ASBP The Alliance for Sustainable Building Products

Gary Newman

(Chief Executive ASBP)

Why products matter

- Background to the ASBP
  - Who we are / mission / aspiration
- Why products matter
  - Embodied impact / resource efficiency
- Sequestered Carbon – Kate de Selincourt
- ASBP Themes
  - Greenwash and the role of standards (The Green Guide / EPD / Natureplus)
  - Traditional products and skills
  - Retrofit and the green deal
  - Embodied impact and resource use
  - The build process
  - Sustainable Design and Procurement
- Conclusions / Q&A

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Background to ASBP

- Initially began sharing ideas in 2008 in response to the Green Guide to Specification
- Operated as Renewable Building (supported by the NNFCC)
- No existing construction organisation was addressing the issue
  - too difficult
  - product agenda seen as luddite or anti-science
  - not significant sustainability opportunity or not a priority
  - substantial commercial interest in NOT pursuing the sustainable products agenda
- Established Alliance for Sustainable Building Products (ASBP) in November 2011

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ASBP Founders / Partners

ASBP Standard Members

ASBP The Alliance for Sustainable Building Products

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HOME ABOUT US OUR ACTIVITIES MEMBERS RESOURCES PROJECTS NEWS & EVENTS CONTACT US

The Alliance for Sustainable Building Products

The ASBP is a cross sector, not for profit organisation, comprising, building product manufacturers and distributors, specifiers, designers, contractors, public interest and sustainability organisations, academics and other building practitioners.

We are committed to accelerating the transition to a high performance, healthy and low carbon built environment by championing the increased understanding and use of building products that meet demonstrably high standards of sustainability.

LATEST NEWS

15 November 2011

Industry welcomes new product sustainability group

A number of leading figures from the building and sustainability field have welcomed the formation of The ASBP.

Read More >

UPCOMING EVENTS

16 November 2011

ASBP Launch

The official Launch of the Alliance for Sustainable Building Products will be taking place in the Grand Committee Roo...

Read More >

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Governance of the ASBP

Alliance not a trade association

We represent the interest of ‘sustainability’ and money does not buy influence

Not for profit, for public good organisation (company limited by guarantee)

Based on membership subscription

No membership criteria (other than a charter) but strict rules on how members can use the organisation to promote a product or service

Current Board – Joe Wild (Burdens), Mark Lynn (Thermafleece), Neil May (NBT), Graham Hilton (Ecobond), Gary Newman (Plant Fibre Technology)

Directors elected by members (3 year terms)

No shareholders – income used to fund activities (research, policy, standards, education)

ASBP Mission

Champion the understanding and use of building products that meet demonstrably high standards of sustainability to accelerate the transformation to a high performance, healthy and low carbon built environment

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Key aspiration

Market transformation

to ensure that:

- The ‘sustainable products agenda’ is fully integrated with the energy and design agendas.
- There is a step change in the understanding, identification, specification and use of sector leading sustainable building products.

Some other aspirations.....

- We want product manufacturers to break ranks
- We want to integrate the supply chain into decision making (and tools such as BIM)
- We want artisan approaches to become mainstream
- We want greater use of sustainability standards and labels
- We want to broaden the definition of sustainability beyond carbon to include resource efficiency, as well as social, health and ethical considerations
- We want the public sector to correct the procurement missed opportunity
- We want to rethink the build process to ensure that more sustainable products are identified, specified and used
- We want to move the understanding of value beyond that of upfront cost
- So we're not asking for much.....

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Why are products important?

- In a finite world all resources are finite
  - Construction industry accounts for 90% of all non-fuel mineral use, 50% of non-fuel timber
- Substantial economic, environmental, social and ethical issues associated with product supply chains
- Toxic chemicals and processes damage the environment
- VOCs are harmful to human health
- Waste to landfill is not sustainable
  - Construction accounts for 3 times that of domestic waste and 21% of UK hazardous waste
- Products with low durability and high maintenance have higher impact (crap products are not sustainable)
- Climate change (carbon) impact of construction products is highly significant

