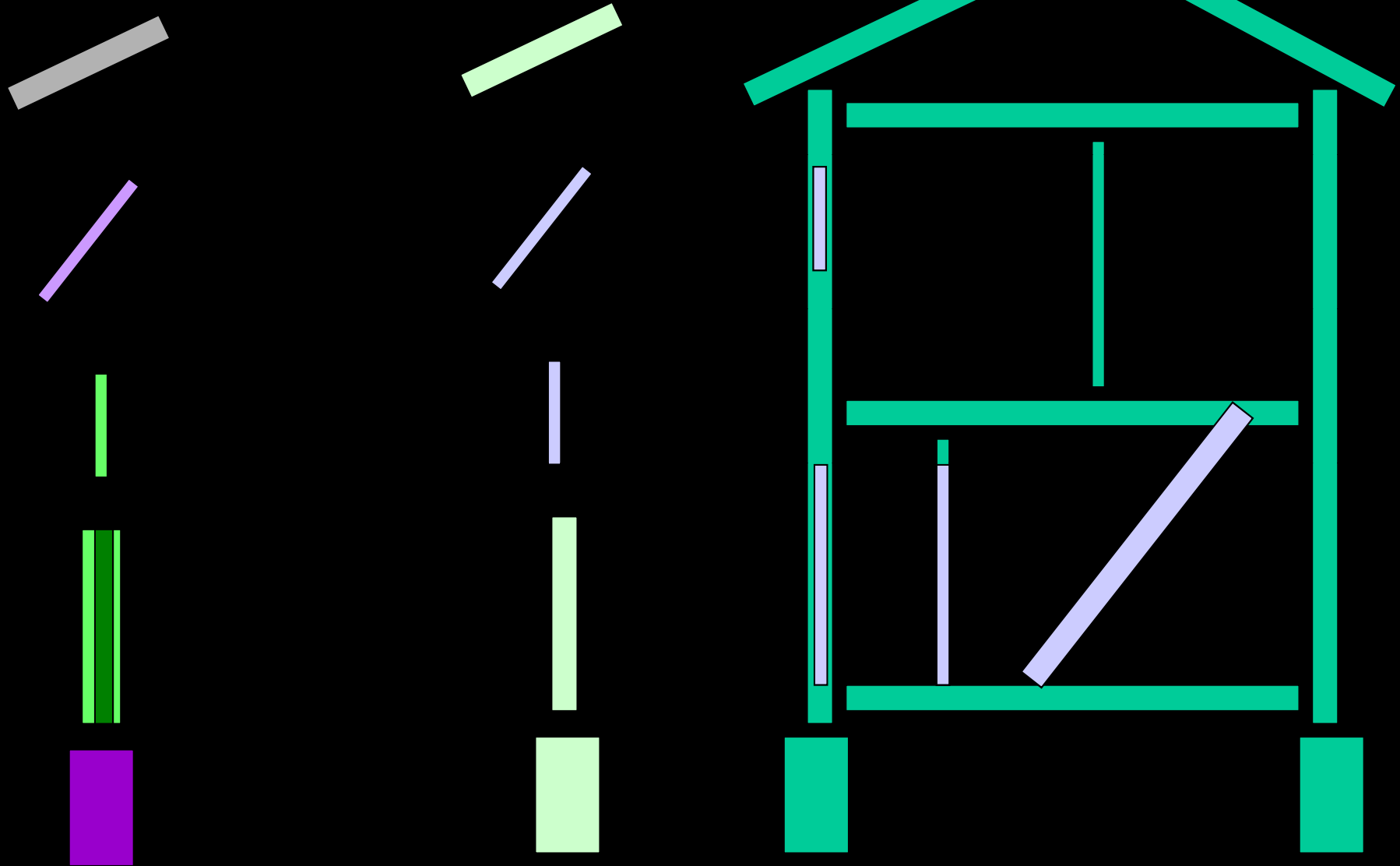


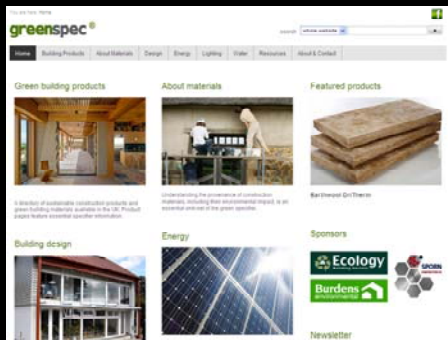
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Assemblies of components & Elements

