AECB Carbon Lite

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NGS GreenSpec supporting CLP

Updated since AECB Annual Conference Friday 29th June 2007

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CarbonLite Programme in context

Direction

European Directives

Energy Performance of Buildings Directive 2002/91/EC

UK Interpretation & Enabling

Building Acts

Sustainable & Secure Buildings Act 2004

Primary Legislation cites

Building Regulations

Code for Practice

Standards BS EN ISO

Secondary Interpretation

Approved Documents

Tried and tested generic solutions

BR AD E & L1A L1B L2A L2B

Robust Details

Tertiary Application

Sector Guidance

Sector Funded

Industry Best Practice

CIRIA Airtightness Testing

AECB Carbon Lite

Infrared Testing

AECB Carbon Lite

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NGS GreenSpec: Policies & Strategies

GreenSpec

Search

- HOME
- PRODUCTS
- MANUFACTURERS
- SPECIFICATIONS (available 2007)
- MATERIALS
- ENERGY
- CHECKLIST
- DESIGN
- IMAGE BANK
- REFURBISHMENT
- FORUMS
- SITE WASTE
- DURABILITY
- SUPPLIERS & INSTALLERS
- FABRICATORS
- RECLAMATION
- CRAFTSMEN
- POLICIES & STRATEGIES
- RESEARCH & PAPERS
- RESOURCES
- CPD
- HOW WE SELECT PRODUCTS
- CONTACT GREENSPEC
- REGISTER YOUR PRODUCT
- ECOBUILD: 'GREEN SHOOTS'

GreenSpec is the UK construction industry's definitive guide to 'green' building design, products, specification and construction. Inside GreenSpec you will find a wealth of information aimed at helping you to design more energy and resource efficient buildings, using materials and technologies that minimise damage to people and the environment.

ecobuild green shoots

PRODUCTS

A directory of sustainable products available in the UK. Each product page comes with a description, brochure downloads and contact details.

MATERIALS

A guide to sustainable materials, both traditional and new. Materials such as masonry, roofing and flooring are compared based on their enviromental impacts.

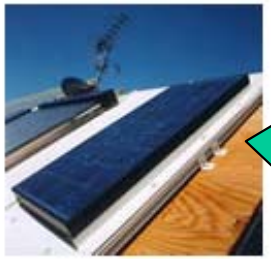
CHECKLIST

This CAWS menu-based checklist takes you through the construction process highlighting areas where sustainable construction best practice can be applied.

SPECIFICATIONS

ENERGY

IMAGE BANK



HOW WE SELECT PRODUCTS

CONTACT GREENSPEC

REGISTER YOUR PRODUCT

SPECIFICATIONS

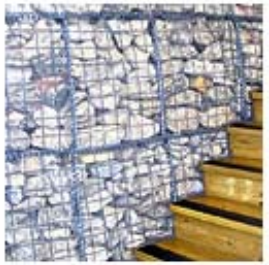
NBS-compatible specs. GreenSpec specifications concentrate on Work Section areas supporting the sustainable agenda as well as dedicated product specs..

ENERGY

Guides to designing with zero and low carbon energy technologies.

IMAGE BANK

A collection of images of inspirational 'green' buildings ranging from the large commercial to the small domestic.



sustainable.building.supplies

Suppliers of modern, high performance, sustainable building systems and products

DESIGN

This section examines the techniques of sustainable construction through the combination of materials and renewable technologies.

DURABILITY

The durability of materials influences whole life costs. Common component options are described by the criteria which are expected to determine durability in the UK.

POLICY & STRATEGY

A collection of publications from the EU, UK government, local government and NGOs outlining climate chang sustainable construction policies and strategies.

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Search

Policies and Strategies

1 Energy & Climate Change

UK Government

Building A Greener Future: Towards Zero Carbon Development (pdf)	'This publication is a consultation document seeking views on the Government's proposals to reduce the carbon footprint of new housing development. It sets out the Government's views on the importance of moving towards zero carbon in new housing. It explores the relationship between the planning system, Code for Sustainable Homes and Building Regulations in delivering our ambitions for zero carbon. And it proposes a timetable for revising the Building Regulations so as to reach zero carbon development in all new housing in England & Wales.' (*Communities and Local Government, Dec 2006*)
Energy Review 2006 (pdf)	'This work aims to put us in a position to meet the two major long-term challenges in UK energy policy: • we need to tackle climate change by reducing carbon dioxide emissions; and • we need to deliver secure, clean energy at affordable prices, as we move to increasing dependence on imported energy' (*DTI July 2006*)
Climate Change Programme 2006 (pdf)	'The new Climate Change Programme sets out our policies and priorities for action in the UK and internationally. Climate change is a global problem, so we will strive to secure global action on the scale needed to tackle it. But we will also take further action at home, to meet our commitments and demonstrate that climate change can be tackled without damaging our economy.' (*DEFRA March 2006*)
Potential for Microgeneration (pdf)	'An independent report: Potential for Microgeneration Study and Analysis was commissioned by DTI in 2005. It provides information on the feasibility of the various technologies in the marketplace, and estimates market development out to 2050.' (*DTI November 2005*)

NGOs

'A bright future' (pdf) Friends of the Earth's electricity sector model for	'The aim of this modelling exercise was to create realistic and transparent scenarios for future development of the energy sector...(it) has identified six possible outcomes that would help reduce emissions by large amounts and help achieve secure energy supplies' (*FOE March 2006*)

NGOs

'A bright future' (pdf) Friends of the Earth's electricity sector model for 2030	'The aim of this modelling exercise was to create realistic and transparent scenarios for future development of the energy sector...(it) has identified six possible outcomes that would help reduce emissions by large amounts and help achieve secure energy supplies' (*FOE March 2006*)
'Decentralising UK Energy'	'The World Alliance for Decentralised Energy (WADE) model compares traditional centralised energy systems to decentralised systems using local generation, under the same conditions of demand growth, fuel costs and so on.' (*Greenpeace 2006*)

Local Government

Planning and Climate Change (pdf)	'Planning Policy Statement 1 (PPS1): Delivering Sustainable Development sets out the overarching planning policies on the delivery of sustainable development through the planning system. This consultation seeks views and comments on a draft Planning Policy Statement' (*Communities and Local Government, 2006.*)
'Planning Policy Statement 22'	*Planning Policy Statement 22: Renewable Energy (2004)* PPS 22 states that 'local planning authorities may include policies in local development documents that require a percentage of the energy to be used in new residential, commercial or industrial developments to come from on-site renewable energy developments.'
'Green light to clean power' The Mayor of London's Energy Strategy	'This Strategy sets out a coherent energy policy for London for the next ten years and beyond. It aims to minimise negative impacts on health and on the local and global environment, while still meeting the essential energy needs of all those living and working in London.' (*Ken Livingstone 2004*)
'The Merton Rule' (doc)	'In October 2003 Merton became the first local authority in the UK to include a policy in its Unitary Development Plan that requires new non-residential developments to generate at least 10% of their energy needs from renewable energy equipment such a solar panels and wind turbines. '

2 Sustainable Construction

Europe

'The Energy Performance of Buildings Directive'	Introduced in January 2006, the Directive is intented to lead to substantial increases in investments in energy efficiency measures within both domestic and non-domestic buildings. This briefing paper was written by Andrew Warren, Director of the Association for the Conservation of Energy. (*CIBSE 2006*)

2 Sustainable Construction

Europe

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UK Government

'Code for Sustainable Homes'	'The Code for Sustainable Homes has been introduced to drive a step-change in sustainable home building practice. It is a standard for key elements of design and construction which affect the sustainability of a new home. It will become the single national standard for sustainable homes, used by home designers and builders as a guide to development, and by home-buyers to assist in their choice of home.' (*Department for Communities and Local Government: December 2006*)
'Code for Sustainable Homes - Technical Guide'	'This technical guidance manual sets out the requirements for the Code, and the process by which a Code assessment is reached' (*Department for Communities and Local Government: March 2007*)
'A cost review of the Code for Sustainable Homes'	• How compliance with Ecohomes Very Good is typically achieved and the performance of these homes in terms of water and energy efficiency • The extra-over costs and impact on environmental performance of housing complying with the Code rather than EcoHomes *Housing Corporation / English Partnerships, February 2007*
'Sustainable Construction Strategy Report'	'In 2000, the Government published its first Strategy for Sustainable Construction Building A Better Quality of Life which presented a way forward for Government and industry. This current document considers what has been achieved over the past five years and summarises progress made on specific initiatives identified in the original Strategy. It aims to provide an effective framework to guide future government policies where they are relevant to construction and outlines where the Government wishes to see the industry going in its future development.' (*DTI January 2006*)
'Stock Take: Delivering improvements in existing housing'	Homes already built account for 99% of the total housing stock. This report assesses the level of savings in resources, energy, water and waste that can be achieved by implementing the full range of technical options in those homes. (*Sustainable Development Commission, 2006*)
'Review of Sustainability of Existing Buildings.	The Energy Efficiency of Dwellings - Initial analysis (*Department for Communities and Local Government, November 2006*)
The Sustainable and Secure Buildings Act	The Act is a piece of enabling legislation and is not prescriptive. However, it does require building regulations (which are defined within the 1984 Buildings Act) to incorporate a number of fuel and power related obligations. The obligations relate to fuel and power usage, metering, building emissions and reporting on micro-generation facilities within housing stock.

Existing Buildings.	*Government, November 2006*)
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'Procuring the Future'	Sustainable Procurement National Action Plan: Recommendations from the Sustainable Procurement Task Force.

Local Government

'Planning Policy Statement 1'	*Planning Policy Statement 1: Delivering Sustainable Development (2005).* PPS 1 outlines the Government's objectives for the planning system. It states that 'regional planning authorities and local authorities should promote resource and energy efficient buildings; community heating schemes, the use of combined heat and power, small scale renewable and low carbon energy schemes in developments; the sustainable use of water resources; and the use of sustainable drainage systems in the management of run-off.'
'Sustainable Design and Construction' The London Plan SPG	This document sets out the Mayor of London's essential and preferred standards on a whole array of issues related to sustainable design and construction. Being the status of Supplementary Planning Guidance, the document does not set policy. 'However the SPG can be taken into account as a further material consideration so has weight as a supplement to the London Plan.'

NGOs

'40% House'	'The Royal Commission on Environmental Pollution reported that the UK needs to achieve a 60% reduction in CO2 emissions by 2050 if we are to contribute to an avoidance of significant climate change. The domestic sector is crucial to the achievement of this target as it represents almost a third of the UK's energy. The 40% House project studies behavioural and technological changes in the search for how UK households can meet the 60% target.' (*Environmental Change Institute 2005*)
'AECB Energy Standard(s)'	This document sets out the rationale for the proposed AECB energy standards for new buildings. It outlines what levels of energy efficiency and renewable energy use they would require. It explains what further work is needed before we can apply both standards to new buildings. (*David Oliver, 2005*)
'A low-carbon roadmap to 2050'	'Using ZEDstandards gives us a once-in-a-lifetime opportunity to change the way the construction industry produces infrastructure and buildings, enabling a higher quality of life and a step-change reduction in environmental impact.' (*BDa-ZEDfactory 2005*)

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CarbonLite Programme Application

Systems

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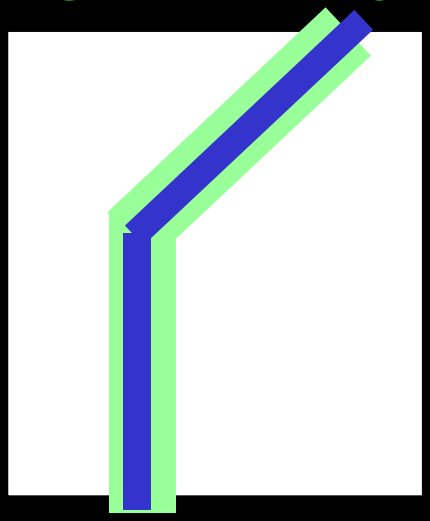
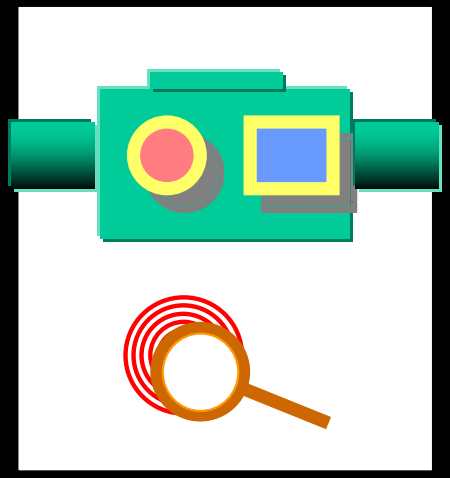
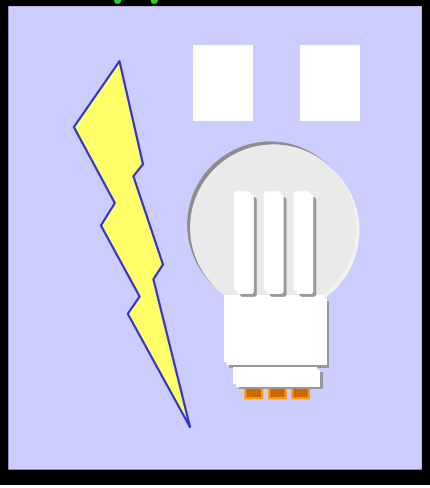
Buildings Fabric Systems



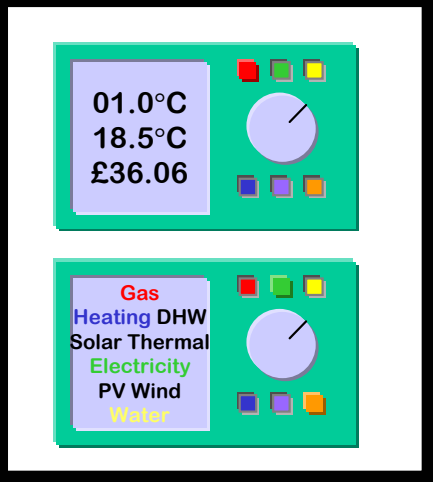
Ventilation Heating & Cooking



Electrical Power, Lighting & Appliances



Controls Monitoring Metering



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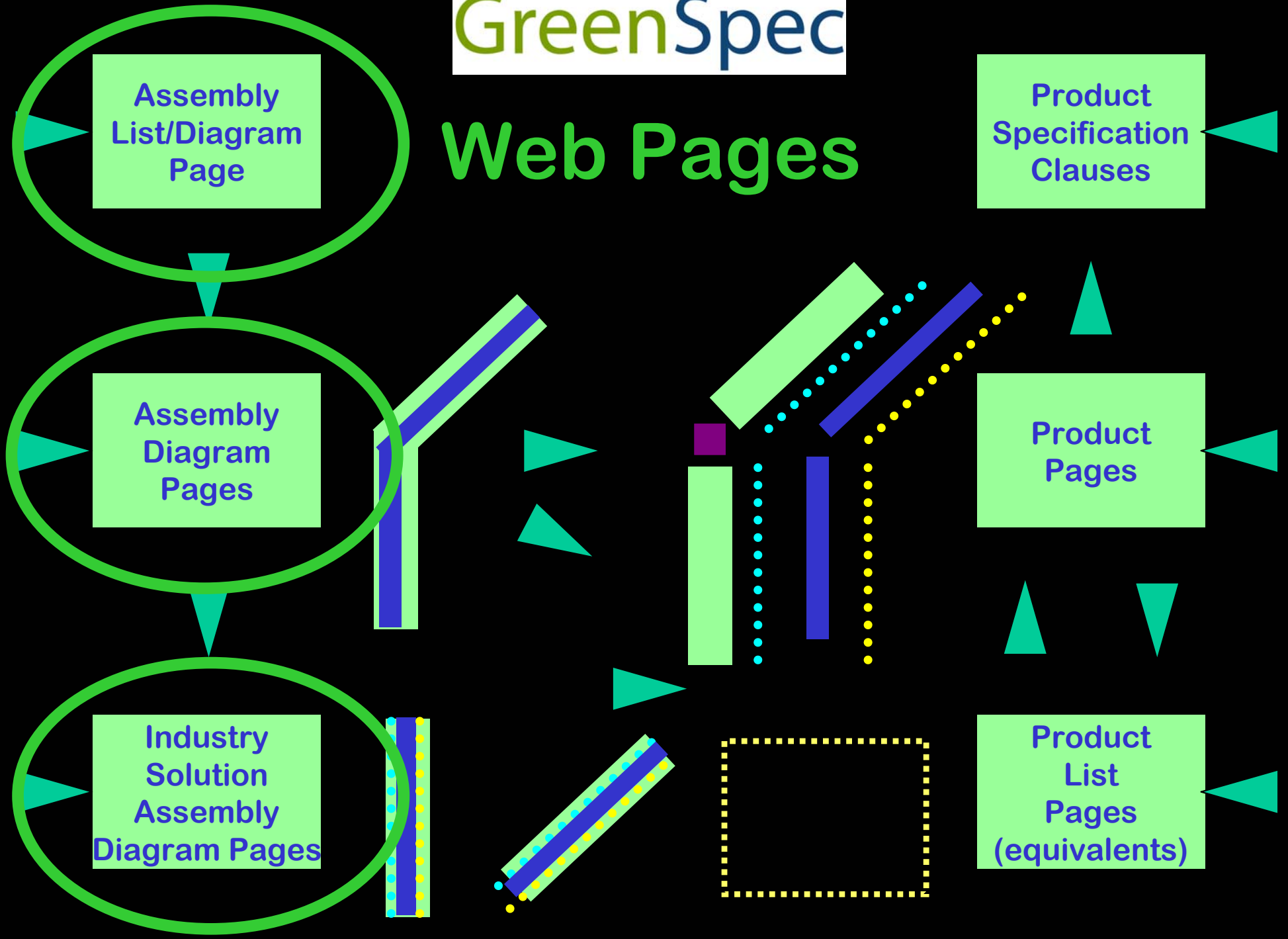
NGS GreenSpec Assembly Pages

GreenSpec

Web Pages



Assembly pages & List pages

- Do not exist yet
- Will be created to bring together materials and product pages which are know solutions when assembled together
- Examples:
- Tradis Insulated panel: Masonite Compound Section, Hunton Boards, Excel Insulation
- Wall, Roof, Ground floor
- Eaves detail, upper floor/external wall

The Low-Carbon House: Contents

Low Carbon House:

- Contents
- Standards Level 4
- Standards Level 5
- Standards Level 6
- Siting & orientation
- Direct Solar Gain
- Thermal Walls
- Thermal Mass
- Construction details

The Low-Carbon House: Construction Details: Contents and Introduction

Contents

Introduction

In order to support 'early adopters' pioneering the draft standards, the AECB has produced this initial design guidance document. It concentrates on two of the areas where current UK practice most adversely affects building energy performance - thermal bridging and airtightness.

