



The Code for Sustainable Homes Incorporating Code into local planning policy

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CLASP.

Delivered by



CPTS
Cumbria Planning
Training Service

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Overview

- Background on BRE and BREEAM
- The CSH overview
- The Future of the CSH
- Delivery of the CSH



Who we are - the BRE Group



Protecting People, Property and the Planet

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What is **breeam** ?

- BRE Environmental Assessment Method
- Certification scheme
- Voluntary
- Independent
- Holistic
- Customer focused
- Issue based



BREEAM

- The world's **longest established** and **most widely used** environmental assessment method for buildings
 - Created in 1988 and launched in 1990
- Over 230,000 buildings certified
- Network of over **2,500 independent licensed assessors** across the world

We make environmental assessment schemes
for buildings

breeam

EcoHomes ™



Building types covered

- **Code for Sustainable Homes (CSH):** new-build homes in England, Wales and NI
- **EcoHomes:** new-build homes in Scotland
- **BREEAM for Domestic Refurbishments:** domestic refurbishments in the UK
- **BREEAM:** All other non-domestic projects (new-build, major refurbishments, fit-out...), anywhere in the world
- **BREEAM Communities:** for new-build domestic or mixed developments of over 50 units, anywhere in the world

Drivers

- **Building Regulations**
 - Towards zero carbon from 2019 for all buildings
- **UN Framework Convention on Climate Change & Kyoto Protocol**
 - Legally binding commitments for the reduction of greenhouse gases
- **EU Renewable Energy Directive 15**
 - 15% of energy consumption should be from renewable sources by 2020
- **Climate Change Act 2008**
 - Places a legal obligation on Government to reduce carbon dioxide emissions by at least 80% by 2050 and 26% by 2020, against a 1990 baseline, with the trajectory defined by a system of five year carbon budgets
- **Planning System**
 - Increasing numbers of local planning authorities specifying sustainability requirements within planning policy

BREEAM Categories

Management



Health & Wellbeing



Energy



Transport



Water



Materials



Waste



Land Use & Ecology



Pollution



Outline of BREEAM Communities

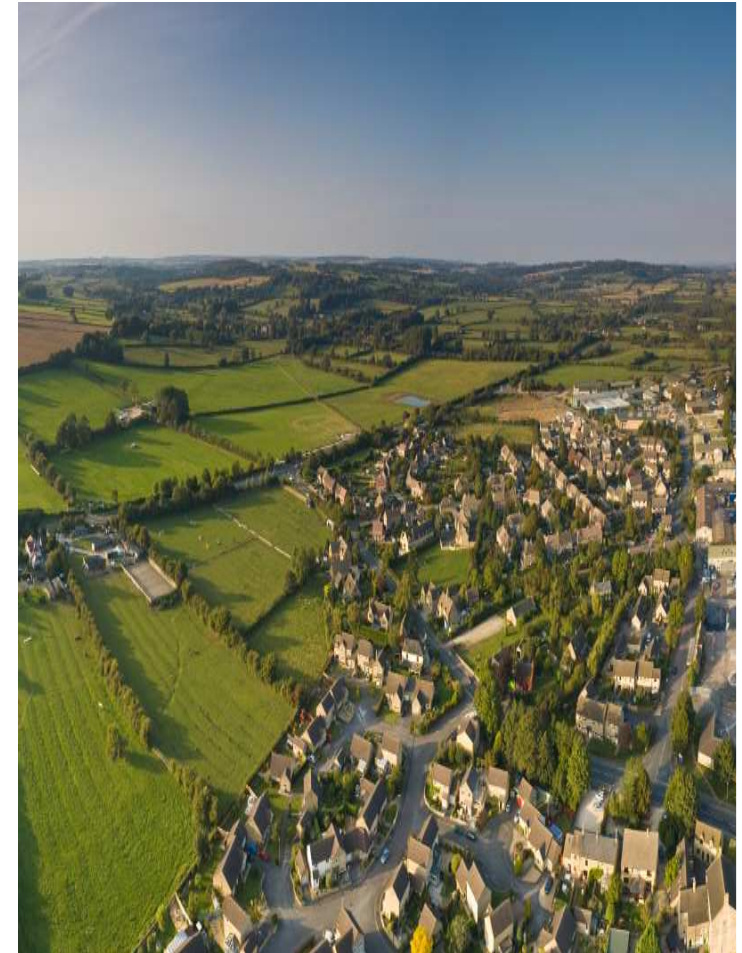
Eight categories of sustainability assessment that cover:

- Environmental
- Social
- Economic

Initial Focus – Planning Application Stage of Development Management Process

Reflects local variations and requirements of the region

Enables developers to address, and planners to implement, planning policies and regulations with ease



Sustainability in Local Government Buildings



Bletchley Leisure Centre

“Achieving BREEAM Excellent was absolutely central to our requirements for the new leisure centre. This has provided a significant reduction in running costs and therefore Council subsidy, and is ultimately one of the key measures that has helped the Council to save over £3 million in revenue funding during a 15 year period.” *Paul Sanders, Milton Keynes Council*



Ceredigion County Council Offices

“Our employees are proud of their new office with its sustainable credentials and excellent working environment. The building is significantly cheaper to run than the seven Georgian and Victorian buildings previously occupied in Aberystwyth. Following its success, Ceredigion County Council is giving greater emphasis to achieving high BREEAM ratings on future developments.” *Martin Severs, Ceredigion County Council*

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- **The CSH overview**
- The Future of the CSH
- Delivery of the CSH





■ Energy ■ Water ■ Materials ■ Surface Water Run-Off ■ Waste ■ Pollution ■ Health and Wellbeing ■ Management ■ Ecology

Weighted categories

Protecting People, Property and the Planet

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Issues

Categories	No. Issues	Example
Energy and CO2 emissions	9	Drying Space
Water	2	Indoor Water Use
Materials	3	Environmental Impact of Materials
Surface Water Run-off	2	Flood Risk
Waste	3	Composting
Pollution	2	GWP of Insulants
Health and Well-being	4	Daylighting
Management	4	Considerate Constructors Scheme
Ecology	5	Ecological Value of Site
TOTAL:	34	-

Minimum standards

Categories	Flexibility
Energy Efficiency	Four levels of minimum standards one for each level of the Code (level 3-6)
Water Efficiency	Three levels of minimum standards each covering two levels of the Code
Materials	A single basic standard at Code entry level:
Surface Water Run Off	
Waste	
Pollution	
Health & Well-Being	Lifetime homes for Level 6
Management	
Ecology	



Code for Sustainable Homes
Technical Guide
November 2010



Issue ID	Description	No. of Credits Available	Mandatory Elements
Ene 4	Drying Space	1	No