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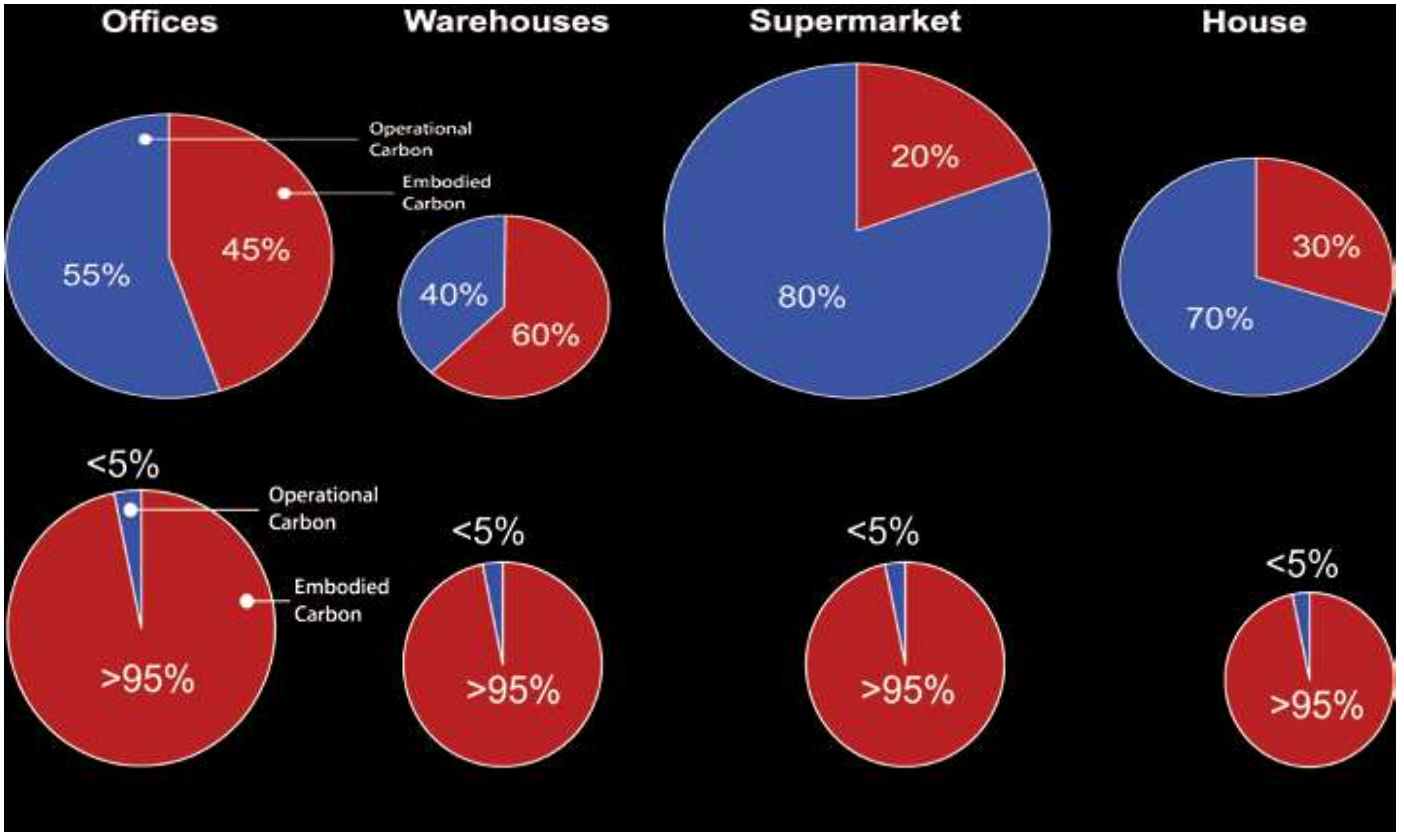
Operational and embodied carbon