Although this guidance is written in the context of constructional examples based on Silver Standard U-values, part of the guidance is also relevant to projects where the building fabric is being designed to the Gold Standard. The key design and construction principles illustrated in this guide will be useful to all those who are attempting to design more thermally-efficient building envelopes.

Many of the examples used here have been used on "live" projects by various AECB members. They were adopted as part of a practical two day NVQ course run by the AECB for construction students, the details being built full-size in the college workshops by the students.

Low Carbon House:
- Contents
- Standards Level 4
- Standards Level 5
- Standards Level 6
- Siting & orientation
- Direct Solar Gain
- Thermal Walls
- Thermal Mass
- Details: Introduction
- Details: Level 4

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Please use these constructional examples to inform the detailed design of your own project's building fabric. Applying the principles of reduced thermal bridging and increased airtightness to all fabric elements - walls, floors, roof, etc - and key junctions between elements will significantly reduce your building's overall energy use and CO2 emissions.

It is intended that these details be treated as constructional examples only, to illustrate the application of good thermal design principles as required by the AECB Silver Standard. Do not treat them as "approved" or "accredited" details as they have not been through the necessary peer review process to gain this additional authority.

Considerable care has been taken when compiling the information in these documents and it is believed to be accurate, but it is provided without liability. It is hoped that you can utilise the constructional examples which are provided in your own work, but you must assess their suitability for use under your own particular circumstances.

The Low-Carbon House: Construction Details: Contents and Introduction

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The Low-Carbon House: Construction Details: CSH Level 4 / Carbon Lite Step 1

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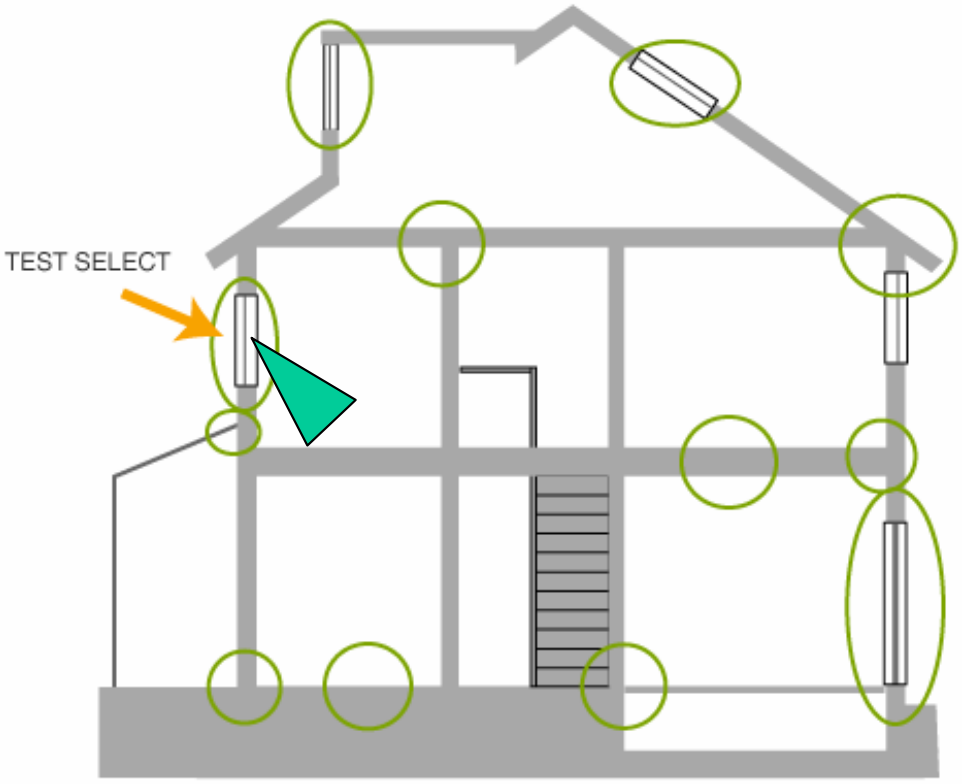

The Low-Carbon House: Construction Details: CSH Level 4 / Carbon Lite Step 1: Window Openings

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Masonry wall construction

Cavity wall
(Test Select)

External insulation

Etc.

Timber frame construction

FABRICATORS
RECLAMATION
CRAFTSMEN
POLICIES & STRATEGIES
RESEARCH & PAPERS
RESOURCES
CPD
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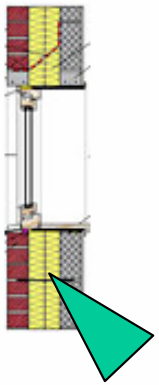
LOW CARBON HOUSE CONTENTS



Cavity wall

(Test Select)

External insulation

Etc.

Timber frame construction

Etc

Etc

The Low-Carbon House: Construction Details: CSH Level 4 / Carbon Lite Step 1: Window Openings: Masonry: Cavity

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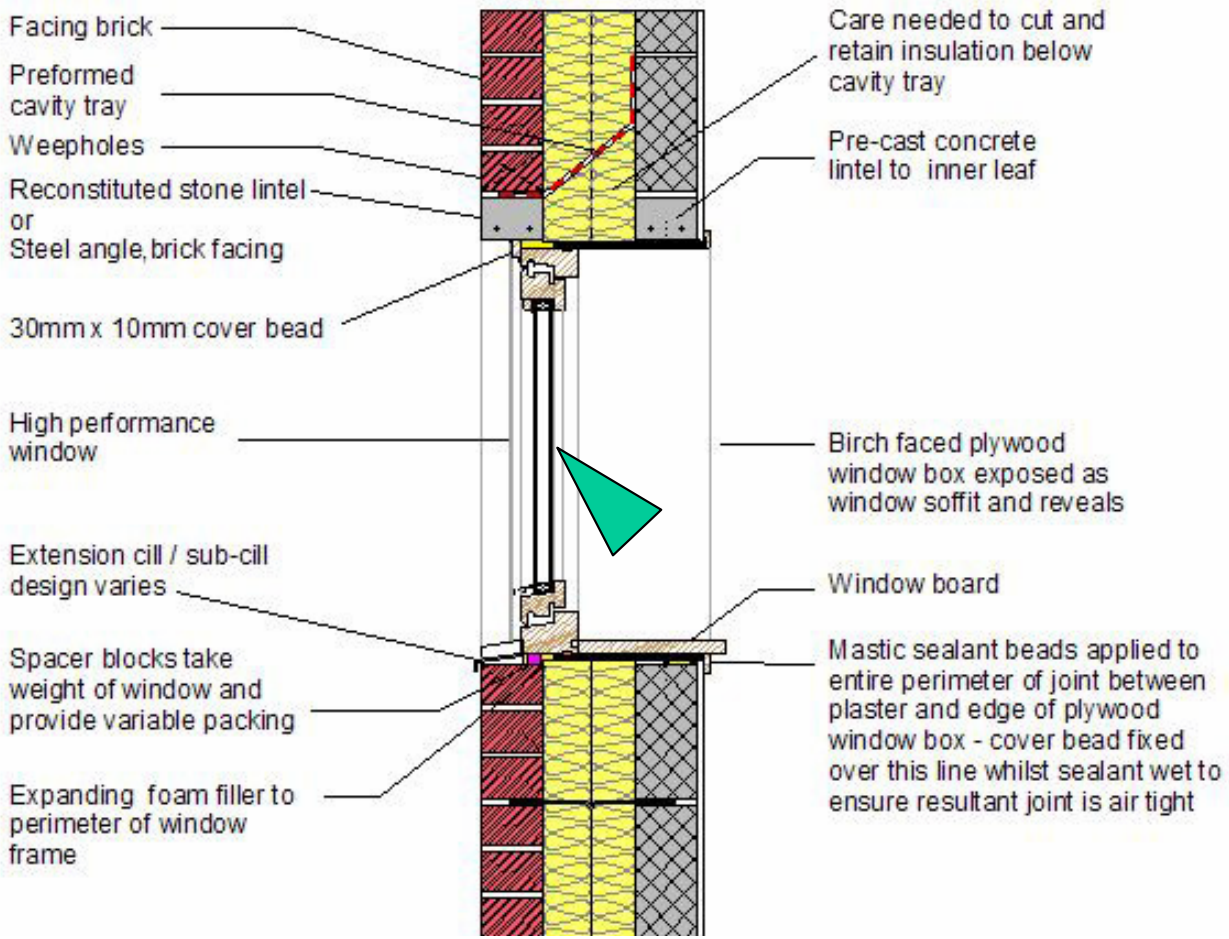

GreenSpec

Search

L413 Windows

all types

Manufacturer	Product	Type			
Green Building Store	Ecoplus	high performance timber windows	✓	✓	
Green Building Store	Ecoclad	high performance timber / alu-clad windows	✓	✓	

Key

product / equipment with climate change reduction potential
sustainable product
product with recycled content

GreenSpec

Search

'Ecoplus' windows

High performance timber windows

• Manufactured from Forest Stewardship (FSC) 100% certified timber - available in European oak or redwood.
• Lamination and finger joint technology are utilised to minimise resource use and improve durability.
• Ultra-efficient double or triple glazing system with a centre pane U-value of 1.2 w/m^{2}k or 0.5 w/m^{2}k respectively.
• Warm edge spacers help maximise thermal efficiency and virtually eliminate cold edge condensation.
• Boron timber preservatives, considered the safest and most environmentally benign of all timber treatments.
• Durable and easy-to maintain OS Color wood-finishes. Biocide-free and based on natural plant oils.
• Manufactured in the UK and designed in conjunction with the Timber Research and Development Association (TRADA).'

Manufacturer's evidence rating:*	★
Material/s:	FSC timber, glass and aluminium
Environmental statement:	yes
BRE Ecopoints:	unrated
BRE Environmental profile:	unrated
Other environmental standards:	none
3rd party accreditation:	FSC certified
3rd party product endorsement:	none
Reusability / Recyclability:	reusable and glass is recyclable
% of post consumer waste:	unknown
Life expectancy	unknown
Substitute for or new	

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NGS GreenSpec
Many Products

The Low-Carbon House: Construction Details: CSH Level 4 / Carbon Lite Step 1: Window Openings: Masonry: Cavity

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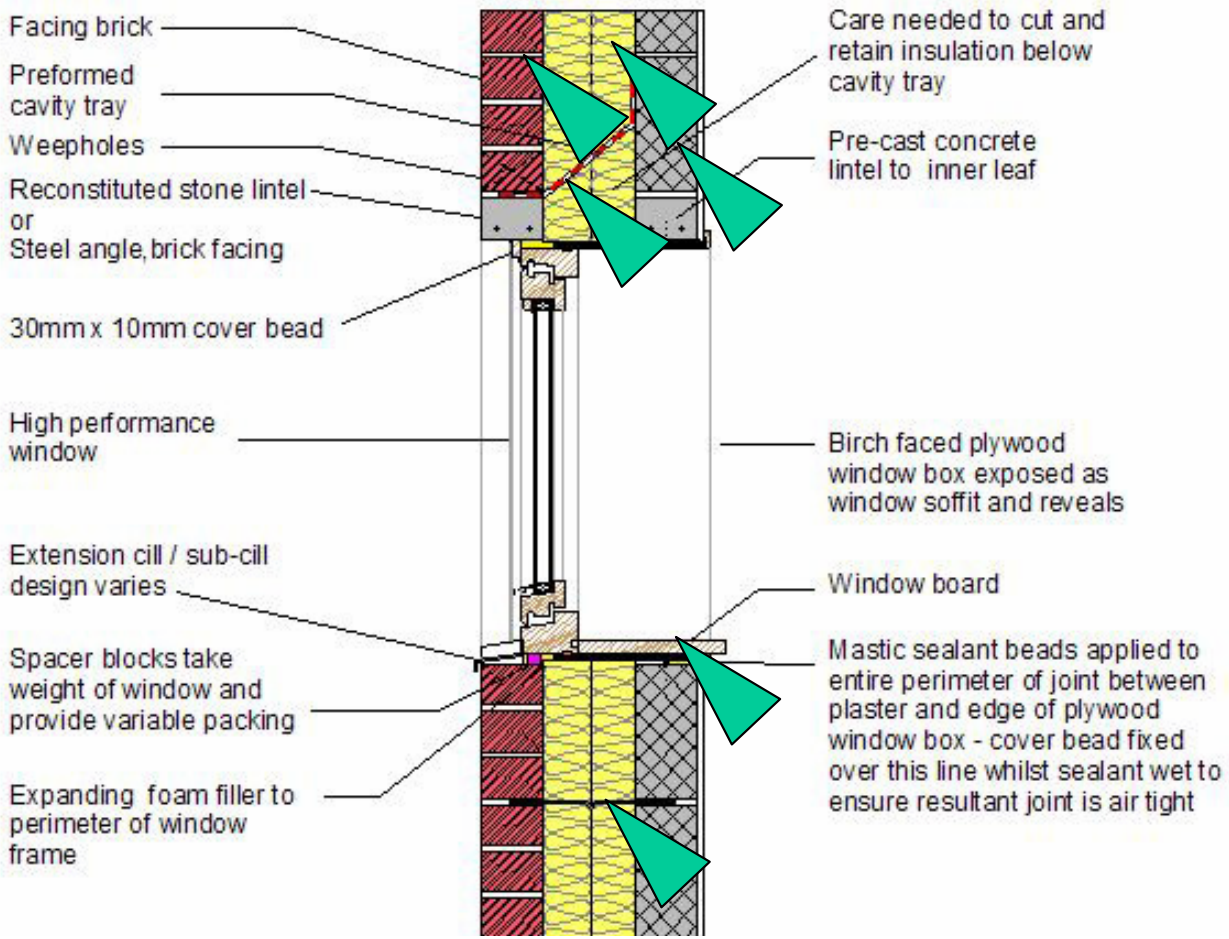

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NGS GreenSpec
Many Elements
Many Assemblies