Components: Elements: Buildings

Materials: Products: Assemblies





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Assemblies

- We need to consider how materials are promoted and used in any permutation:
 - Green materials in green assemblies
 - Green materials in violet assemblies
 - Violet materials in green assemblies
 - Violet materials in violet assemblies
- GreenSpec Studio is moving towards screening out the worst combinations to assist with the step changes needed to solve our current problems

MyGreenSpec: Design & Specification

MyGreenSpec

892 New-Build
Elemental Assemblies

Construction

Claddings

Finishes

Selection Guidance

Identifying Codes: CPI

Whole Building Elemental
Specification

Supplier enquiry

Green Police by
supplier

Product Pages

450 Products

Information

Linked files
Linked pages

Contact information

Technical Enquiries

Suppliers

Enquiries

Price

Availability

Stock levels

No Sales via
GreenSpec

Sales via Suppliers

In Use Carbon Reduction

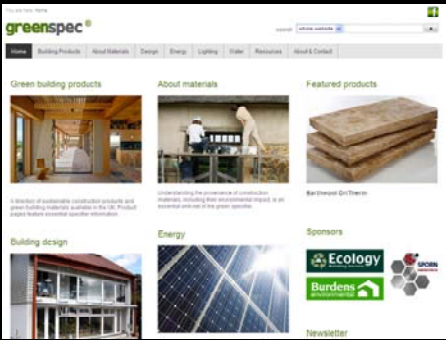
- **My GreenSpec Studio has:**
 - Robust Detail assemblies
 - Building Regulations Acoustic construction
 - Passivhaus standard construction
- **Will address Code 4 5 & 6 thicknesses**

Low & Negative Carbon Materials

- My GreenSpec Studio has many:
 - Carbon negative & Low Carbon construction methods
 - Eco versions of Passivhaus
 - IMC Innovative Methods or Construction
 - MMC Modern methods of Construction
- GreenSpec will continue to add to them

CPI Coordinated Project Information

- Elemental Assemblies will have a unique 5 (6 next upgrade) cluster code made up of:
 - elemental code,
 - outer finish code,
 - core code,
 - inner finish code,
 - unique number if similar assemblies arise
 - Code for Sustainable Homes level code
 - (next upgrade)
- This 5(6) cluster code will be used for CAD files, Specification References & BofQ



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**Auto
CAD
3D
models**

**Drawings
(Cross Ref to Spec)**

**Product
Info
Systems**

**6 cluster
codes
CI/SfB &
CAWS**

**Elemental
Descriptions
with many
components**

**Specification
(Say it once)**

**Bill of
Quantities
(Cross ref to Spec)**

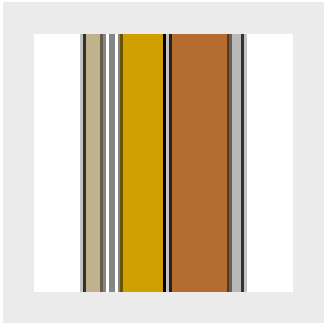
**Green
Spec
Studio**

**Elemental
pricing
models**

← back

close ✕

Insulated render M21 - There is 1 element in this group.