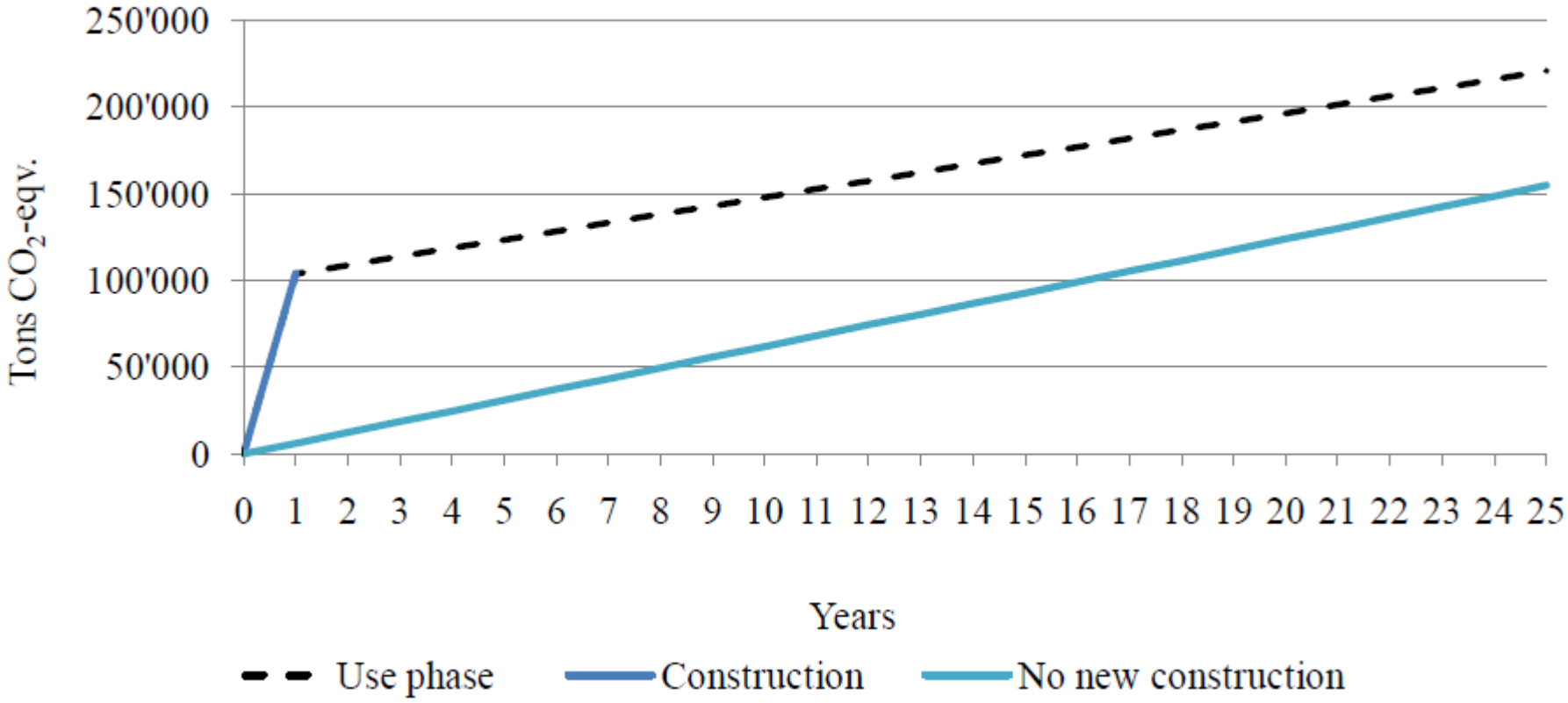
NOW

IN 10 YEARS



The Carbon Spike

Figure 3. Total emissions of the residential area during the 25 year life cycle.



Ref. A longitudinal study on the Carbon Emissions of a New Residential Development in Finland
Jukka Heinonen

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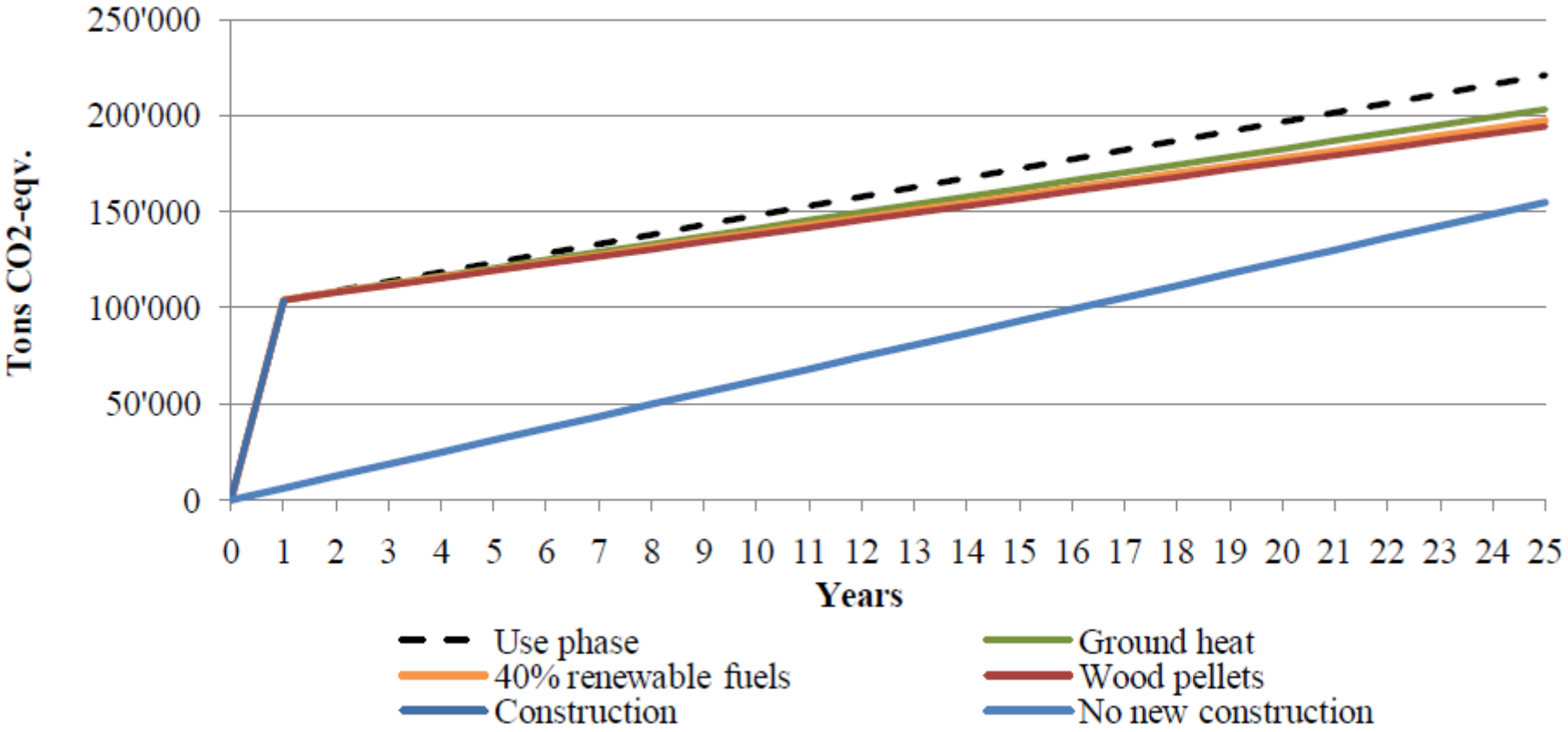
The Carbon Spike