The Low-Carbon House: Construction Details: CSH Level 4 / Carbon Lite Step 1

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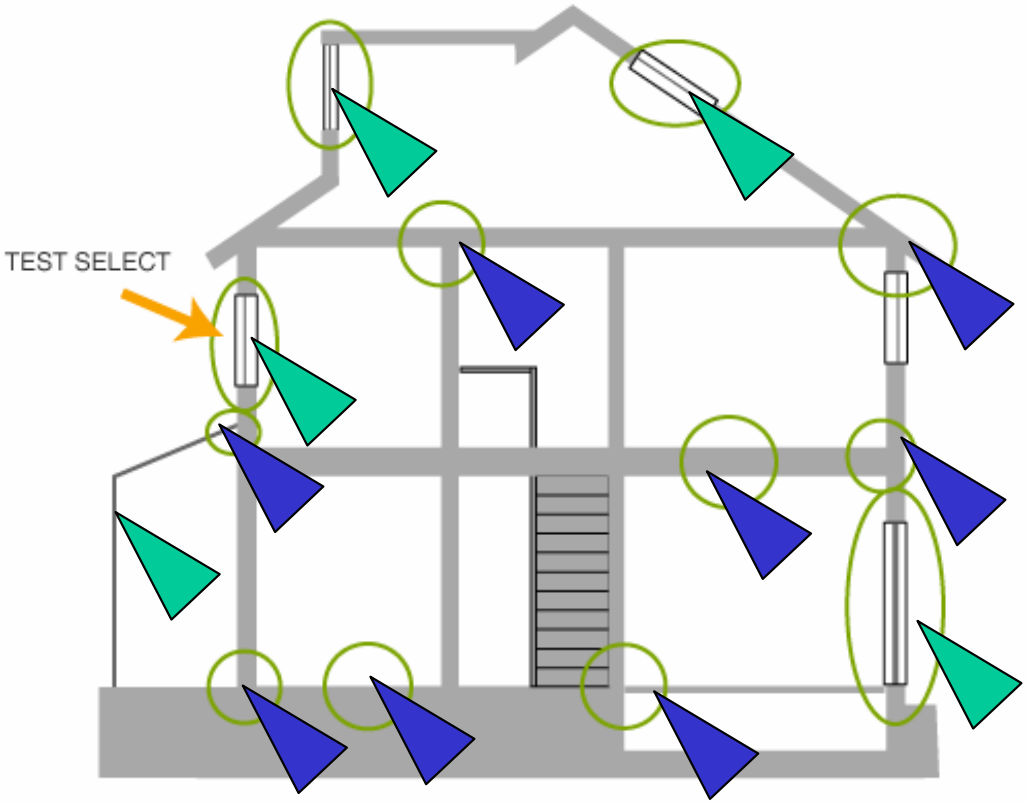

Inhabited
Loft room
Uninhabited
Attic
Unoccupied
Green House
Occupied
Conservatory
Un-insulated
Internal garage

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PRODUCTS CONTENTS

L362 Fabricated components

structural timber panels

Manufacturer	Product	Type	♻
KLH Massivholz	XLSolid	structural timber panels	
Finnorest Merk	LenoTec	structural timber panels	

Key

♻ product with recycled content

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Search

L681 Thermal insulation

- external walls
- pitched roofs
- flat roofs
- intermediate and seperating floors
- ground floors
- internal walls / partitions
- services
- general applications

external walls

Manufacturer	Product	Type			
CR	Flax100	flax slab	✓	✓	
Termex	Termex	loose cellulose for timber frame construction	✓	✓	✓
Homatherm	flexCL 040	cellulose slab for timber frame and partial-fill cavity walls	✓	✓	✓
Homatherm	woodFlex 040	woodfibre slab	✓	✓	
Vital	Vital 040	cellulose slab for timber frame and partial-fill cavity walls	✓	✓	
Excel	Warmcell 500	loose cellulose for wood frames	✓	✓	✓
Plant Fibre Technology	Isonat	hemp and cotton slab	✓	✓	
Second Nature	Thermafleece	wool rolls for timber frame construction	✓	✓	
Gutex	ThermoWall	wood-fibre board	✓	✓	
Pavatex	Pavatherm	wood-fibre board	✓	✓	
	Diffutherm	wood-fibre board, interlocking render carrier	✓	✓	
	Isolair	wood-fibre board, water resistant, for ventilated facades	✓	✓	

Pavatex 'Pavatherm'

Wood fibre board insulation

'Application: wall, floor and roof insulation
Pavatherm is a wooden fibreboard to DIN 68755 Part 1: Fibreboards for building constructions; Insulation material for thermal protection. The board does not contain any glue or wood preservatives. Pavatherm is effective in reducing the U value (thermal transmittance), in improving acoustic sound protection and summer heat protection (phase postponement). Pavatherm can be used in new and renovation buildings.

Application: wall, floor and roof insulation

Thermal Conductivity (K) = 0.040 W/m.K '

Manufacturer's evidence rating:*	★
Material/s:	wood fibre
Environmental statement:	none
BRE Ecopoints:	unrated
BRE Environmental profile:	unrated
Other environmental standards:	none
3rd party accreditation:	none
3rd party product endorsement:	none
Reusability / Recyclability:	recyclable & reusable
% of post consumer waste:	unknown
Life expectancy	life of building
Substitute for or new materials / method:	insulation from non-renewable sources
Editors' comments:	
Country/s of manufacture:	Germany

AECB Carbon Lite

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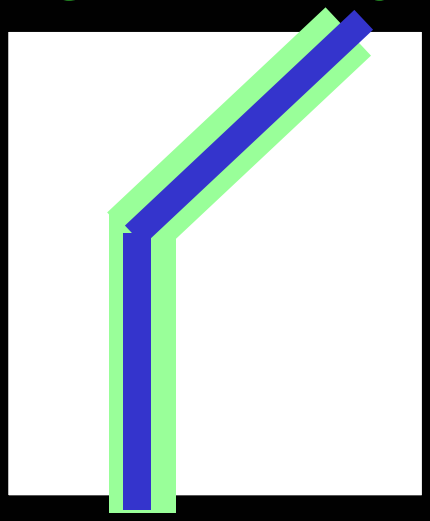
NGS GreenSpec
Many Services

AECB Carbon Lite

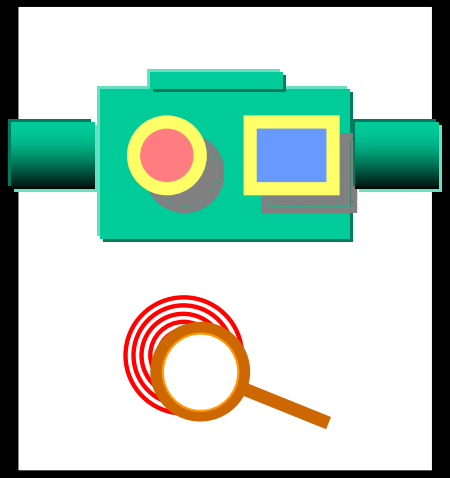
Systems

GreenSpec
www.greenspec.co.uk

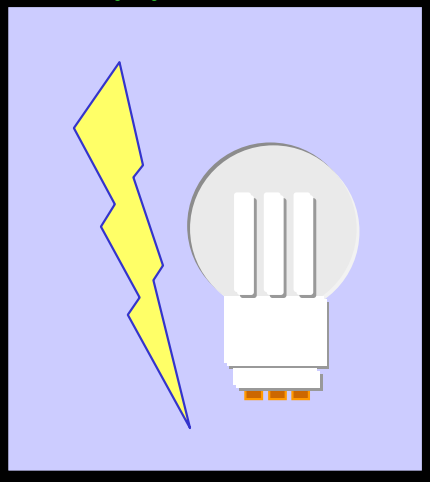
Buildings Fabric Systems



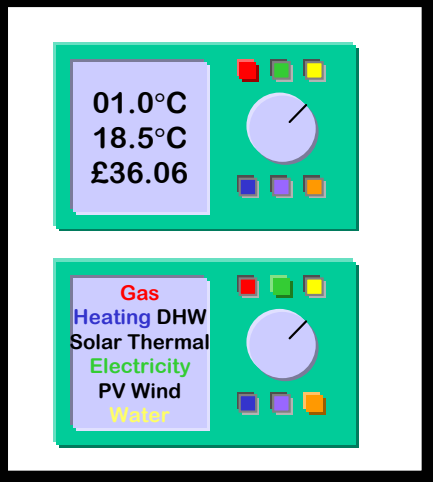
Ventilation, Heating & Cooking



Electrical Power, Lighting & Appliances



Controls Monitoring Metering



GreenSpec

Search

L752 Transformation & conservation of energy

wood / biomass fuel boilers

Manufacturer	Product	Type	
Binder	'RRK' series boilers	biomass boilers for commercial, industrial and large residential	✓
	'PK' series boilers	wood pellet boiler for domestic use	✓

wood fuel stoves

Manufacturer	Product	Type	
Tonwerk	Topolino	wood burning stove	✓
	T-ONE	wood burning stove	✓
	T-LOFT	wood burning stove	✓
Extraflame	'Extraflame' pellet stoves	wood pellet stove	✓

hot water solar collectors

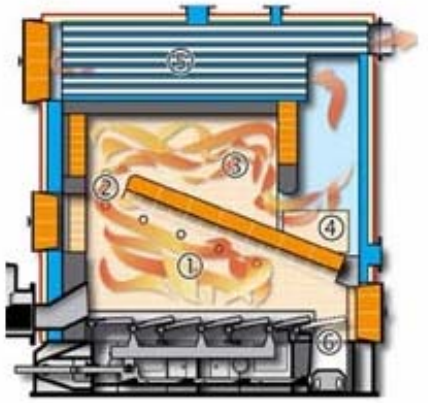
Manufacturer	Product	Type	
Energie Solaire	Azur	flat-plate collector	✓
	Solar Roof	integrated roof collector	✓
solarcentury	C21t : Solar hot water roof tile	collector tile	✓
	Solar Hot Water Sunstation	flat-plate collector	✓
Thermomax	Thermomax	evacuated tube collector	✓
	Solamax	evacuated tube collector	✓
	Mazdon	evacuated tube collector	✓
Solar Twin	Solartwin	flat-plate collector	✓

Binder 'RRK' series boilers

Biomass boilers for commercial, industrial and large residential

'The BINDER range of biomass boilers sets a bench-mark for convenience and comfort in handling:
• automated de-ashing*
• automatic cleaning of the heat exchanger*
• computer based capacity and combustion control* and accumulator tank management*
Start the boiler and have heat generated around the clock - with only bi-annual servicing for routine inspection and cleaning.

BINDER boilers achieve efficiency ratings of up to 92 percent*.
• The CVP control package* gives fully modulating capacity control from 25% to 100%.
• Speed-control* on all fans minimises the electric power consumption.
• The Lambda O2 regulation improves efficiency and brings out the most of your fuel.
• High quality engineering with a minimum on maintenance
required provides for high availabilty.



*...dependent on plant size and system configuration'

Manufacturer's evidence rating:*	★
Material/s:	unknown
Environmental statement:	no
BRE Ecopoints:	unrated
BRE Environmental profile:	unrated
Other environmental standards:	none
3rd party accreditation:	EN303-5
3rd party product endorsement:	none
Reusability / Recyclability:	reusable
% of post consumer waste:	unknown

Energie Solaire	Azur	flat-plate collector
	Solar Roof	integrated roof collector
solarcentury	C21t : Solar hot water roof tile	collector tile
	Solar Hot Water Sunstation	flat-plate collector
Thermomax	Thermomax	evacuated tube collector
	Solamax	evacuated tube collector
	Mazdon	evacuated tube collector
Solar Twin	Solartwin	flat-plate collector

heat pumps

Manufacturer	Product	Type	
Dimplex	Ground Source Heat Pump	domestic GSHP	✓
	Air to Water Heat Pump	domestic air to water heat pump	✓

hot water management systems

Manufacturer	Product	Type	
Sandler	M2 solar thermal system	thermal hot water management system	✓
	014-2 thermal system	thermal hot water management system	✓

energy managment controls

Manufacturer	Product	Type	
Sandler	FW Thermal System	renewable energy management contols	✓

Key

product / equipment with climate change reduction potential

GreenSpec

Search

Sandler 'FW Thermal System'

Renewable energy management contols

The Sandler FW system integrates conventional and renewable energy sources to manage your space heating and to provide instant domestic hot water. It prioritises the use of green energy. The FW modules are pretested making design and build simple and performance is guaranteed. The system is future proof.

Heat can be taken from solar thermal collectors, heat pumps, district heating and conventional boilers - priority is given to renewable sources. Both low and high temperature emitters are controlled as standard. The systemt optimises the charging of a thermal buffer which avoids the pollution and wear and tear of short cycling boilers. Energy monitoring and system diagnostics are available as options with a modem link.

For larger buildings, e.g. offices, schools, hotels and factories, the Sandler 020 is the system of choice.

The Sandler is a complete heating and hot water system. It optimises your heating system and buffer heat store allowing multiple heat sources to be combined. The controller prioritises renewable energy and reduces the effect of Climate Change Levy.

Domestic hot water is heated instantly and at constant temperature.

Flow rates of 20, 30 & 40 (l/min) are available as standard with higher ones to order. The system optimises energy use saving 10-16% in the production and distribution of DHW with existing boilers. By providing hot water safely at 50°C instead of 60°C as usual, the energy savings increase to 20-25%. To get the best out of the controller we recommend using the Sandler STB Buffer.'

Manufacturer's evidence rating:*	★
Material/s:	control equipment materials
Environmental statement:	no
BRE Ecopoints:	unrated

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NGS GreenSpec Product List Page

CLP endorsement added to lists of products

GreenSpec

Web Pages

Assembly List/Diagram Page

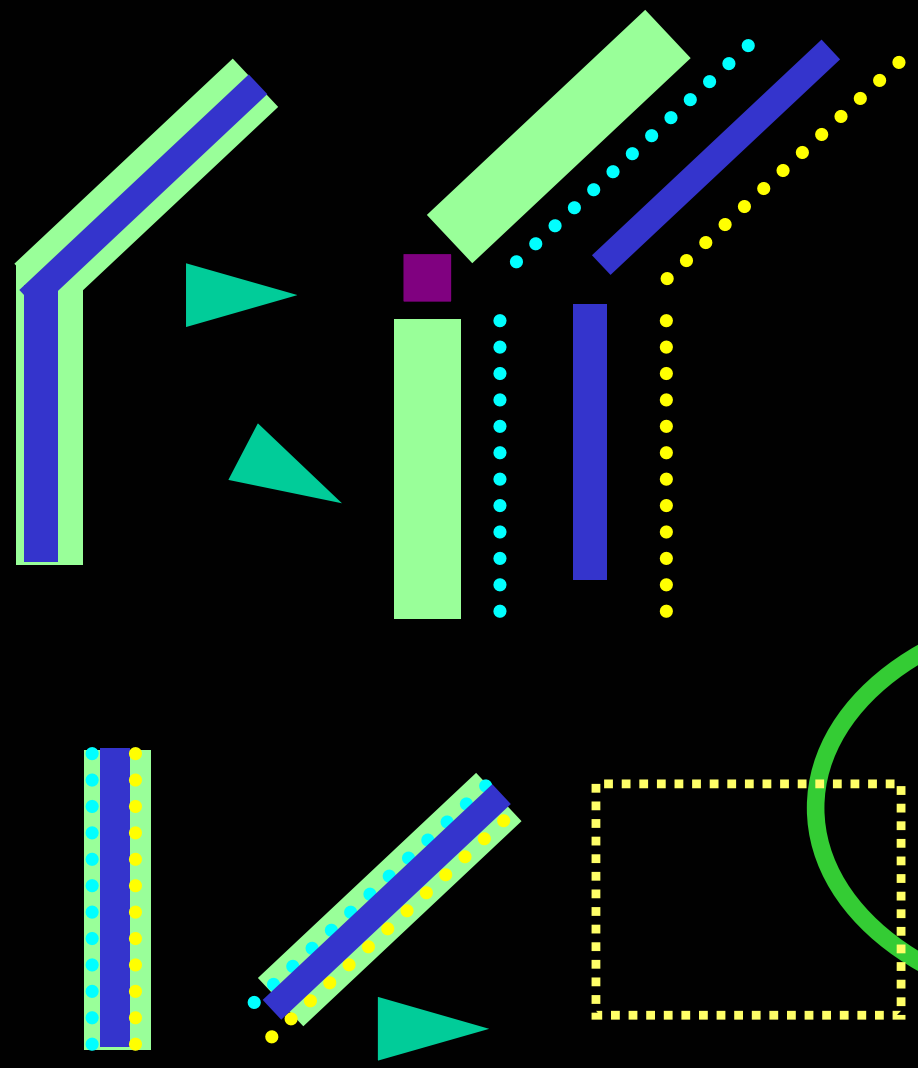
Assembly Diagram Pages

Industry Solution Assembly Diagram Pages

Product Specification Clauses

Product Pages

Product List Pages (equivalents)



GreenSpec

Search

- HOME
- PRODUCTS
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- MATERIALS
- ENERGY
- CHECKLIST
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- CPD
- HOW WE SELECT PRODUCTS
- CONTACT GREENSPEC
- REGISTER YOUR PRODUCT