— select —

-high embodied energy, +high thermal mass and +high decrement insulation, +air-tight inner

- Mineral render on/with reinforcing mesh
- High decrement, thermal insulation, _ x rigid board, ___ mm.
- Fired clay cellular block wall
- Mortar
- Lime or clay plaster
- Paint: internal emulsion



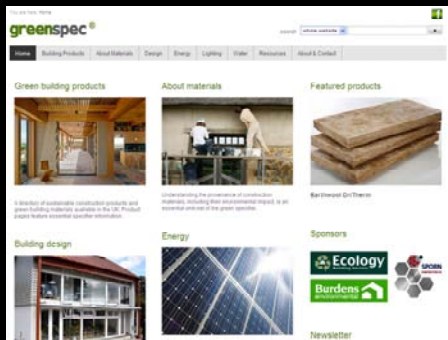
ref: 21.m21.f10.m20.02

Incompetent Construction

- So what is **violet assembly** construction?
- Thermal bridges in framed construction
- Open pore insulation against ventilated cavities
- Partially insulated closed cavities
- Cavity party walls with little or no thermal insulation
- Punctured vapour barriers
- Air leaky construction: e.g. drylining ceramic tiling on 5 spots of adhesive
- Unexploited thermal mass especially in high carbon construction
- Sacrificial construction in flood zones

Competent Construction

- Increasingly we are developing a clearer picture of what competent construction is,
- E.g.
 - Hydrophobic insulation in wet assemblies
 - Hygroscopic insulation in breathing construction
 - External insulation in framed construction
 - Insulation to fill voids leaving no gaps
 - High decrement delay in roof construction
- We are seeking to develop our understanding:
 - See FP7, Calgrest & GreenSpec Live



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Rationalise

- Rather than providing every permutation of assembly and materials
- We are developing many competent core assemblies from VB > BM or ATL > WTL
- Then allow choice of external claddings/ finishes and internal linings/ finishes
- Giving design guidance in each case and environmental critique of each
- Giving a chance to review choices made

GreenSpec Studio: Design & Specification

GreenSpec Studio

New-Build & Refurbishment
Elemental Assemblies

Climate focus

Competent Core & Materials

Claddings:
Materials

Finishes:
Materials

Selection
Guidance

Whole Building
Elemental
Specification

Identifying
Codes: CPI

Supplier
enquiry

Elemental 3D
CAD

Elemental
pricing

Elemental LCA
Data

Green Police
by supplier

Product Pages

450 Products

Suppliers

Information

Enquiries

Linked files
Linked pages

Price

Contact
information

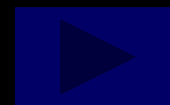
Availability

Technical
Enquiries

Stock levels

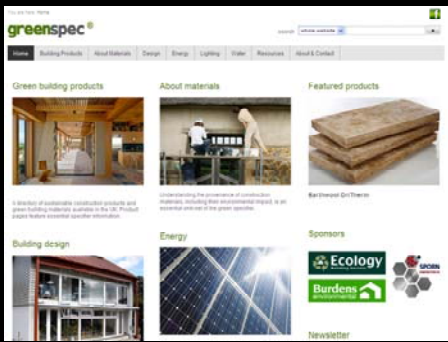
No Sales via
GreenSpec

Sales via
Supplier



Climate & Local Focus

- We want to go another stage further
- Respond to the climate zone and offer local construction methods (e.g. appropriate thermal mass and decrement delay)
- Improve thermal insulation & efficiency
- And add appropriate materials to work with local constructions
- Avoid condensation, overheating, greater heating demands and other risks

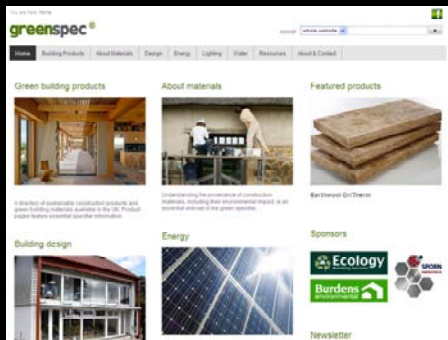


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EU Procurement Rules Government Funded Projects