Figure 5. The life cycle emissions of the residential area with the different heating options.



Ref. A longitudinal study on the Carbon Emissions of a New Residential Development in Finland
Jukka Heinonen

Kate de Selincourt

Sequestered carbon:

- Biomass is made up of 50% non-fossil carbon (removed from the atmosphere)
- Biomass contains energy of 10-20 MJ/kg
- IPCC provide methodology for accounting for carbon in harvested wood products
- ASBP research shows that the increase in the sequestered carbon pool is highly significant

Sequestered carbon – some numbers:

- Wood use in construction equivalent to 2% of annual green house gas emissions (9-14 million tonnes CO_2e)

- Which is 2-3 times the impact of zero-carbon homes policy to 2025

- By 2020 sequestered carbon in construction products could account for 90% of the Department of Energy and Climate Change (DECC's) carbon reduction target from homes and communities

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So what does this mean:

- Why isn't this reality reflected in policy?
- What are the implications for UK forestry and products based on biomass?
- Should we design buildings as carbon sinks?
- Would such an approach be resource efficient?

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ASBP Themes

- Greenwash and the role of standards (The Green Guide / EPD / Natureplus)
- Traditional products and skills
- Retrofit and the green deal
- Embodied impact and resource use
- The build process
- Sustainable Design and Procurement

Selecting building products

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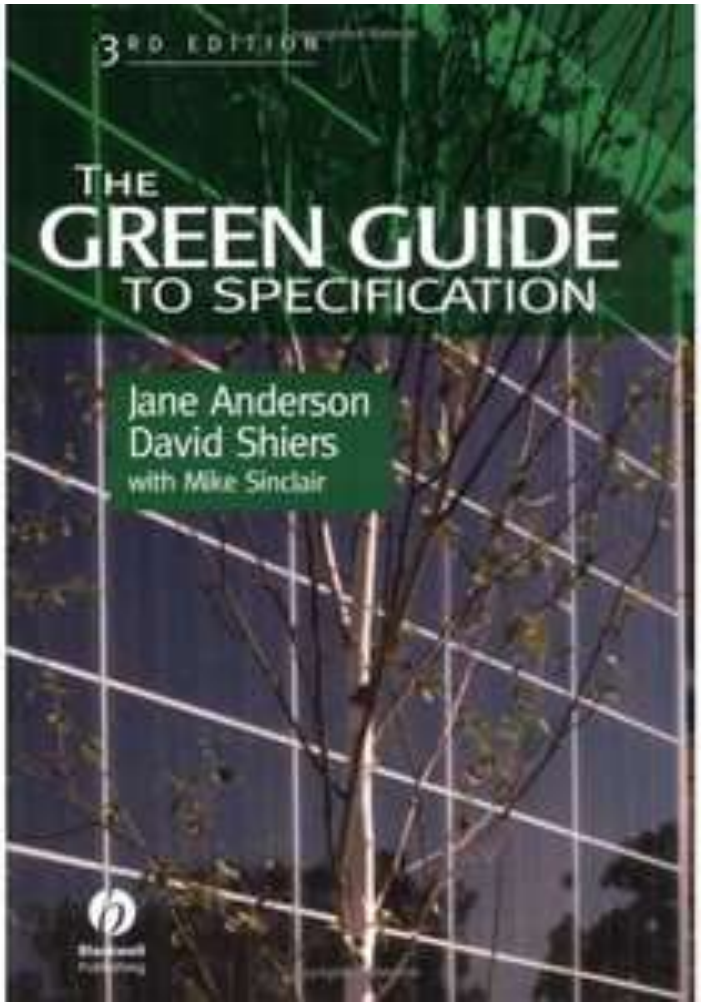
Selecting building products – suppliers info