PRODUCTS CONTENTS

- L2 Complete construction entities
- L3 Structural and space division

L681 Thermal insulation

- external walls
- pitched roofs
- flat roofs
- intermediate and seperating floors
- ground floors
- internal walls / partitions
- services
- general applications

external walls

Manufacturer	Product	Type				CLP
	Flax100	flax slab	✔	✔		✓
Termex	Termex	loose cellulose for timber frame construction	✔	✔	✔	
Homatherm	flexCL 040	cellulose slab for timber frame and partial-fill cavity walls	✔	✔	✔	✓
Homatherm	woodFlex 040	woodfibre slab	✔	✔		
Vital	Vital 040	cellulose slab for timber frame and partial-fill cavity walls	✔	✔		✓
Excel	Warmcell 500	loose cellulose for wood frames	✔	✔	✔	✓
Plant Fibre Technology	Isonat	hemp and cotton slab	✔	✔		
Second Nature	Thermafleece	wool rolls for timber frame construction	✔	✔		✓
Gutex	ThermoWall	wood-fibre board	✔	✔		
Pavatex	Pavatherm	wood-fibre board	✔	✔		✓
	Diffutherm	wood-fibre board, interlocking render carrier	✔	✔		

GreenSpec

Search

L681 Thermal insulation

- external walls
- pitched roofs
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- intermediate and seperating floors
- ground floors
- internal walls / partitions
- services
- general applications

external walls

Manufacturer	Product	Type				CLP
	Flax100	flax slab	✔	✔		P5
Termex	Termex	loose cellulose for timber frame construction	✔	✔	✔	
Homatherm	flexCL 040	cellulose slab for timber frame and partial-fill cavity walls	✔	✔	✔	G6
Homatherm	woodFlex 040	woodfibre slab	✔	✔		
Vital	Vital 040	cellulose slab for timber frame and partial-fill cavity walls	✔	✔		S4
Excel	Warmcell 500	loose cellulose for wood frames	✔	✔	✔	G6
Plant Fibre Technology	Isonat	hemp and cotton slab	✔	✔		
Second Nature	Thermafleece	wool rolls for timber frame construction	✔	✔		S4
Gutex	ThermoWall	wood-fibre board	✔	✔		
Pavatex	Pavatherm	wood-fibre board	✔	✔		P5
	Diffutherm	wood-fibre board, interlocking render carrier	✔	✔		

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NGS GreenSpec Product Pages

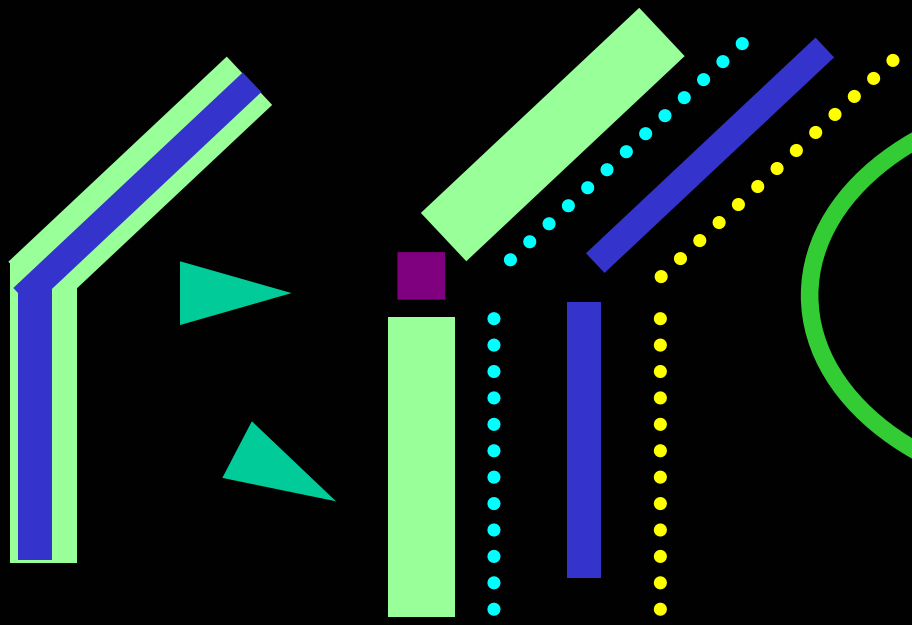
GreenSpec

Web Pages

Assembly List/Diagram Page

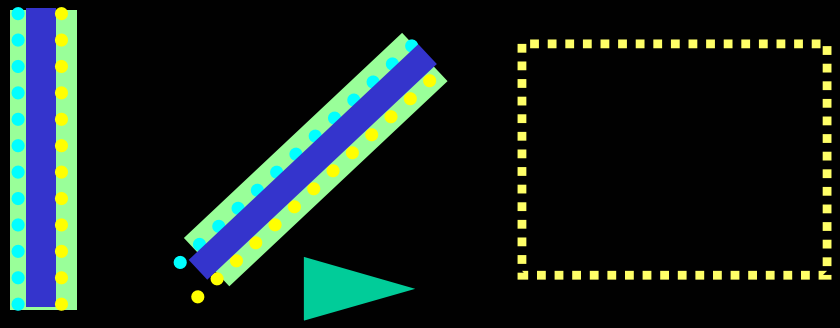
Product Specification Clauses

Assembly Diagram Pages



Product Pages

Industry Solution Assembly Diagram Pages



Product List Pages (equivalents)

GreenSpec

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- CPD
- HOW WE SELECT PRODUCTS
- CONTACT GREENSPEC
- REGISTER YOUR PRODUCT

GreenSpec is the UK construction industry's definitive guide to sustainable construction. Inside GreenSpec you will find a wealth of information aimed at helping you to design more energy and resource efficient buildings using materials and technologies that minimise damage to people and the environment.

PRODUCTS

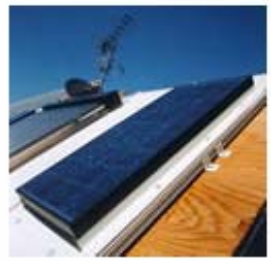
A directory of sustainable products available in the UK. Each product page comes with a description, brochure downloads and contact details.

MATERIALS

A guide to sustainable materials, both traditional and new. Materials such as masonry, roofing and flooring are compared based on their enviromental impacts.

CHECKLIST

This CAWS menu-based checklist takes you through the construction process highlighting areas where sustainable construction best practice can be applied.



SPECIFICATIONS

ENERGY

IMAGE BANK

GreenSpec

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Search results

Search: Go

all words any words exact ph

Displaying results: 1 - 7 Total results: 7

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- REGISTER YOUR PRODUCT

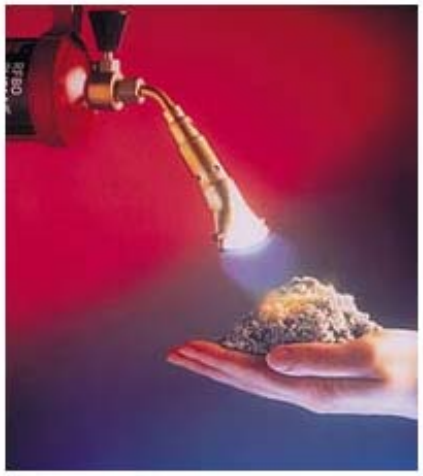
- PRODUCTS CONTENTS
- L2 Complete construction entities
- L3 Structural and space division

Excel 'Warmcel 500'

Cellulose thermal insulation for walls, roofs and floors

'Developed for EVT Technology applications, Warmcel 500 combines high levels of insulation with excellent breathability. Used for EVT walls, roofs and floors; timber frame walls and warm roofs, Warmcel 500 can be either TurboFill installed or damp spray installed.

With an impressive thermal conductivity value (k) of only 0.036 W/mK, Warmcel's 'in use' performance is further enhanced by its ability to create a high level of air-tightness to prevent thermal convection currents.'



Manufacturer's evidence rating:'	★★★
Material/s:	recycled newspaper with non-toxic additives
Environmental statement:	yes
BRE Ecopoints:	0.005
BRE Environmental profile:	A
Other environmental [illegible]:	[illegible]
3rd party accreditation:	BBA cert 94/3027 for timber frame construction
3rd party product endorsement:	LPCB accredited CfSH Level 4, CLP Step 1: Silver
Reusability / Recyclability:	reusable as insulation
% of post consumer waste:	100% recycled newsprint
Life expectancy	lifetime of the building
Substitute for or new materials / method:	insulation from non-renewable sources
Editors' comments:	
Country/s of manufacture:	UK

Absolute Score

Relative Rating

Reusability / Recyclability:	reusable as insulation
% of post consumer waste:	100% recycled newsprint
Life expectancy	lifetime of the building
Substitute for or new materials / method:	insulation from non-renewable sources
Editors' comments:	
Country/s of manufacture:	UK
UK distribution location:	Gwent
Downloads:	Product brochure
Product specification clause:	-
Work sections:	-
Manufacturer:	Excel Industries
Address:	Maerdy Industrial Estate, Rhymney, Gwent NP22 5PY
Telephone:	01685 845 200
Email:	sales@excelfibre.com
Website:	www.excelfibre.com
Available direct:	yes
Suppliers:	Direct from manufacturer
Alternative products:	Thermal insulation
Further information:	Insulation materials compared
Information last updated:	Monday 24th, July 2006

The product has been selected on the above average performance in the following areas:

-	Abiotic depletion	-	Acidification
✓	Global warming	-	Eutrophication
-	Ozone layer deplection	✓	Solid Waste

Telephone:	01685 845 200
Email:	sales@excelfibre.com
Website:	www.excelfibre.com
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Alternative products:	Thermal insulation
Further information:	Insulation mate compared
Information last	Monday 24th, July 2006

The product has been selected on the above average performance in the following areas:

-	Abiotic depletion	-	Acidification
✓	Global warming	-	Eutrophication
-	Ozone layer deplection	✓	Solid Waste
-	Human toxicity	-	Radioactivity
-	Fresh water aquatic ecotoxicity	-	Minerals extraction
-	Terrestial exotoxicity	-	Water extraction
-	Photochemical oxidation		

*Note:
Manufacturer's evidence rating
* One star rating: The product has been included based on an assessment of the manufacturer's own product information.
*** Three star rating: The product has been included on the basis of a third party, independent, Life Cycle Analysis (BRE Ecoprofile or similar).

AECB Carbon Lite

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NGS GreenSpec Product Selection

How GreenSpec selects products for the website content

GreenSpec

Search

How products are selected for GreenSpec

Green Product Definition

For the purposes of *GreenSpec* , a 'green' product / material is:

A commercially available product / material (currently available in the UK) that embodies one or more positive environmental attributes or qualities that distinguish it from other products or materials in the same function category.

The selection process

1 Submit → Information

2 Evaluate → Selection Panel

3 Accredit → ★★★ Quality of evidence

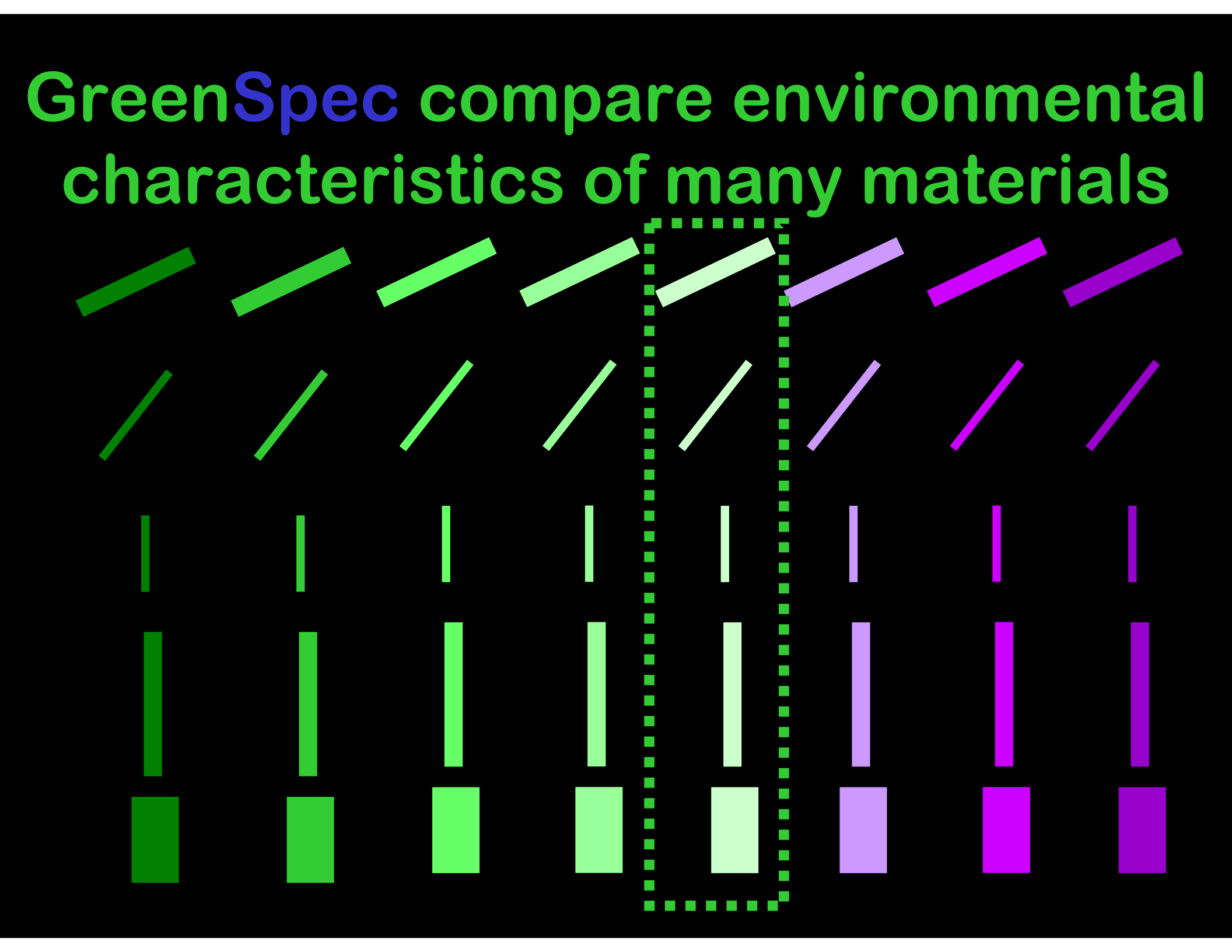
4 Publish → GreenSpec Website

1 Submission of information

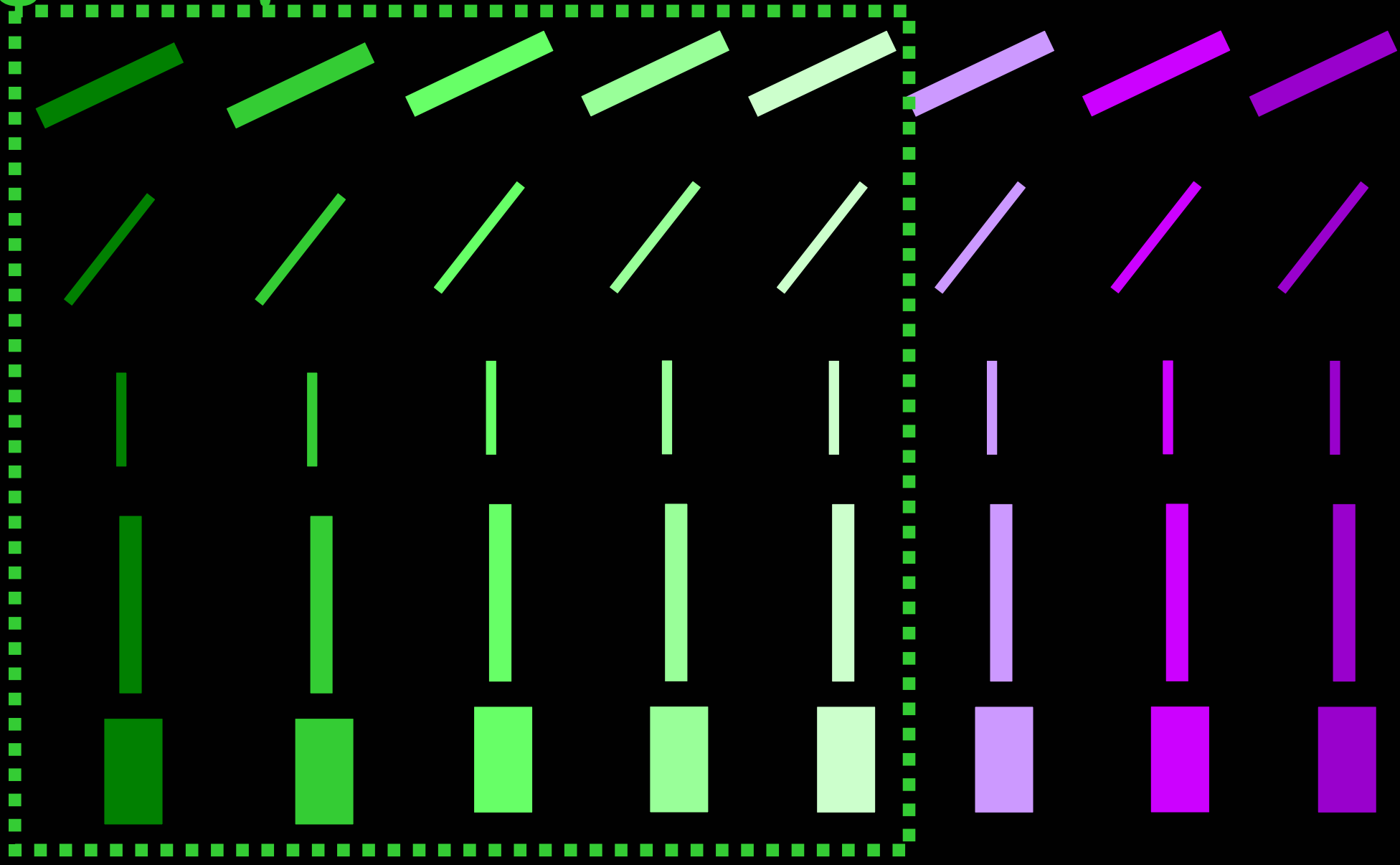
The submission by the manufacturer will comprise of one or more of the following documents:

- Manufacturer's literature including details of the manufacturing process and component material(s)
- Independent environmental certification (eg Eco Profiling or other LCA)
- Independent verification of manufacturer's claims
- Manufacturer's own support of claims
- Environmental Management Certification (ISO 14001 series) or other uncertified certification system
- Complience with Construction Products Directive Essential Requirments and or EC Mark
- Complience with British Standard(s)
- BBA Certification

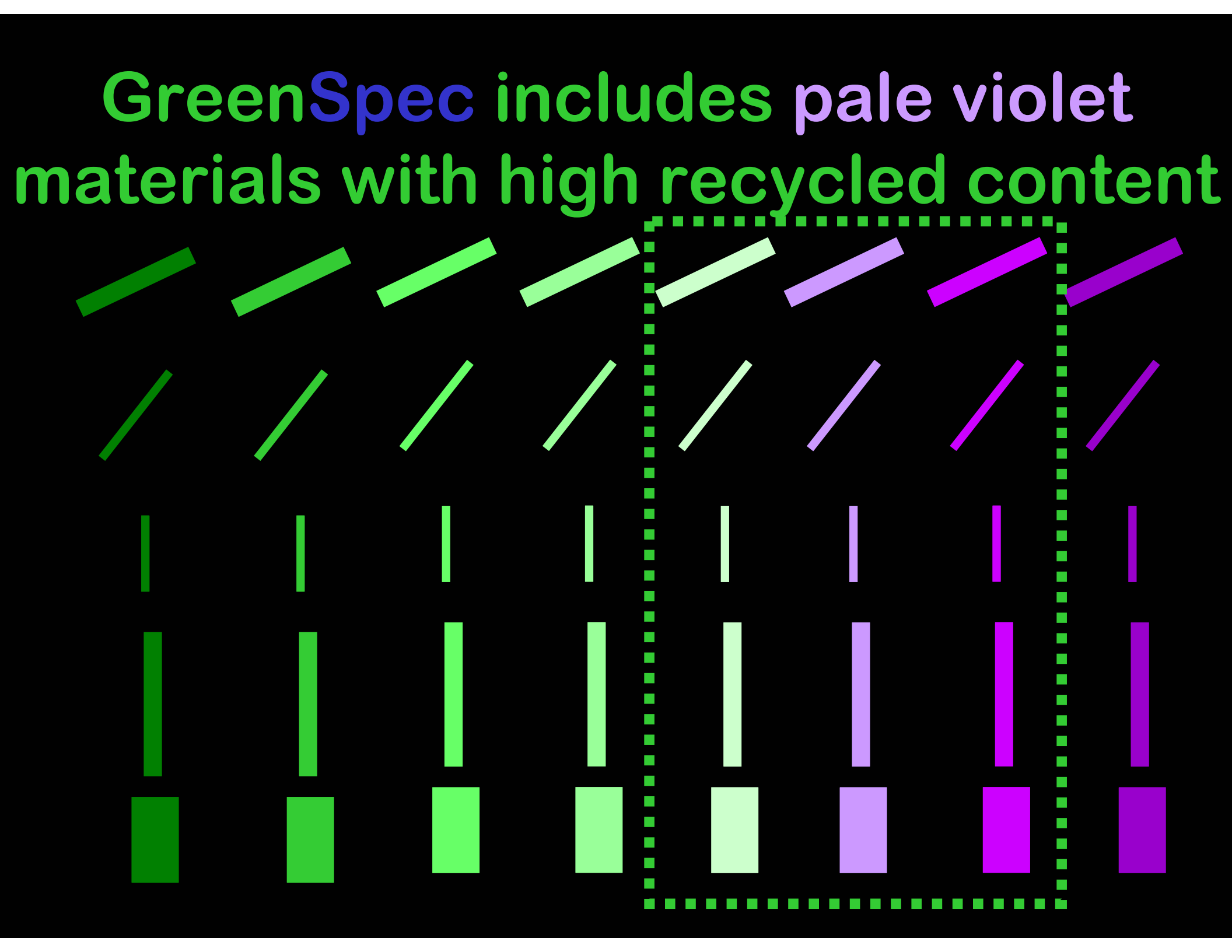
GreenSpec compare environmental characteristics of many materials



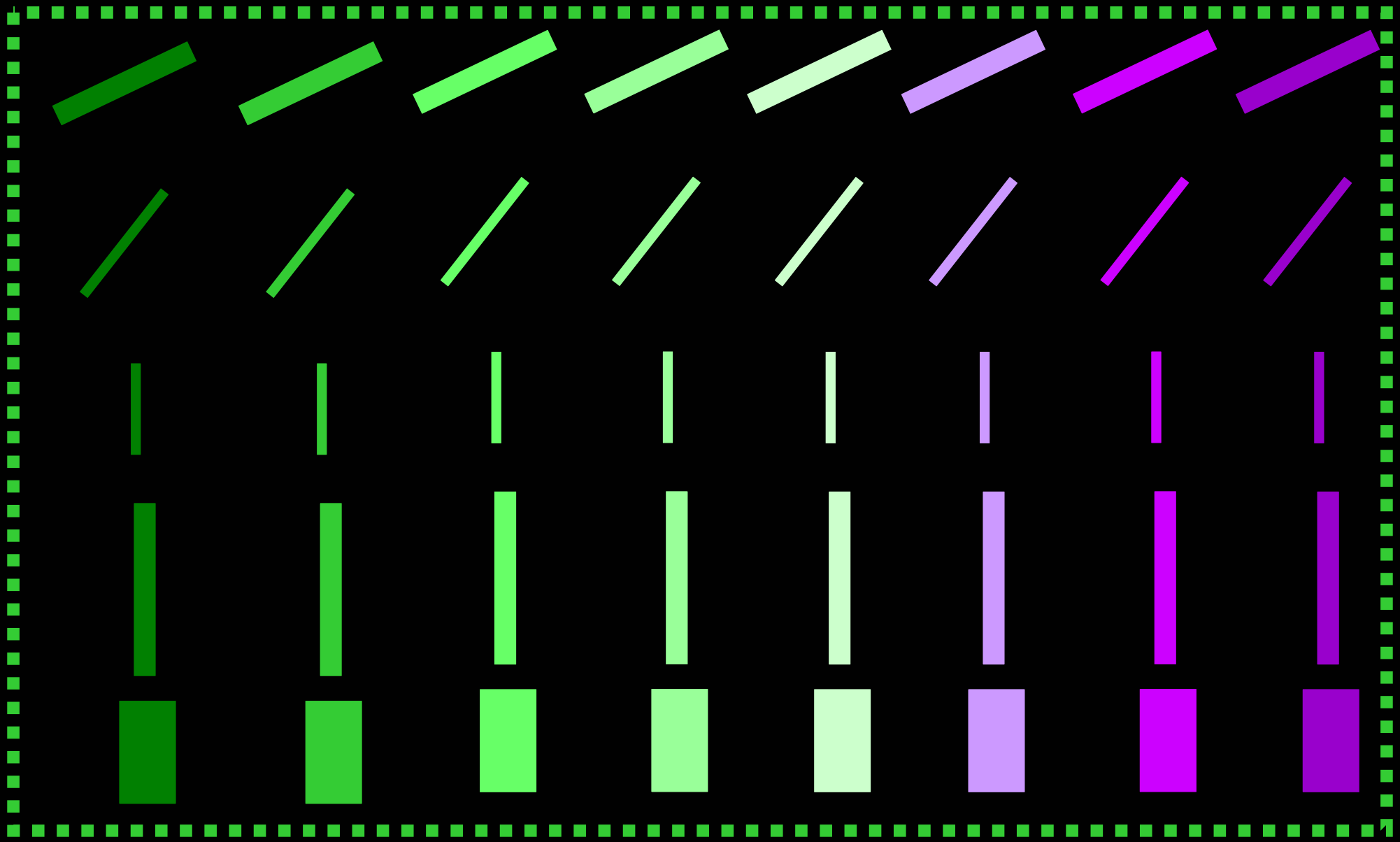
GreenSpec includes dark & light green products but excludes violet



GreenSpec includes pale violet materials with high recycled content



AECB CLP includes dark green, light green & violet



AECB Carbon Lite

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NGS GreenSpec Specification Clauses

Performance Generic & Prescriptive Specification clauses


CLP Performance Requirements
AECB Carbon Lite
GreenSpec
Product Specification Clauses
Project Specification
Client's Brief To Design Team
Project Specification
Prescriptive Specification
Design & Build Spec
Employer's Requirements
GBS A90 Performance Specification

NGS GreenSpec Performance Specification

A90 with CLP building Performance Specification clauses

AECB

Carbon lite Programme

Principles:
Insulation Airtightness Cold Bridge Avoidance

Performance Requirements:
Buildings Elements/Assemblies Services

GreenSpec

A90 Performance Specification
Buildings Elements Services

A-Z Prescriptive Specification

Material & Component
Generic Specifications

Manufacturer's
Product Specifications

Government Funded Project Specs

Private Funded Project Specs

GreenSpec

www.greenspec.co.uk

A90 Performance Specification
Buildings Elements Services

A-Z Prescriptive Specification
Buildings Elements Services

Material & Component
Generic Specifications

Manufacturer's
Product Specifications

Government Funded Project Specs

Private Funded Project Specs

Generic Specs

Level 6 Gold

Dedicated Products Specs

Generic Specs

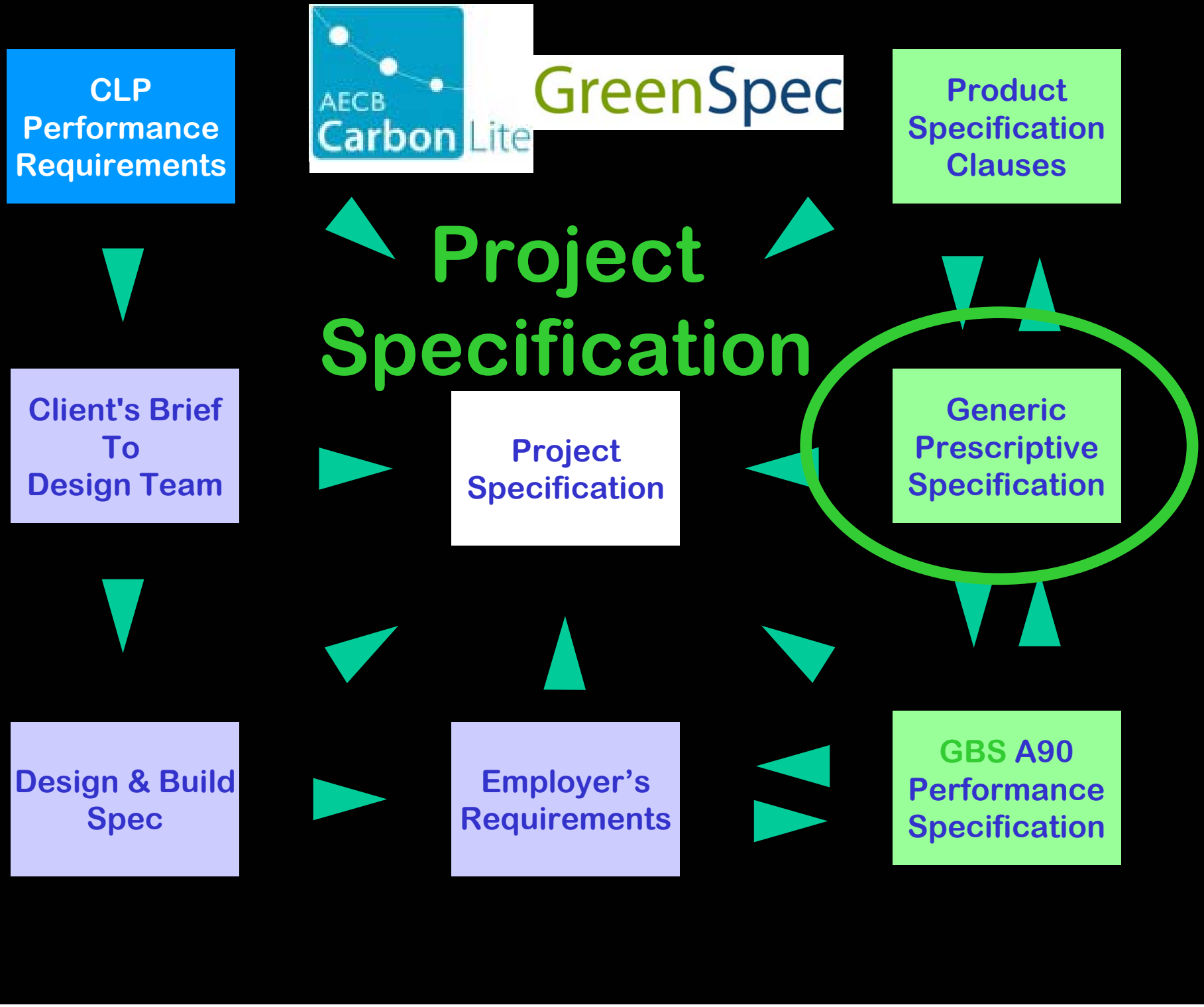
Level 5 Passivhaus

Dedicated Product Specs

Generic Specs

Level 4 Silver

Dedicated Product Specs


CLP Performance Requirements
AECB Carbon Lite
GreenSpec
Product Specification Clauses
Project Specification
Client's Brief To Design Team
Project Specification
Generic Prescriptive Specification
Design & Build Spec
Employer's Requirements
GBS A90 Performance Specification

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NBS Generic Specification Clauses

Materials or Product clauses without naming manufacturer and product

Generic NBS Specification

P10 Thermal Acoustic & Fire Proofing

110 ROCK MINERAL FIBRE

- Application: somewhere
- Manufacturing Standard: BS 1234
- BSI Kitemark: Required
- BBA Certificate: Required
- K value: 0.33 – 0.45
- Acoustic performance: 30-35 dB
- Density: 100-125 kg/m3
- Thickness: 50 - 300 mm.