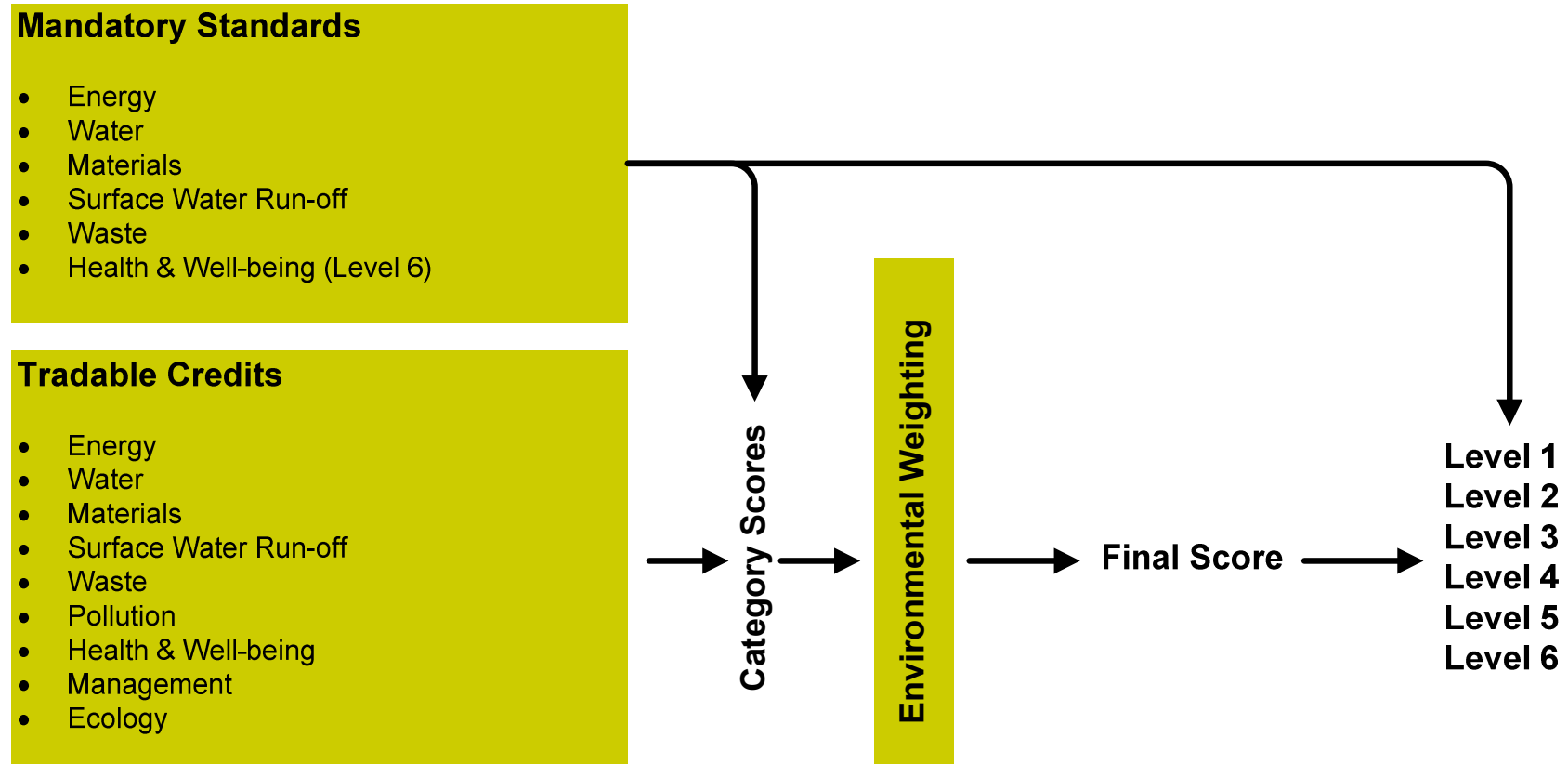
Aim

To promote a reduced energy means of drying clothes.

Assessment Criteria

Criteria	Credits
Where space and equipment are provided for drying clothes: <ul style="list-style-type: none">For 1 – 2 bedroom dwellings, the drying equipment must be capable of holding 4m+ of drying lineFor 3+ bedroom dwellings, the drying equipment must be capable of holding 6m+ of drying line The drying space (internal or external) must be secure	1
Default Cases None	