3RD EDITION
THE
GREEN GUIDE
TO SPECIFICATION
Jane Anderson
David Shiers
with Mike Sinclair

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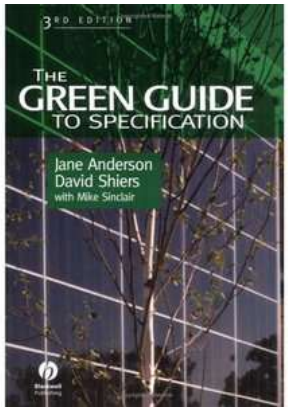

‘It’s not perfect but its a start’

‘It’s useful’ (WILFUL IGNORANCE!!)

‘This is so misleading I have had it removed from our library’

‘The Green Guide is a state sponsored, monopolistic bottleneck’

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The Green Guide to Specification

- Lack of choice
- Lack of transparency
- Generic approach
- LCA methodology – cradle to grave
- LCA methodology – peer review
- Green Guide rating – based on elements not products / functional unit does not reflect multi-functionality / embodied impact v. in use / calculating A+ to E rating
- LCA methodology - sequestered carbon

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<u>UPVC windows</u>

Non-renewable base material

Large Manufacturer

Spent a lot of money on assessment assessment

Energy rating of A

Green Guide A+

Lifespan of 25 years+

<u>Handmade Oak Windows</u>

Locally sourced Timber

SME – Craftsman business

Uses generic

Energy Rating B

Green Guide C

Will last a lifetime

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But things are afoot in Europe…….

- Construction Products Regulations (July 2013)
- CEN TC350
- Environmental Product Declarations (EPD)
- EN 15804 (Product Category Rules)

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EPD Example (France)

Mur en maçonnerie de blocs en béton.

Fiche descriptive | Unité fonctionnelle | **Indicateurs environnementaux** | Documents & Images

Unité fonctionnelle simplifiée

1 m² de mur en blocs béton de 20 cm d'épaisseur incluant produits complémentaires et emballages (durée de vie typique de 100 ans)

Impact environnemental	Valeur total cycle de vie/UF par annuité	Valeur total cycle de vie/UF pour toute la DVT	Unité
Consommation de ressources énergétiques - énergie primaire totale	1,642	164,2	MJ
Consommation de ressources énergétiques - énergie renouvelable	0,16	16	MJ
Consommation de ressources énergétiques - énergie non renouvelable	1,48	148	MJ
Consommation de ressources non énergétiques	2,55	255	kg
Consommation d'eau	0,8	80	L
Déchets solides valorisés	0,006	0,6	kg
Déchets dangereux éliminés	0,0003	0,03	kg
Déchets non dangereux éliminés	0,008	0,8	kg
Déchets inertes éliminés	2,32	232	kg
Déchets radioactifs éliminés	0,0000133	0,00133	kg
Changement climatique	0,183	18,3	kg équivalent CO2
Acidification atmosphérique	0,000671	0,0671	kg équivalent SO2
Pollution de l'air	13,7	1370	m3
Pollution de l'eau	0,194	19,4	m3
Pollution des sols	Néant		
Formation d'ozone photochimique	0,0000616	0,00616	kg équivalent éthylène
Modification de la biodiversité	Néant		

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EPD Examples (UK)

Approved Environmental Profile

Characterised and Normalised Data for:

1 square metre of Installed Floor finish: Soft floor coverings: Burmatex Ltd Nylon tufted carpet tiles - (Infinity, Synergy, Proteus, Mission, Origin/oratorio, Barrier)

Quality of Data for Certified Material (Data for other constituent materials are available from BRE)