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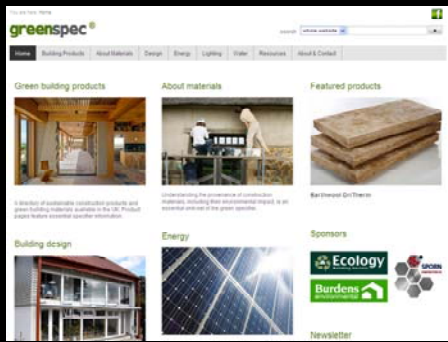
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Context

- 1957 Treaty of Rome
- 1992 Single Market
- EU Construction Products Directive and UK Regulations
 - No Technical Barriers
- EU Procurement Rules version 2
- Specification that require compliance with any LCA service, Endorsement or Green Label is a technical barrier
- ‘Or equivalent’ is a necessity
- Evidence of equivalency must be accepted

Just like Specifications

- NBS Preliminaries
- Government Funded work
- Or Equivalent applies
- If it does not say it,
- assume it does



Wales

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Cycle Assessment Procedure for Eco-Materials

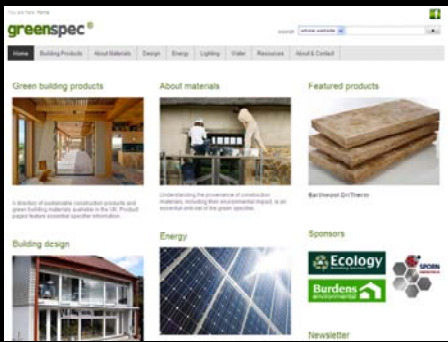


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- Welsh Assembly Government:
- Code for Sustainable Homes
 - Or equivalent
- Green Guide to Specification
 - Or equivalent
- They like GreenSpec
- Green Spec is not a label
- just a easy access catalogue of Screened Materials and Products

Green Labels & other 'Clubs'

- They may be restricted in their application to government procurement
 - Government cannot be seen as favouring any scheme despite endorsing some schemes
- So you cannot require any without permitting 'or equivalent'
- Rather frustrating since an independent organisation provides the service for the manufacturer and is paid by them to do it
- 'Or equivalent' means you have to do it for them instead and you are not an expert
- 'Or equivalent' risks being worse
- And you wont be paid to review it

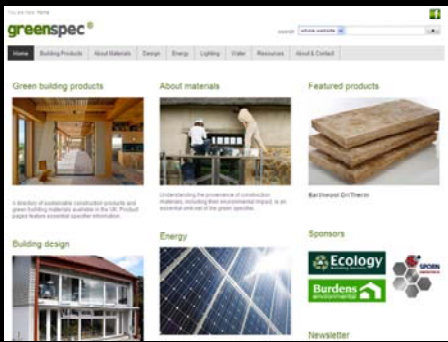


OGC

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- Office of Government Commerce



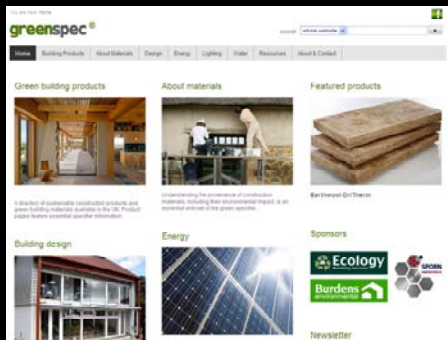
GPP

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- Green Public Procurement



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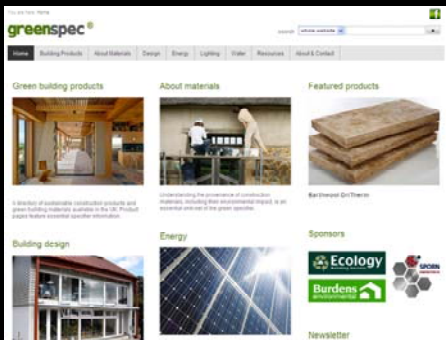
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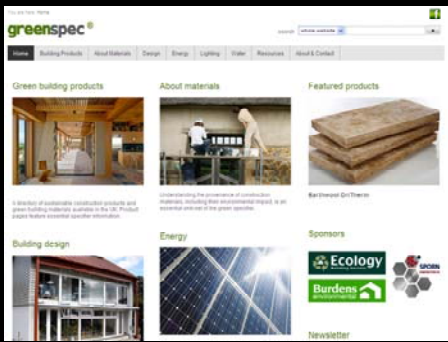
BREEAM