How Scoring works in the Code

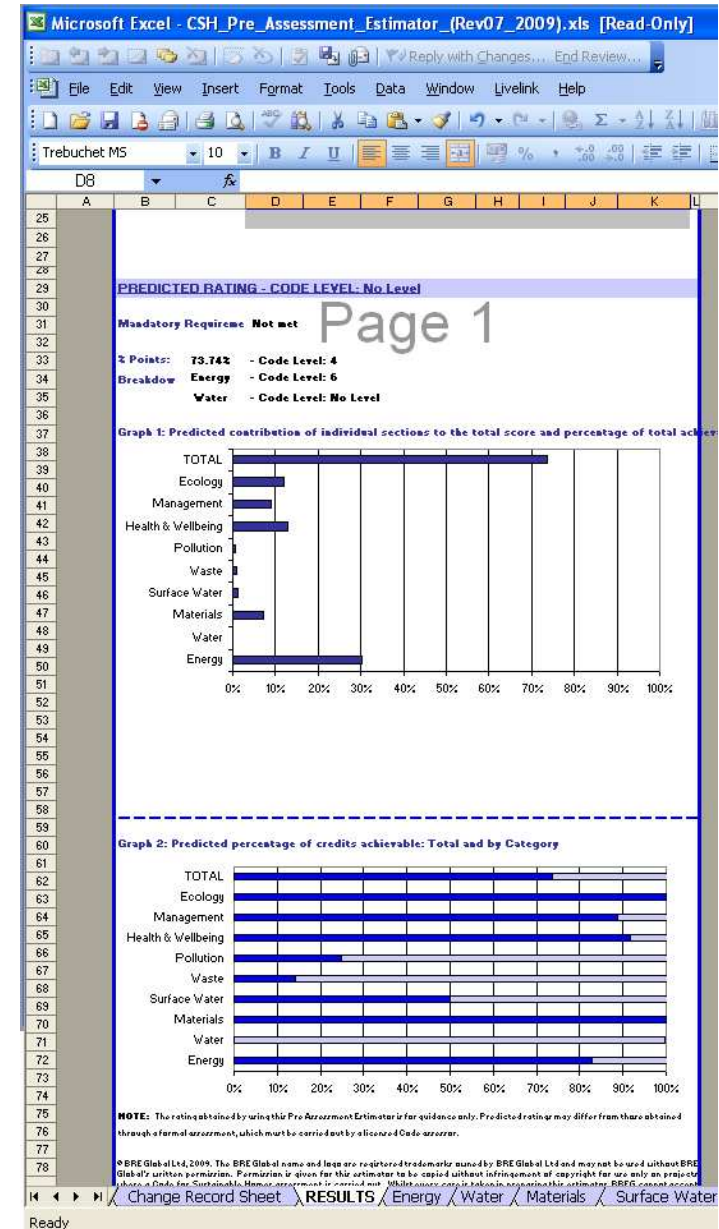


Total points score

Code Levels	Total Percentage Points out of 100 (equal to or greater than):
Level 1 (★)	36 Points
Level 2 (★★)	48 Points
Level 3 (★★★)	57 Points
Level 4 (★★★★)	68 Points
Level 5 (★★★★★)	84 Points
Level 6 (★★★★★★)	90 Points

CSH Pre-assessment estimator


- Gives assessors and their clients an early indication of possible credits
- Helps to map out CSH/BREEAM 'achievement strategy' and weigh-up different design solutions
- Is not audited or certified



CSH Design Stage Certificate – ‘Interim’

THE CODE FOR SUSTAINABLE HOMES

INTERIM CERTIFICATE
(Issued at the Design Stage)



ISSUED TO:
Plot 1, Sneyd Street,
Leek, Staffordshire
ST13 5HP

The sustainability of this home has been independently assessed at the Design Stage and has achieved a Code rating of 3 out of 6 stars under the October 2007 version.

★ ★ ★ ☆ ☆ ☆



Above Regulatory Standards Current Best Practice Highly Sustainable and Zero Carbon

The next page sets out how this home achieved its rating in the nine categories.

Licensed Assessor XXXXXXXXXXXXXXXXXXXXXXXXXXXX	Assessor Organisation XXXXXXXXXXXXXXXXXXXXXXXXXXXX
Client XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX	Developer XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXX	Certificate Number BRE-XXXXXXX-CSH-DS-XXX-9999
Date 99xxx XXXXXXXXXXXX 9999	Signed for and on behalf of BRE Global Ltd


[Signature]

This certificate remains the property of BRE Global Ltd and is issued subject to terms and conditions. Copies can be made for the purposes of the Home Information Packs. It is produced from data supplied by the licensed Code assessor (a 'certified' competent person under Scheme Document ID 123). To check the authenticity of this certificate, please contact BRE Global Ltd.

THE CODE FOR SUSTAINABLE HOMES

INTERIM CERTIFICATE
(Issued at the Design Stage)



Certificate Number: BRE-XXXXXXXXX-CSH-DS-XXX-9999 Score: XXX

What Your Code Star Rating Means

Combined Score	36-47	48-56	57-67	68-83	84-89	90-100
Stars	1	2	3	4	5	6



The Code for Sustainable Homes considers the effects on the environment caused by the development and occupation of a home. To achieve a star rating a home must perform better than a new home built to minimum legal standards, and much better than an average existing home.