Start Date	1 January 2005
End Date	31 December 2005
Source of Data	Company Records
Geography	UK
Representativeness	1 site representing 100% of Burmatex Ltd Nylon tufted carpet tiles - (Infinity, Synergy, Proteus, Mission, Origin/oratorio, Barrier)
LCA Methodology	BRE Environmental Profiles Methodology
Allocation	100% to product
Date of Data Entry	18 July 2006
Boundary	Cradle to Installation on Site
Comments	

Issue	*Characterised Data*	*Unit*
Climate Change	12	kg CO2 eq. (100yr)
Acid Deposition	0.091	kg SO2 eq.
Ozone Depletion	0.00000057	kg CFC11 eq.
Pollution to Air: Human Toxicity	0.067	kg tox.
Pollution to Air: Photochemical Ozone Creation Potential	0.0018	kg ethene eq.
Pollution to Water: Human Toxicity	0.000029	kg tox.
Pollution to Water: Ecotoxicity	80	m^3 tox.
Pollution to Water: Eutrophication	0.0059	kg PO4 eq.
Fossil Fuel Depletion	0.0039	toe
Minerals Extraction	0.0031	tonnes
Water Extraction	510	litres
Waste Disposal	0.00061	tonnes
Transport Pollution & Congestion: Freight	2.6	tonne.km

Issue	*Normalised Data*	*UK Citizen's Impacts*
Climate Change	0.00096	12300 kg CO2 eq. (100yr)
Acid Deposition	0.0015	58.9 kg SO2 eq.
Ozone Depletion	0.000002	0.286 kg CFC11 eq.
Pollution to Air: Human Toxicity	0.00073	90.7 kg tox.
Pollution to Air: Photochemical Ozone Creation Potential	0.000056	32.2 kg ethene eq.
Pollution to Water: Human Toxicity	0.0024	0.0117 kg tox.
Pollution to Water: Ecotoxicity	0.00045	178000 m^3 tox.
Pollution to Water: Eutrophication	0.00073	8.01 kg PO4 eq.
Fossil Fuel Depletion	0.00097	4.09 toe
Minerals Extraction	0.00062	5.04 tonnes
Water Extraction	0.0012	418000 litres
Waste Disposal	0.000085	7.19 tonnes
Transport Pollution & Congestion: Freight	0.00064	4140 tonne.km
Primary Energy	0.21	*GJ*
BRE Ecopoints Score	**0.082**	***Ecopoints***

Appendix No: 353f **Valid From** 15/08/06 **Valid To:** 14/08/09
Issue No: 1
Signed on behalf of BRE Certification: ..... C K Beedel

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EPD Example (Germany)

		Multiplex-top			Thermosafe		
Auswertegröße	Einheit pro m³	Gesamt	Produk-tion	End of Life	Gesamt	Produk-tion	End of Life
Primärenergie, nicht erneuerbar	[MJ]	-3449,5	3921,0	-7370,5	-2670,5	1495,5	-4165,9
Primärenergie, erneuerbar	[MJ]	4007,8	4342,5	-334,7	2322,3	2511,4	-189,2
Treibhauspotential (GWP 100)	[kg CO_2-Äqv.]	-2,2E+02	-1,8E+02	-4,2E+01	-1,5E+02	-1,3E+02	-2,4E+01
Ozonabbaupotential (ODP)	[kg R11-Äqv.]	-7,2E-05	3,8E-06	-7,5E-05	-4,2E-05	1,3E-07	-4,3E-05
Versauerungspotential (AP)	[kg SO_2-Äqv.]	-2,0E-01	2,4E-01	-4,5E-01	-1,5E-01	1,1E-01	-2,6E-01
Überdüngungspotential (EP)	[kg PO_4^{3-}-Äqv.]	5,6E-02	3,8E-02	1,8E-02	2,9E-02	2,0E-02	8,7E-03
Sommersmogpotential (POCP)	[kg C_2H_4-Äqv.]	5,3E-02	6,3E-02	-1,1E-02	1,1E-02	1,8E-02	-6,4E-03

Gutex,
juli 2011
PEInternational

Pavatex Holzfaserdämmstoff Pavaflex			
Auswertgröße	Einheit pro m³	Produktion	End of Life
Primärenergie, nicht erneuerbar	[MJ]	918	-915
Primärenergie, erneuerbar	[MJ]	980	-10
Treibhauspotenzial (GWP 100 Jahre)	[kg CO_2-Äqv.]	-15,9	16,8
Ozonabbaupotenzial (ODP)	[kg R11-Äqv.]	1,03E-06	-2,13E-06
Versauerungspotenzial (AP)	[kg SO_2-Äqv.]	1,55E-01	-2,50E-02
Eutrophierungspotenzial (EP)	[kg PO_4-Äqv.]	1,71E-02	-4,07E-03
Photochem. Oxidantienbildungspotenzial (POCP)	[kg C_2H_4-Äqv.]	1,42E-02	-4,02E-03