- Manufacturer & Product Reference: Contractors Choice Submit proposals to CA for review
- OR
- Manufacturer: InsulMan
- Reference: ManMadeInsul
- Or equivalent (by virtue of NBS Preliminaries requirements)

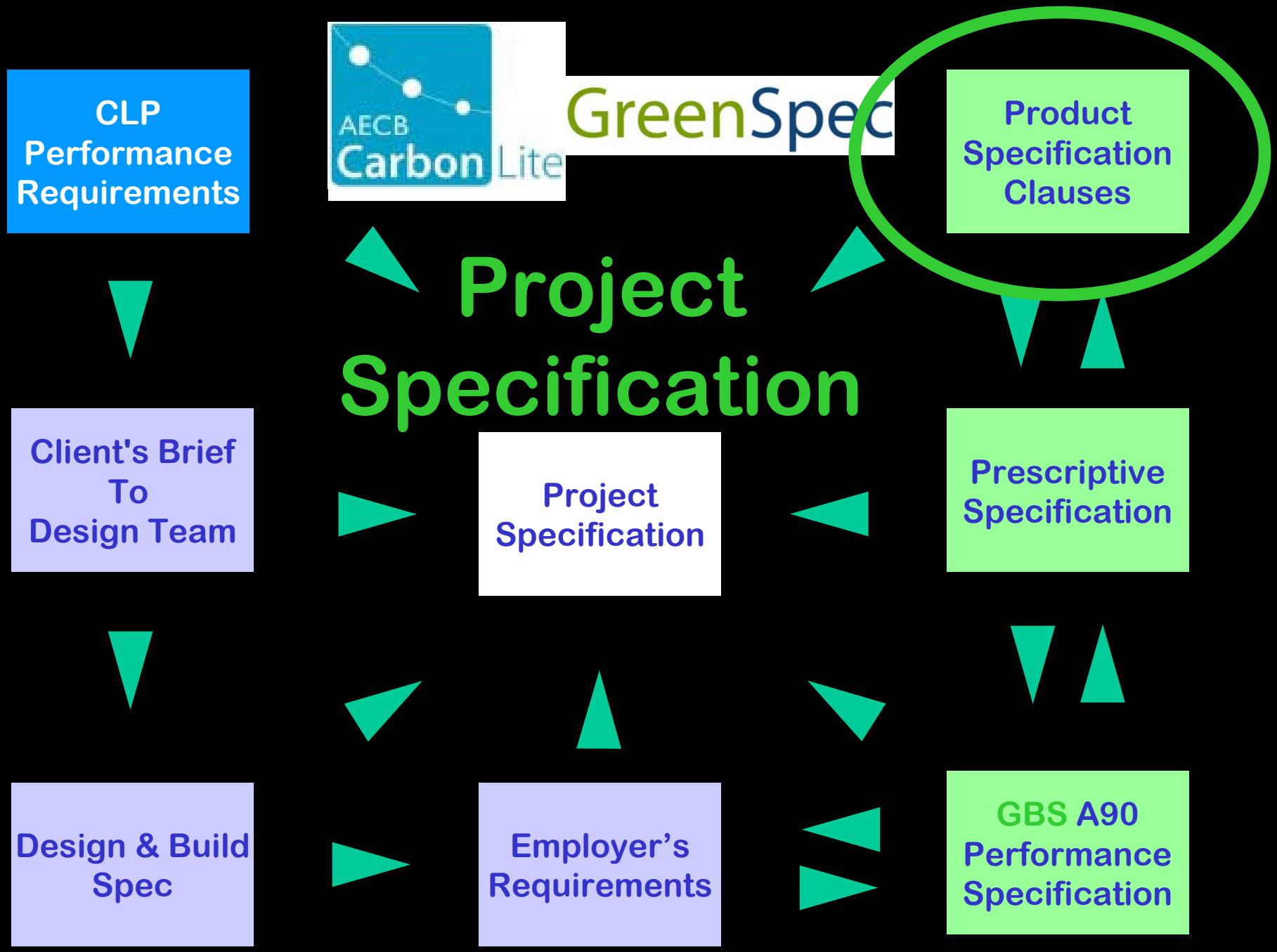
Prone to substitution

Prone to surreptitious substitution

Prone to abuse by many parties:

Contractors, Buying department,

QS, Employer


CLP Performance Requirements
AECB Carbon Lite
GreenSpec
Product Specification Clauses
Project Specification
Client's Brief To Design Team
Project Specification
Prescriptive Specification
Design & Build Spec
Employer's Requirements
GBS A90 Performance Specification

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NGS GreenSpec Specification Clauses

Dedicated product clauses

Performance > Spec > Product

AECB Carbon Lite

GreenSpec

Manufacturers

Performance Spec Prescriptive

- Performance Requirement
- Performance Requirement
- Performance Requirement
- Performance Requiriement

A90 Perf. Spec.

P10 Insulation

- Products
- Products
- Products
- Products
- Products
- Products
- Products

Dedicated Prescriptive Green Building Specification

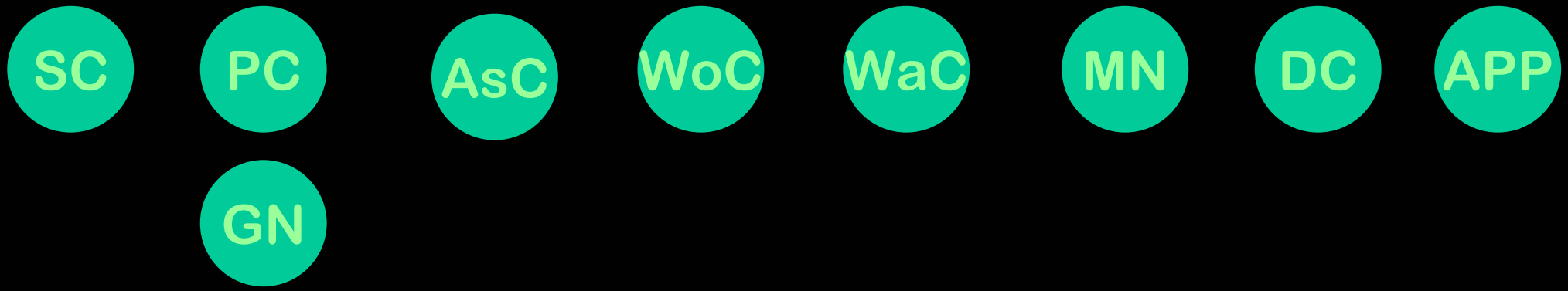
P10 Thermal Acoustic & Fire Proofing

100 THERMAL INSULATION

- Performance Achieved:
- Test Evidence: Report 33/2006
- Manufacturing Standard(s): BS 1234
- Installation Code of Practice: CP 103
- 3rd Party Accreditations: _____
- BSI Kitemark: KM 1234
- BBA Certificate: 00/0001
- Manufacturer: Insumaker
- Product Reference: ManMadeInsul
- Contact Details: T F E W; Rep M

- K value: 0.4
- G value: 5
- Sy value: 2.3
- Density: 100 kg/m3
- Thermal mass: 66
- BRE GGtS rating: A
- BRE Environmental Profile: No
- EcoPoints: 1077
- EcoHomes, BREEAM: credits: 1
- 3rd Party Endorsements: AECB Carbon Lite Programme: Gold+
- Recycled content: 60% post consumer
- ZODP: Yes

Specification clauses:



- Made up of many parts:
- Specification clause, Product Clause, Guidance Note, Assembly/Application clause, Workmanship clause, Waste clause, Maintenance Note, Demolition/Dismantling clause, Appendix,
- To be split down as NGS Green Building Specification progresses

"

TYPE(S)·OF·LOAD-BEARING·TIMBER·BLOCK·WALLING¶

¶

110 → MODULAR·LOADBEARING·COMMON·GLUED·TIMBER·BLOCK·WALLING·TO·[_____]:¶

Manufacturer:·Steko·Switzerland,¶

Reference:·The·Steko·Building·System,¶

or·equivalent·and·approved.¶

UK·Agent:·Ecological·Building·Centre.·¶

Construction·Resources·(Elink·Ltd),·16·Great·Guildford·Street,·London,·SE1·0HS.¶

Telephone:·020·7450·2211,·Fax:·020·7450·2212.¶

Email:·info@ecoconstruct.com¶

Website:·www.ecoconstruct.com¶

Bond:·stretcher·half·lap,¶

Joints:·close-fit·dry·stacking,¶

Surface·board·grade:·Class·[C],¶

Species:·[Spruce·or·Fir],¶

Timber:·renewable·source·softwood·of·small·dimension,¶

Timber·treatment:·[See·G21/103],¶

Moisture·content·at·time·of·construction:·20%·+/-·2%·maximum.¶

Module·size:·Vertical:·80·mm.·Horizontal·(longitude·and·latitude):·160·mm.¶

Module·block·size(s):·¶

→ Generally:·[¶

→ 4·chamber·unit:·160·mm.·thick·x·240·mm.·high·x·640·mm.·long,¶

→ 4·chamber·unit:·160·mm.·thick·x·320·mm.·high·x·640·mm.·long],¶

→ Other·Sizes:·[¶

→ 3·chamber·unit:·160·mm.·thick·x·240·mm.·high·x·480·mm.·long,¶

→ 2·chamber·unit:·160·mm.·thick·x·240·mm.·high·x·320·mm.·long,¶

→ 1·chamber·unit:·160·mm.·thick·x·240·mm.·high·x·160·mm.·long,¶

→ 3·chamber·unit:·160·mm.·thick·x·320·mm.·high·x·480·mm.·long,¶

→ 2·chamber·unit:·160·mm.·thick·x·320·mm.·high·x·320·mm.·long,¶

→ 1·chamber·unit:·160·mm.·thick·x·320·mm.·high·x·160·mm.·long],¶

Weight:·[4·chamber·320·mm·high·unit:·6]·kg.¶

Features:·¶

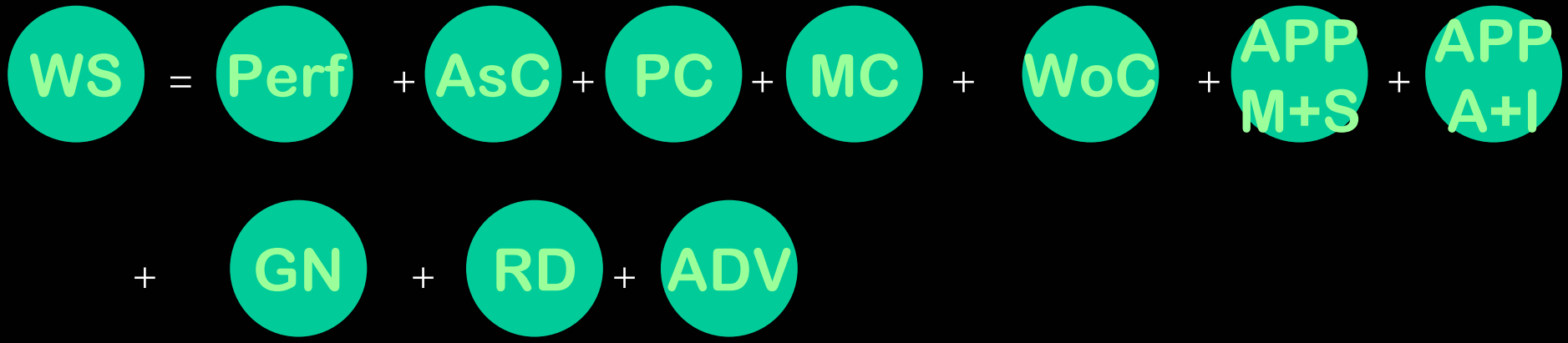
→ DPC·to·G21/185,¶

→ Mortar·bed·to·G21/186,¶

Special·elements·of·system:¶

→ Sill·Plate·to·G21/120,¶

Specification work sections



- Specification work section: made up of many parts
- Performance Requirements: Trade or element specific (A90 Project)
- Assembly clauses, Products and Materials, Workmanship
- Appendix: Manufacturers and Suppliers,
- Appendix: Applicators and Installers
- Guidance Note, Reference Documents, Advisory Bodies, Documents and Websites
- To be split down as NGS Green Building Specification progresses

W21·APP·M&S → APPENDIX·W21·PROJECTION:·MANUFACTURERS·&·SUPPLIERS¶

To·be·read·with·Preliminaries/General·Conditions·A10-A55·and·Work·section·W21¶

¶

209 → MATERIALS·SUPPLIERS:¶

Obtain·materials·of·one·type·from·only·one·source,·unless·specified·or·agreed·otherwise·in·advance.¶

Obtain·from·only·one·of·the·following·material·suppliers¶

Inform·CA·of·selected·supplier·at·an·early·date.¶

Select·from·local·companies·to·support·local·economy·and·local·employment.¶

See·Preliminaries·A90·Performance·Specification·A90/117.¶

¶

209A → MANUFACTURER:·HIGH·CONTRAST·PAINTED·SCREENS:¶

See·W21/209¶

Manufacturer:·Goo·Systems,·4·Harvey·Street,·Kingston·ONTARIO,·Canada,·K7K·6A9↵

T → free·phone → Canada·(888)·541-0299¶

T → Canada·(613)·541-0299 → F → Canada·(613)·541-1765¶

Contact:·Kevin:·Sales·&·Marketing → E → kevin@goosystems.com·↵

Technical·Support:· → E → techsupport@goosystems.com·↵

W → www.goosystems.com¶

Goo·Products·-·http://www.goosystems.com/index.php?cont=products·↵

Which·Goo?·-·http://www.goosystems.com/index.php?cont=which·↵

Screen·Goo·-·http://www.goosystems.com/index.php?cont=screen·↵

Goo·Tips·and·FAQ·-·http://www.goosystems.com/index.php?cont=tips¶

¶

209B → MATERIAL·SUPPLIERS:·PAINT·SYSTEMS¶

See·W21/209¶

UK·REGIONS:¶

¶

ENGLAND:·LONDON¶

¶

Interactive·View,·15·Bowling·Green·Lane,·London,·EC1R·0BJ.¶

T → 020·7566·0433 → F → 020·7490·8404¶

E → enquiries@interactiveview.co.uk → W → www.interactiveview.co.uk·¶

¶

Powered·By·Innovation·Ltd.·Innovation·House,·31·Twyford·Avenue,·London,·W3·9PY¶

T → 0208·992·7766 → F → 0208·992·0021¶

E → sales@poweredbyinnovation.co.uk·→ W → www.poweredbyinnovation.com¶

¶
REGION·SOUTH·WALES·-·CENTRAL¶
Bridgend,·Vale·of·Glamorgan,·Rhonda·Cynon·Taff·and·Cardiff¶
Other·information:·http://www.hdg.org.uk/·>·List·of·Plants·>·Area·8·Wales¶
¶
Joseph·Ash·Galvanizers·Bridgend,·Prince's·Way,·Bridgend·Industrial·Estate,·Bridgend,·Mid·Glamorgan,·CF31·3AQ,·Wales¶
T → 01656·668735 → F → 01656·767139¶
E → bridge@josephash.co.uk → W → www.josephash.co.uk¶
Registered·to·BS·EN·ISO·9002·Yes¶
Bath·Size:·4.6·x·1.5·x·2.1·m.¶
Double·Dipping:·not·permitted¶
Maximum·Lift·4·tonnes¶
¶
Cardiff·Galvanizers·(1969)·Ltd.·Cambria·House,·East·Moors·Road,·Cardiff,·CF24·5EG,·Wales¶
T → 02920·480321 → F → 02920·483728¶
E → sales@cardiffgalvanizers.co.uk → W → ¶
Registered·to·BS·EN·ISO·9002·Yes¶
Bath·Size:·7.0·x·1.5·x·3.0m,·9.0·x·1.1·x·0.3m·and·4.6·x·1.5·x·3.4·m.¶
Double·Dipping:·not·permitted¶
Maximum·Lift·4·tonnes¶
¶
REGION·SOUTH·WALES·-·EAST¶
Merthyr·Tydfil,·Caerphilly,·Blaenau·Gwent,·Torfaen,·Monmouthshire·and·Newport¶
Other·information:·http://www.hdg.org.uk/·>·List·of·Plants·>·Area·8·Wales¶
¶
Newport·Ltd.·Llanwern·Works,·City·Newport,·South·Wales,·NP19·4QX,·Wales¶
T → 01633·277400 → F → 01633·277997¶
E → newport@wedge-galv.co.uk→W → www.wedge-galv.co.uk¶
Registered·to·BS·EN·ISO·9002·Yes¶
Bath·Size:·7.0·x·1.22·x·3.73·m.¶
Double·Dipping:·not·permitted¶
Maximum·Lift·6·tonnes.¶
¶
REGION·SOUTH·WALES·-·WEST¶
Swansea·and·Neath&Port·Talbot¶

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NGS GreenSpec Project Specifications

GreenSpec try to avoid doing project spec

but collaborative work on practice spec is ok


CLP Performance Requirements
AECB Carbon Lite
GreenSpec
Product Specification Clauses
Project Specification
Client's Brief To Design Team
Project Specification
Prescriptive Specification
Design & Build Spec
Employer's Requirements
GBS A90 Performance Specification