- BREEAM
- Refers to BRE Green Guide to Specification
- But the credits are so few that some BREEAM assessors argue that you should not even bother with materials credits unless you are seeking the highest pass levels
- You could take a look at GreenSpec



Hospitals

- BREEAM Health
- Refers to BRE Green Guide to Specification
- All health projects are expected to score well on the materials credits
- But Or Equivalent applies
- unless PFI and PPP lets you off.



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GreenSpec: Outreach

GreenSpec Live: Started 2010

Topical Seminar:
Liability, Risk, Insurance,
Barriers to Sustainability

GreenSpec Website

Think tank: Topical

GreenSpec
Code

Output
Specifications

Update
GreenSpec
Studio

Interested
parties

Recommendations

Design
Guidance

Specification
clauses

New or better
Assemblies

Legal

Insurance

Outputs

Design
Checklist

Contract
Clauses

New or better
clauses

Experts:
Competence

Sustainability

Follow up
Seminar:

On websites

GreenSpec
Contract

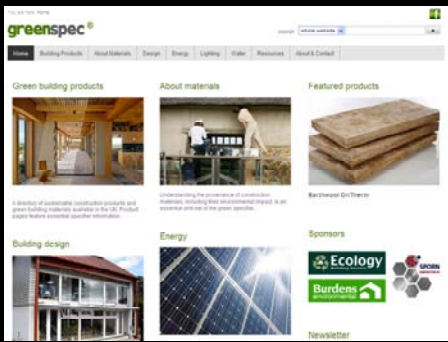
Improved tools

CLM
Component
Life Manuals

Research
outputs

Risk
Avoidance

Downloads



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GreenSpec: Additions 2011

GreenSpec Website (Pending: 2011)