Pavatex,
december 2011
PEInternational

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EPD Example (Germany)

Glaswolle-Platten und -Filze (Rohstoffe u. Herstellung)		
Auswertegröße	**Einheit pro kg**	**Glaswolle (unkaschiert)**
Primärenergie, nicht erneuerbar	[MJ]	28,76
Primärenergie, erneuerbar	[MJ]	1,34
Treibhauspotenzial (GWP 100 Jahre)	[kg CO_2-Äqv.]	1,77
Ozonabbaupotenzial (ODP)	[kg R11-Äqv.]	$88{,}6 \cdot 10^{-9}$
Versauerungspotenzial(AP)	[kg SO_2-Äqv.]	0,0067
Eutrophierungspotenzial (EP)	[kg Phosphat-Äqv.]	0,0011
Sommersmogpotenzial (POCP)	[kg Ethen-Äqv.]	0,00034

Saint-Gobain Isover
december 2011
PEInternational

Mineralwolle - Dämmstoffe mit ECOSE Technology für Dach, Decken und Zwischensparren						
	TI 140 U		TI 135 U		TI 132 U	
Auswertegröße in Einheit pro m³	**Produktion**	**End of life**	**Produktion**	**End of life**	**Produktion**	**End of life**
Primärenergie, nicht erneuerbar [MJ]	348,87	3,84	474,63	5,22	787,73	8,61
Primärenergie, erneuerbar [MJ]	44,14	0,17	58,17	0,23	99,42	0,39
Abiotische Ressourcenverbrauch (Elemente) [kg Sb-Äqv.]	2,05E-03	1,52E-06	2,79E-03	2,07E-06	4,60E-03	3,41E-06
Treibhauspotential [kg CO_2-Äqv.]	20,13	1,73	27,26	2,35	45,40	3,88
Ozonabbaupotential [kg R11-Äqv.]	1,95E-06	4,75E-09	2,70E-06	6,45E-09	4,43E-06	1,06E-08
Versauerungspotential [kg SO_2-Äqv.]	0,24	1,91E-03	0,33	2,60E-03	0,54	4,29E-03
Eutrophierungspotential [kg PO_4^{3-}-Äqv.]	1,57E-02	3,78E-03	2,15E-02	5,14E-03	3,55E-02	8,47E-03
Photochemisches Ozonbildungspotential [kg C_2H_4-Äqv.]	1,21E-02	5,25E-04	1,63E-02	7,14E-04	2,70E-02	1,18E-03

Knauf,
february 2011
PEInternational

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EPD Examples (Germany)

EPS-Hartschaum für Wände und Dächer (Herstellung + End of Life)		
Auswertegröße in Einheit pro m³	**W/D-035**	**W/D-040**
Primärenergie, nicht erneuerbar [MJ]	1145,2	868,0
Primärenergie, erneuerbar [MJ]	1,0	1,7
Abiotischer Ressourcenverbrauch [kg Sb-Äqv.]	5,5E-01	4,2E-01
Treibhauspotenzial (GWP) [kg CO_2-Äqv.]	8,9E+01	6,7E+01
Ozonabbaupotenzial (ODP) [kg R11-Äqv.]	-1,8E-07	2,8E-08
Versauerungspotenzial (AP) [kg SO_2-Äqv.]	8,9E-02	6,7E-02
Eutrophierungspotenzial (EP) [kg PO_4^{3-}-Äqv.]	9,4E-03	7,1E-03
Sommersmogpotenzial (POCP) [kg C_2H_4-Äqv.]	3,5E-01	3,0E-01