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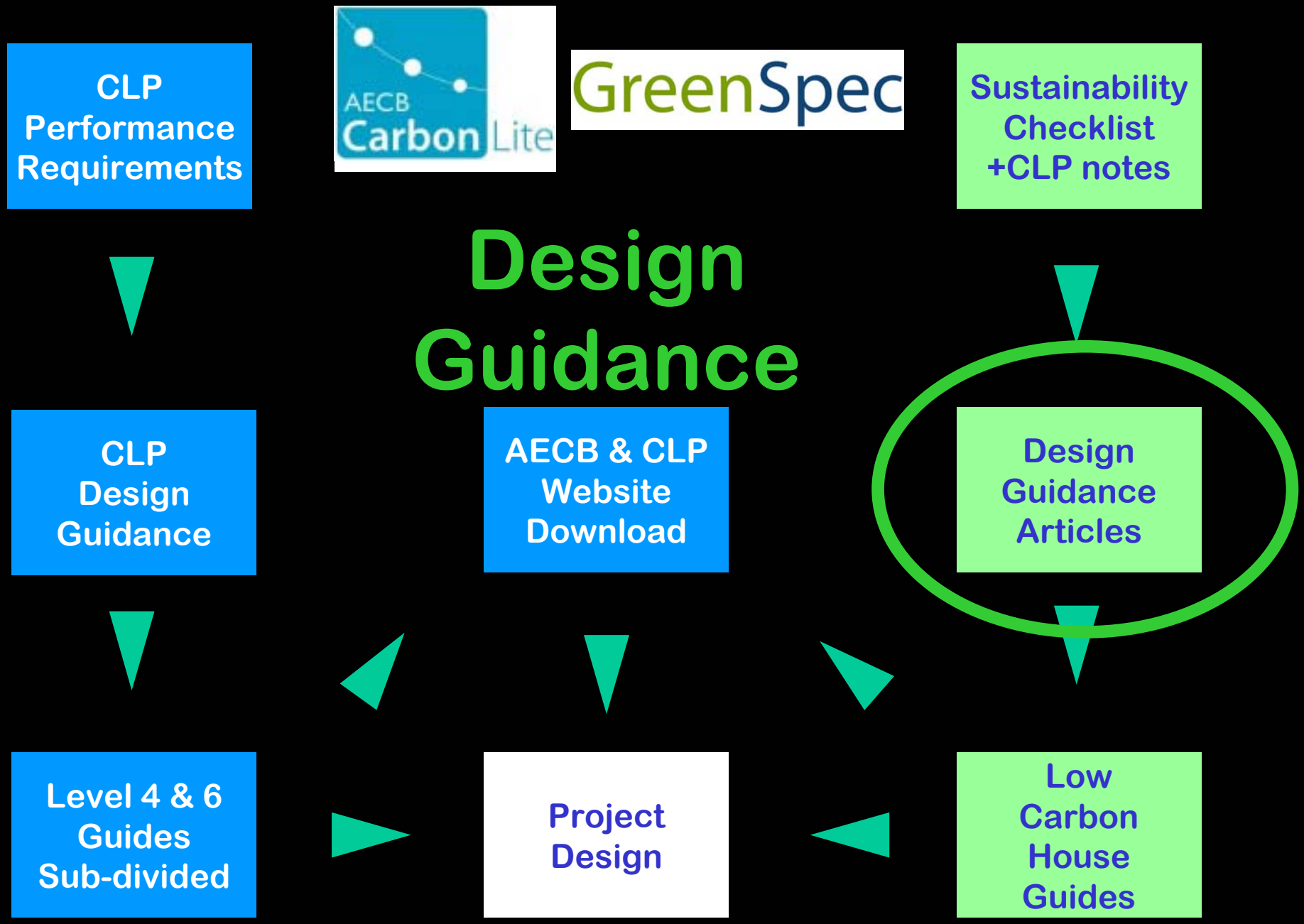
NGS GreenSpec Design Guidance

Will include links to CLP output documents


CLP Performance Requirements
AECB Carbon Lite
GreenSpec
Sustainability Checklist +CLP notes
Design Guidance
CLP Design Guidance
AECB & CLP Website Download
Design Guidance Articles
Level 4 & 6 Guides Sub-divided
Project Design
Low Carbon House Guides

Design - Contents

Case Studies

BedZED: 'Construction materials report'. *Nicole Lazarus.*

- Credits, background and introduction
- Summary
- Materials in construction
- Measuring the environmental impacts of materials
- Material selection (examples): Window frames, reclaimed steel and recyled sand.

Housing Associations and sustainable construction. *Jenny Wain.*

- Introduction, lessons and resources
- Prime Focus on prefabrication - Watton Green
- Ealing Family on super insulation - Wilton Road
- Gwalia on conserving heritage - Swansea Foyer
- Housing Solutions and new technologies - Greenfields - 1NTERGER
- Arches and refurbishment- Valley Road

Construction techniques.

- Small-scale hand-made cob construction in Stoke Newington.

Recycling, re-use and reclamation

Ealing Family on super insulation - Wilton Road, Reading

Scheme summary

The scheme comprises 25 ultra low energy homes (12 flats and 13 houses) built on a brown field site. They offer affordable rents to residents and ensure reduced environmental impact in use. Environmental efficiency measures exceeded a SAP of 100 and it achieved BRE's Environmental Standard Award. Completed in 2000.

Scheme details

The scheme was developed using the benefits of experience gained with the THERMIE project of 50 energy efficient homes at Amersham Road (see previous case study). It reused a derelict laundry site in a residential part of Reading.

The scheme was developed as an Integrated Housing Initiative. This provides homes where both landlord and resident running costs are reduced, and where environmental performance is improved. This is achieved through increased levels of insulation, improved construction air-tightness, and improved water efficiency.

As part of the initiative the following issues were considered at the design stage:
- energy efficiency – embodied and in use
- economical water usage
- environmental impact
- cost and life of building components.

Environmental features

As with many brownfield sites contamination issues needed to be addressed. Prefabricated foundations were used to save time on site mitigation works. Pre-cast piles and ground beams with an extruded floor and 200mm of mineral wool insulation were chosen over traditional piled foundations and cast in situ ground beams.

A lightweight steel frame system from Forge-Llewellyn was used to enable fast erection times and allow high insulation levels to be added on site.

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Low Carbon House Design Guide

NGS GreenSpec
website content

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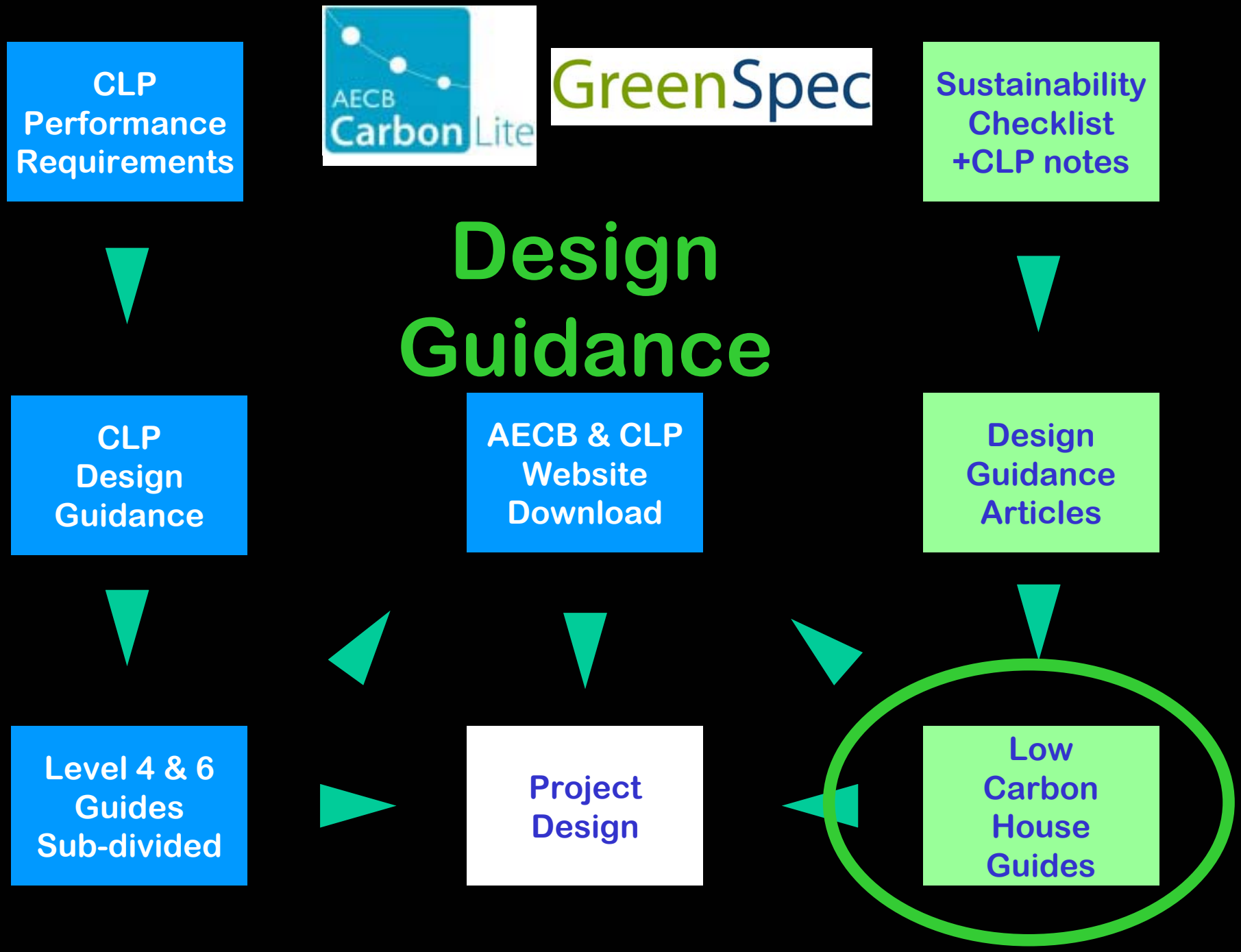
Low Carbon House Siting & Orientation

NGS GreenSpec
Design Guidance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Design Guidance Articles
Level 4 & 6 Guides Sub-divided
Project Design
Low Carbon House Guides

The Low-Carbon House: Contents

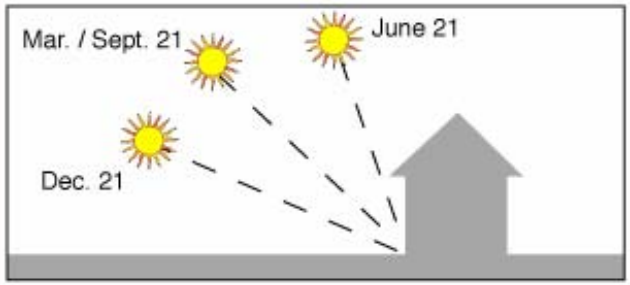
Low Carbon House:

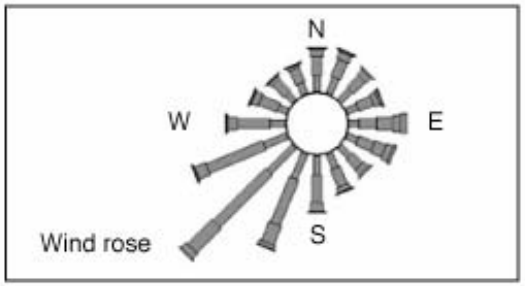
- Contents
- Standards Level 4
- Standards Level 5
- Standards Level 6
- Siting & orientation
- Direct Solar Gain
- Thermal Walls
- Thermal Mass
- Construction details

The Low-Carbon House: Siting and Orientation

Passive solar design and providing a benign site microclimate both enhance the energy and environmental performance of a building. Ideally the building has good access to solar radiation and daylight, with a site which itself is pleasantly warm and sunny, with good shelter from the wind.

Site analysis





- Determine the position of the sun throughout the year.
- Establish temperature ranges – both seasonal and daily.
- Identify the direction of the prevailing wind.
- Determine seasonal characteristics eg cold northerly winds in winter.
- Identify topographical features that might optimise or degrade the performance of the building(s) eg slopes, tree belts, the shape and orientation of the site.

Orientation

The individual house

The main orientation of the building should be within 30° of

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Low Carbon House
Direct Solar Gain

NGS GreenSpec
Design Guidance

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The Low-Carbon House: Direct Solar Gain

Simple

Needs highly efficient thermal glazing or supplementary shuttering to prevent heat loss.

'Direct Gain' is the most basic form of solar gain. Solar energy enters through south-facing glazing and is absorbed by thermal mass incorporated into the floor and walls. Heat is stored in the thermal mass during the day and later released during the night into the living space. This re-radiation of collected heat can maintain a comfortable temperature during cool nights and can extend through several cloudy days without 'recharging'.

- Up to 75% of the solar energy striking the glass is converted into thermal energy.

- Solar radiation can provide a significant proportion of a buildings heating requirements.

- The area of glazing is determined in response to the duration and severity of winter temperatures; the building size; and the amount of interior thermal mass. A correct balance between these factors

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Low Carbon House Thermal Walls

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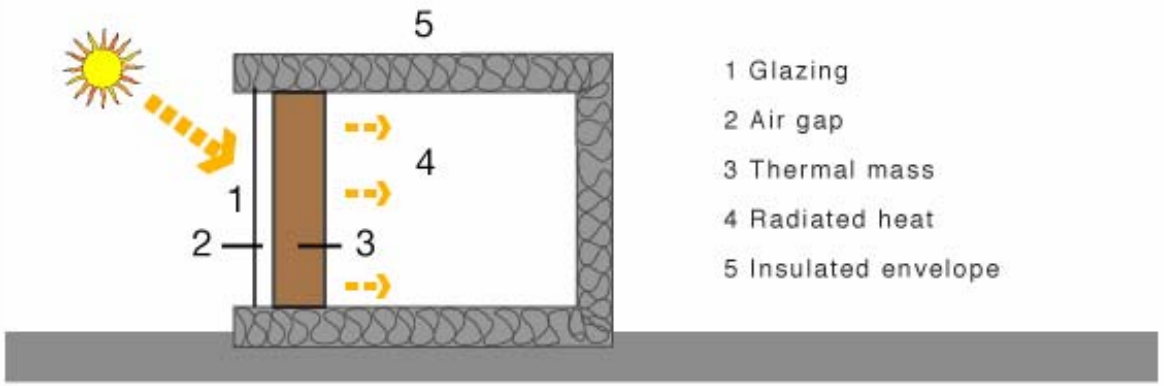
- Construction deta

The Low-Carbon House: Indirect solar gain: Thermal walls

'Direct Solar Gain' is the heating of a space using the sun's energy directly through windows in the building envelope. 'Indirect Solar Gain' systems operate by transferring solar energy through conduction (thermal mass walls) or convection (sunspaces) from the outside of the envelope to the heated space.

Basic Mass / Solar / Thermal Storage Wall



The basic Mass Wall consists of a wall of 200 – 400mm of masonry or other material of high thermal mass, facing south, with a dark, heat-absorbing material on the external surface. The wall is faced with a single or double layer of glass. The glass is placed from 20 – 50mm from the wall to create a small airspace.

Solar radiation passing through the glass is absorbed by the dark surface, stored in the wall, and conducted over a period of hours through the wall.

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Low Carbon House Thermal Mass

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The Low-Carbon House: Contents

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- Standards Level 6
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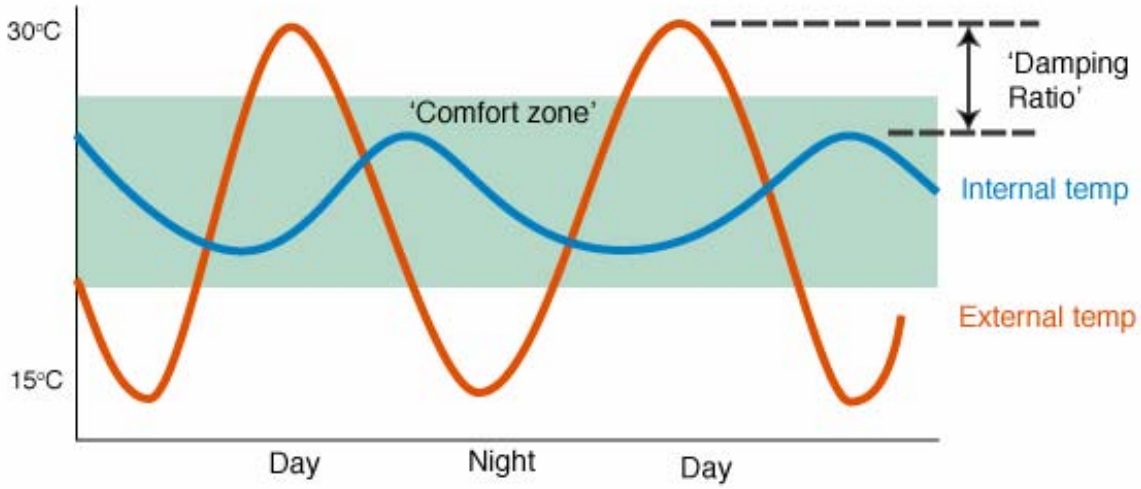
- Thermal Walls
- Thermal Mass
- Construction de

The Low-Carbon House: Thermal Mass

- Thermal mass acts as a 'thermal battery'
- Thermal mass plays an important role in the performance of a building by moderating fluctuations in space temperature. This role becomes more important as summer temperatures in the UK increase.
- The use of heavyweight construction materials with high thermal mass can reduce total heating and cooling requirements.



- The diagram shows the effect of thermal mass on indoor temperature. Whilst external temperatures in summer fluctuate between wide extremes, internal temperatures are moderated by thermal mass to within an acceptable comfort zone.

- There is no necessary correlation between thermal mass and structure. Both traditional masonry and more recent timber frame methods of construction can accommodate thermal mass.