Downloads

Sustainability
Checklist

CPD

Excel

Green Building
Specifications

Exists Needs
updating

Green
Construction

Seminars

Tools

Work
sections

Consider this

Specification

Workshops

Calculators

Guidance

Avoid these

Procurement

Lecturers
PPTs

Schedules

Reference
Docs &
websites

Recycle
Those

Professional
Practice

Delegates
PDFs

Tables

Appendix:
Suppliers
Applicators

Information
sources

Offering to Manufacturers

GreenSpec
Screening

Product
Analysis

Life Cycle
Analysis

GreenSpec
Product
Page

CPD
Seminars

Literature

CAD
Files

Scoring
system

Identify
Problems

Marginal
Analysis

Product
Data Sheet

Review

Review

2D Assembly
Illustration

Database

Improvement
Opportunities

Substitution
Proposal

Listing on
Website

Suggest
improvements

Suggest
improvements

3D
CAD

Suggest
Substitutions

Update
Life Cycle
Analysis

Exposure to
Visitors

Post on
GreenSpec
Download

Post on
Product
Pages

Parametric
Properties

EPD
Environmental
Product
Declaration

Interact with
GreenSpec
Studio

GreenSpec
Literature
Library

GreenSpec
Studio Output

GreenSpec & CAD

GreenSpec
Website

Public
Domain
Database

GreenSpec
Literature Library

GreenSpec
Product Pages

GreenSpec
Studio

Product
Databases

CAD files

CAD files

2D Elemental
Assembly Illustration

CAD Files

2D
Illustration

3D CAD Elemental
Assembly

3D Products
File

Parametric
Properties

3D Elemental
Assemblies

Thickness

BIM compatible

Elemental
U Value

Moisture
Transport

Decrement
Delay

Elemental
LCA

GreenSpec Literature

Product
Data Sheet

CAD

3rd Party
Verifications

Product
H&S
Data
Sheets

LCA

Product
Literature
PDF

Printed
CAD File
PDF

2D
Product
AutoCAD
others

Accreditations

CHIP

EPD

Product
Specification
clause
DOC

Elemental
Assembly
Illustrations
PDF

3D
Product
BIM

Endorsements

CDM
Risk
Analysis

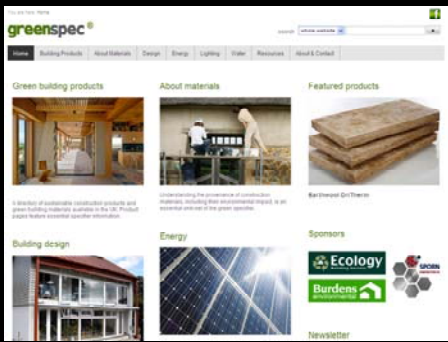
Product
Data
Sheets

Workmanship
Specification
DOC

3D
Elemental
Assemblies

Accolades

COSHH
RoHS
REACH



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GreenSpec: Project involvement

Current Interreg Funded Project 2009-2012

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WP1 Simplified LCA

WP2 Product Data

WP3 Dissemination

WP4 Investments Buildings

Definitions

Methodology

100 LCA
Data
Collection

100 Product
Data
Collection

Website GUI

Exhibition

Engage
Local
Construction
Community

Questionnaire

Flow
chart

100 Data
Processing

100
Product
Data
Sheets

100
Product
Specification
Clauses

Product
Pages

Free
Access
LCA Tool

Promotion

Training

Test
Methodology

30
Products
LCA

100
LCA
Output

EPD

Sourcing

Supply chain
Development

Product Data
Sheets
with LCAs to
site

LCA to site
calculations

Public
Engagement

Designers
to
Tradesmen

Costs of CAP'EM LCA

- Time: about 3-5 days
 - Phone call
 - Flow chart
 - Questionnaire
 - Factory visit
 - Data and information collection
 - LCA assessment
- CAP'EM:
 - Free for first 100: LCA Cradle to Gate
 - Free website tool for SMEs after project
 - Users of Website: LCA Cradle to Site

Interreg Funded

CALGREST 2012-13

Strategic Cluster Project

CAP'EM

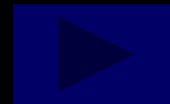
Living
Green

RE

SusStations

Green
Products
& LCA

Sustainable
Historic
Renovation
Solutions



Railway
Station
Environmental
Assessment
Method

CAP'EM II (including CALGREST Living Green)

CAP'EM
CALGREST
LivingGreen

WP1 Elemental Assemblies
Data

WP2
Dissemination

WP3 Training

Eco Materials
& Products

Elemental
Assemblies

Product
Database
development

CAP'EM
Website
development

Exhibition in
CAP'EM
buildings

CAP'EM
website(s)

Elemental
Performance
Calculations

Elemental
Design
Guide

Elemental
Assembly
Search

Promotion to
CAP'EM users

LCA

Elemental
CAD files

Specification
Clauses

Elemental
LCA Tool

Engage CAPEM
Prof.
Community

New build &
Refurbishment

Elemental
Specifications

GreenSpec
Studio

Whole Building
LCA Tool

Training

© 2011 GreenSpec

- Brian Murphy BSc Dip Arch (Hons+Dist)
- Architect by Training
- Specification Writer by Choice
- Greening up my act since 1999
- Founder of www.greenspec.co.uk
- E BrianSpecMan@aol.com
- Twitter: <http://twitter.com/brianspecman>
- Scribd: www.scribd.com/brianspecman
- Facebook:
<http://www.facebook.com/pages/GreenSpec/77375462337>