Styropor,
december 2009
PEInternational

FOAMGLAS®-Platten und –Elemente (Rohstoffe u. Herstellung)							
Ergebnisse: W+F (100 kg/m³) und Perinsul High Grade (200 kg/m³)	**Einheit**	**W+F pro m³**	**Perinsul HG pro m³**	**W+F pro kg**	**Perinsul HG pro kg**	**W+F R=2m²K/W pro m²**	**Perinsul HG R=2m²K/W pro m²**
PE, nicht erneuerbar	[MJ]	1525,9	3049,22	15,26	15,25	115,97	335,41
PE, erneuerbar	[MJ]	920,6	1725,24	9,21	8,63	69,97	189,78
PE, nicht erneuerbar	[kWh]	423,9	847,0	4,24	4,24	32,21	93,17
PE, erneuerbar	[kWh]	255,7	479,2	2,56	2,40	19,43	52,72
Treibhauspotenzial (GWP)	[kg CO_2-Äqv.]	109,23	212,22	1,09	1,06	8,30	23,34
Ozonabbaupotenzial (ODP)	[kg R11- Äqv.]	$0{,}74 \cdot 10^{-6}$	$1{,}72 \cdot 10^{-6}$	$7{,}40 \cdot 10^{-9}$	$8{,}60 \cdot 10^{-9}$	$56{,}2 \cdot 10^{-9}$	$0{,}19 \cdot 10^{-6}$
Versauerungspotenzial (AP)	[kg SO_2- Äqv.]	0,208	0,411	$2{,}08 \cdot 10^{-3}$	$2{,}06 \cdot 10^{-3}$	0,016	0,045
Eutrophierungspoten-zial (EP)	[kg PO_4^{3-}- Äqv.]	0,023	0,046	$0{,}23 \cdot 10^{-3}$	$0{,}23 \cdot 10^{-3}$	$1{,}75 \cdot 10^{-3}$	$5{,}06 \cdot 10^{-3}$
Sommersmog (POCP)	[kg Ethen- Äqv.]	0,019	0,036	$0{,}19 \cdot 10^{-3}$	$0{,}18 \cdot 10^{-3}$	$1{,}44 \cdot 10^{-3}$	$3{,}96 \cdot 10^{-3}$

Pittsburgh Corning,
october 2011
PEInternational

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EPD help to inform product choices

EPD are

…still not comparable
useless for immediate choices
useless for general public
(and architects / specifiers)

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Europe's leading Eco-label
Began 10 years ago – started by industry / WWF / FOE (Germany)
ISO 14044 (Type I label)
Over 200 labelled products
Over 500 million Euro sales of labelled products

Active in....
Germany / Austria /Switzerland / Belgium / Holland / **France / UK /** Italy / Hungary / Lithuania

Aiming to meet the requirements of the Iseal code of practice to sit alongside.....

The natureplus eco-label

This label indicates:

- Made from sustainable raw materials
- Sustainable end-of-life strategy
- Low impact on climate change
- Low emission production
- Examined health compatibility
- Good indoor air quality
- Proven technical performance
- Product category leading sustainability
- Based on third party testing and accreditation

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Why does natureplus work.....

Rigorous, challenging and comprehensive criteria

Arms length certification

But above all

GOOD GOVERNANCE

(But it should be remembered that labels are market mechanisms to aid good decision making)

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Traditional Products and Skills

- Such as Earth Building Products and Systems / Straw Bale / Traditional Timber Frame and Carpentry / Lime products and skills / Stone masonry
- We don’t need numbers and standards to demonstrate the sustainability of traditional approaches. Or do we?
- How do these approaches get integrated into decision making?
- The ASBP wishes to facilitate development of simple standards and certification processes
- ASBP aims to promote value in a rigorous, holistic and scientific way

Retrofit and the Green Deal

- Do we need an alternative approach to insulating existing buildings, which is more than just energy efficient insulation?
- What about health, moisture, and comfort?
- What about embodied impact and waste?
- What about process, use and lifestyle?

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Embodied impact and resource efficiency

Do we really understand embodied carbon, resource use and other environmental impacts?

Are there bold steps we could take to radically improve the embodied impact of buildings?

Is sequestration the new Carbon Capture?

Can we develop new procurement clauses?

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The Build Process

Can we rethink the build process to achieve more sustainable outcomes

- Self-build
- Improved procurement processes (WRAP clauses)
- Value engineering v. sustainable engineering
- Reduce product switching
- BIM

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Sustainable design

How can designers use product information in an intelligent away at an early stage in the design process to ensure sustainable products are specified and stay in the specification?

Do we require a culture change in educating for and implementing sustainable design?

Can whole life costing, carbon calculators and ultimately a ‘BIMsust’ change the game for the better?

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Conclusions

Buildings don't start with developers, designers or clients – they start with the product supply chain

Public sector must demand embodied impact data at design stage

BIMsust must be open, transparent, dynamic and with independent governance

Resist the use of generic EPD - they are the enemy of progress

Look for, ask for and specify natureplus certified products

Use sustainability procurement clauses

Need to back traditional/artisan approaches in a meaningful way

The ASBP has a 'foot in the door' but needs your support, ideas an energy to succeed

The inaugural ASBP conference is scheduled for October 2nd at the Self Build and Renovation Centre, Swindon

Thanks

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