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NGS GreenSpec Refurbishment

On the GreenSpec Website

Refurbishment - Contents

Housing

- **The Quick Guide to Housing refurbishment:**
  - Context
  - Air tightness
  - Ventilation
  - Wall Insulation
  - Roof insulation
  - Ground floor insulation
  - Windows and doors *(to be published)*
  - Heating *(to be published)*
  - Water conservation *(to be published)*

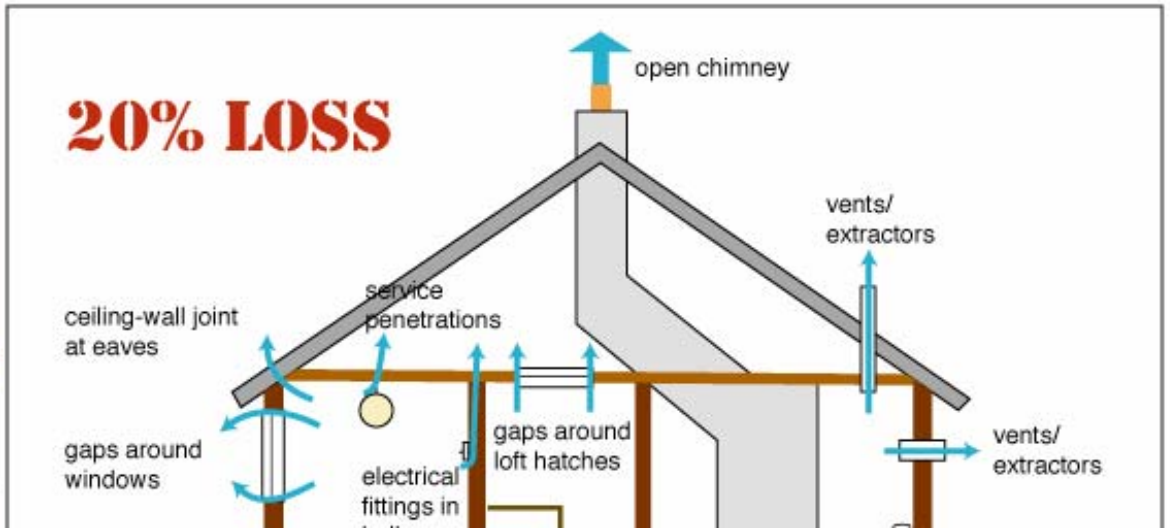
- **Ongoing case study:** Carshalton Grove by Parity Projects

Housing refurbishment: Airtightness

Issues

- 'Build tight, ventilate right'
- Airtightness refers to the 'leakiness' of the building fabric
- 'Leakiness' is responsible for around 20% of heat loss from space heating
- Air filtration is the uncontrolled flow of air through the building fabric
- Air infiltration is unacceptable as a form of ventilation
- A 'culture' of airtight construction needs to be engendered throughout the design and construction process
- EST 'Best Practice' air permiability is $5m^3/h/m^2$. Best practice for dwellings with balanced mechanical ventilation is $3m^3/h/m^2$ (based on CIBSE TM23 2000).

Where it all goes.....



Housing refurbishment:
- Context
- Air tightness
- Ventilation
- Wall insulation
- Roof insulation
- Ground floor insulation

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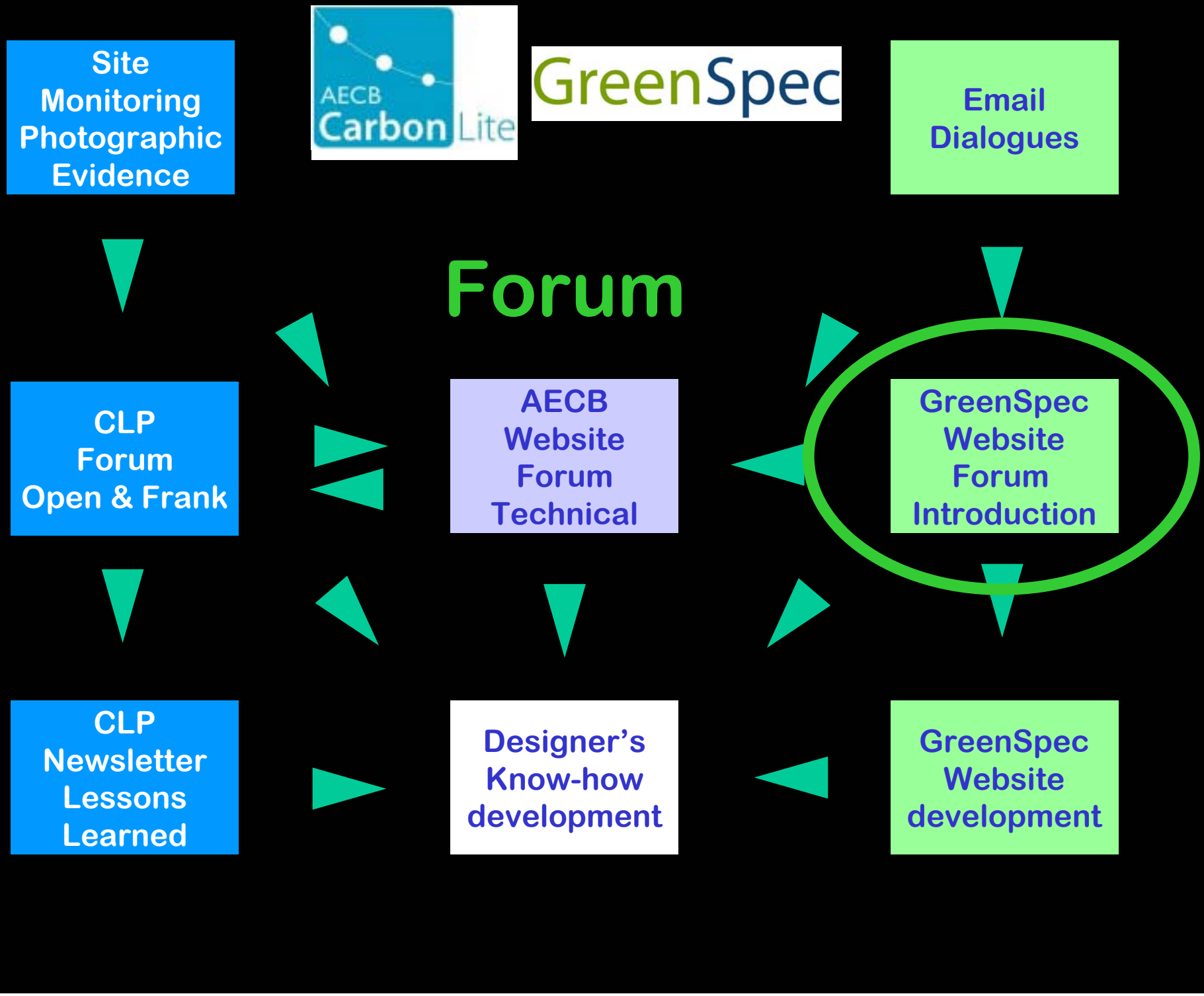
Site
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Photographic
Evidence
AECB
Carbon Lite
GreenSpec
Email
Dialogues
Forum
CLP
Forum
Open & Frank
AECB
Website
Forum
Technical
GreenSpec
Website
Forum
Introduction
CLP
Newsletter
Lessons
Learned
Designer's
Know-how
development
GreenSpec
Website
development

GreenSpec forum

Welcome Guest (Log In | Register)

GreenSpec Forums

Welcome back; your last visit was: *Today, 10:13 AM*

User Name ••••••

GO

General

Forum	Topics	Replies	Last Post Info
General issues For postings concerning issues not yet covered by forums listed below	4	4	May 31 2007, 03:48 PM **In:** Network across the value chain **By:** amythink

Help/advice needed

Forum	Topics	Replies	Last Post Info
Help with finding materials / components / products Use this forum if you want help in finding particular materials and products	4	3	Jun 14 2007, 07:32 AM **In:** Rainwater goods **By:** BrianSpecMan
Help with design / construction Use this forum if you need advice with design / construction	6	21	May 28 2007, 09:31 AM **In:** U-values for low impact materi... **By:** Guest_BrianSpecMan_*

Government policies

Forum	Topics	Replies	Last Post Info
Code for Sustainable Homes - the Government's new initiative to drive a sustainable housing industry	1	1	Jan 26 2007, 10:18 AM **In:** Does it have teeth? **By:** Mr Sustainable

GreenSpec forum

Flooring insulation

Options

Philippa	Jun 4 2007, 11:03 AM	Post #1
Guests	I am interested in installing underfloor heating in our ground floor. We have concrete beam and block with screed. We don't want to raise the height of the floor too much, or go to all the time and trouble of removing the exsiting screed. I like the look of the variocomp flooring, (which seems designed for just this purpose) however, I know it still requires insulastion. What is the minimum hieght of insulation we could use? Also, does the overall level of insulaton need to be less if we give up the idea of UFH and go for radiators?	

TOP QUOTE REPLY

Enter Keywords Search Topic

« Next Oldest · **Products, components and materials** · Next Newest »

FASTREPLY ADDREPLY NEWTOPIC

1 User(s) are reading this topic (1 Guests and 0 Anonymous Users)

0 Members:

|-- Products, components and materials Go

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Low Carbon House Design Articles

CPD

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CPD Seminars

GreenSpec offers a comprehensive collection of CPD seminars. To date, the organisation has run several hundred successful events including those involving architects, structural and civil engineers, surveyors, interior designers, contractors, interiors designers, landscape architects, planners and product manufacturers.

What people have said:

'I have been to many sustainability events and paid lots of money and got nothing useful out of it. This is the best event I have attended. It's about real practical things I can do something about in my work. Thank you so much!'
Helen Taylor, RIBA Council

'Your infectious enthusiasm and detailed knowledge really drove the day and gave us a remarkable level of participation from the other delegates. Your presentations have provided us with a great deal of valuable information and food for thought.'
Matt Adams, Groundwork, Merton

'You have really inspired us to look at the issues you brought up and I'm sure the GreenSpec website will be getting good use'
Haverstock Associates

Seminars

Below is a list of seminars that GreenSpec can offer. It is by no means exhaustive and potential users should feel free to discuss their particular needs.

1 What sustainability means to you

Includes looking at definitions, differentiating sustainable from conventional construction, design, specification and materials.

GreenSpec CPD

- 510 PowerPoint files created
- Recording 6 years of learning and 30 years of experience
- Sustainability, Environmental, Specification and Procurement
- Presented to any audience including student Architects and Technologists at BSc to MSc, Architects CPD, etc.

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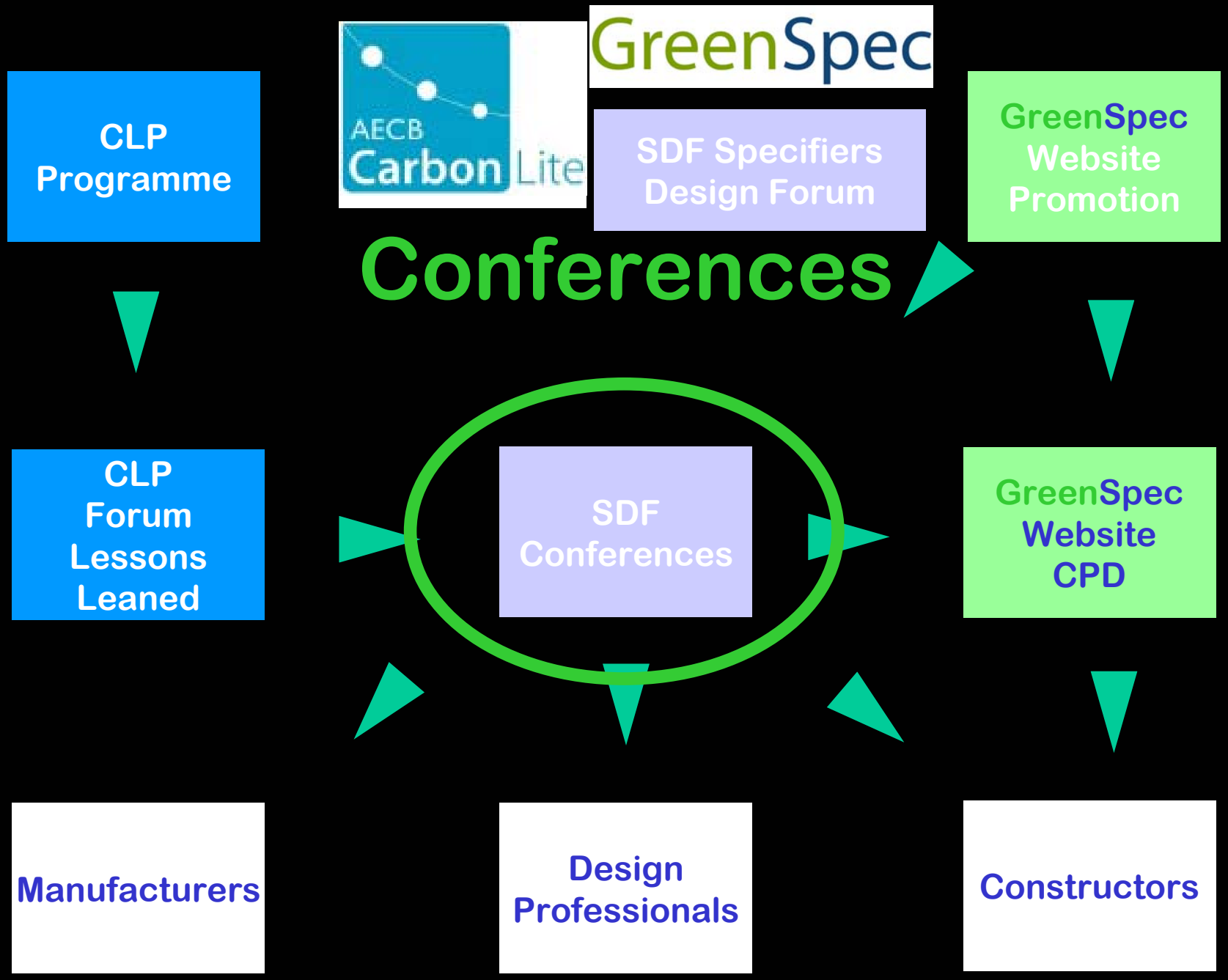
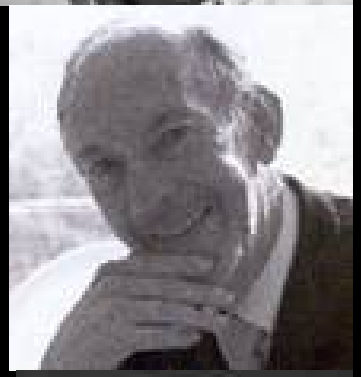
SDF "Specifiers' Design Forum" Conferences



Engagement with 28,000 Architects 30,000 Engineers



SPECIFIERS' DESIGN FORUM

Sponsored by:

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Following the success of the Specifiers' Design Forum 'Specification is the Design Process' in 2006 we are proud to invite you to join us in exploring

The Building Envelope Performance'
Specifiers' Design Forum 2007

Key Note speakers will show how the exterior must be made to perform while maintaining the integrity of the design vision

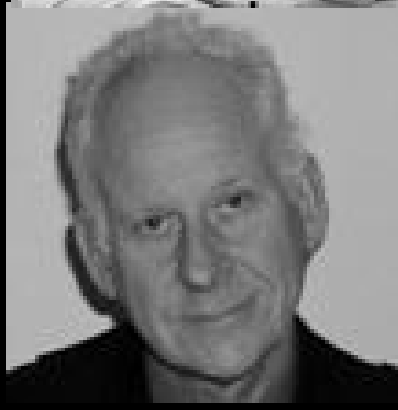
Featured Speakers:

- Mike Foster of Tooley and Foster (chairman)
- Howard de Mont of Sidell Gibson Architects (host)
- Peter Caplehorn of Scott Brownrigg Architects
- Alan Jones of SKM Anthony Hunts
- Brian Murphy, National Green Specification
- Stephen Cherry from Horden Cherry Lee
- Andrew Stanway, developer and psychologist

Thursday 29th March 2007
9am – 1pm
(Registration from 8.30am)
41 Portland Place, London W1N 4BN

Tickets cost £20 (+vat) and can be purchased using the form on the back.
For further information call the SDF team at Fuel PR on 0207 498 8211
Email- sdf@fuelrefuel.com

For more information you can also visit:
http://www.greenspec.co.uk/html/features/conference/SpecConference.html
http://www.architecture.com/go/Architecture/Events_499.html



SDF Specifiers' Design Forum Conferences

- Cheap to attend
- Topical half or whole day seminars
- Expert speakers
- Stuff useful in everyday work
- Disseminate Low Carbon House design
- Offer to disseminate CLP outputs