How this home scored

Category	Percentage of Category Score attained										What is covered in the category
	0	10	20	30	40	50	60	70	80	90	
Energy	[Bar chart showing 55% attainment]										Energy efficiency and CO ₂ saving measures
Water	[Bar chart showing 66% attainment]										Internal and external water saving measures
Materials	[Bar chart showing 54% attainment]										The sourcing and environmental impact of materials used to build the home
Surface Water Run-off	[Bar chart showing 50% attainment]										Measures to reduce the risk of flooding and surface water run-off, which can pollute rivers
Waste	[Bar chart showing 85% attainment]										Storage for recyclable waste and compost, and care taken to reduce, reuse and recycle construction materials
Pollution	[Bar chart showing 100% attainment]										The use of insulation materials and heating systems that do not add to global warming
Health & Wellbeing	[Bar chart showing 50% attainment]										Provision of good daylight quality, sound insulation, private space, accessibility and adaptability
Management	[Bar chart showing 77% attainment]										A Home User Guide, designing in security, and reducing the impact of construction
Ecology	[Bar chart showing 44% attainment]										Protection and enhancement of the ecology of the area and efficient use of building land

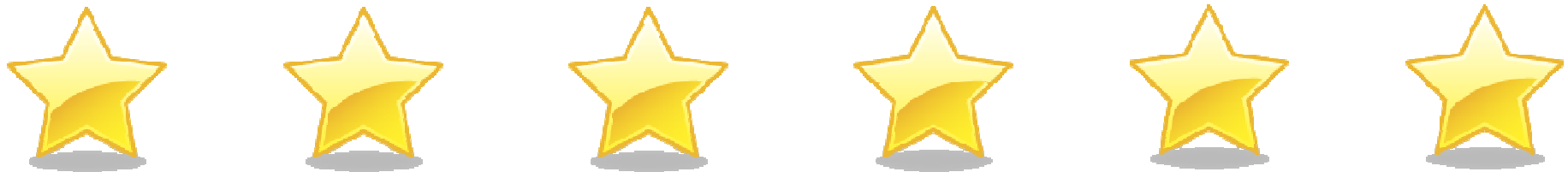
Further detailed information regarding The Code for Sustainable Homes can be found at www.communities.gov.uk/thecode

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Post Construction Stage

- 'Final' Code Certificates can only be issued after the Post Construction Assessment is complete and passes quality assurance



Certificate

- Certificate presents:
 - Details of the development
 - Overall rating and score
 - Breakdown of score by category
 - EPC CO₂ rating

THE CODE FOR SUSTAINABLE HOMES

FINAL CERTIFICATE
(issued at the post construction stage)

What Your Code Star Rating Means

The Code considers the effects on the environment caused by the development and occupation of a home. To achieve a star rating a home must perform better than a new home built to minimum legal standards, and much better than an average existing home.

How this home scored											
Category	Percentage % of score attained										What is covered in the category
	10	20	30	40	50	60	70	80	90	100	
Energy	█	█	█	█	█	█	█	█	█	█	Energy efficiency and CO ₂ saving measures
Water	█	█	█	█	█	█	█	█	█	█	Internal and external water saving measures
Materials	█	█	█	█	█	█	█	█	█	█	The sourcing and environmental impact of materials used to build the home
Surface water run off	█	█	█	█	█	█	█	█	█	█	Measures to reduce the risk of flooding and surface water run-off, which can pollute rivers
Waste	█	█	█	█	█	█	█	█	█	█	Storage for recyclable waste and compost, and care taken to reduce, reuse and recycle construction materials
Pollution	█	█	█	█	█	█	█	█	█	█	The use of insulation materials and heating systems that do not add to global warming
Health and Well being	█	█	█	█	█	█	█	█	█	█	Provision of good daylight quality, sound insulation, private space, accessibility and adaptability
Management	█	█	█	█	█	█	█	█	█	█	A Home User Guide, designing in security, and reducing the impact of construction
Ecology	█	█	█	█	█	█	█	█	█	█	Protection and enhancement of the ecology of the area and efficient use of building land

Further detailed information regarding the Code for Sustainable homes can be found at www.communities.gov.uk/thecode

CO₂ Rating

Very environmentally friendly - low CO₂ emissions

(94-100) A

(81-93) B

(69-80) C

(55-68) D

(39-54) E

(21-38) F

(1-20) G

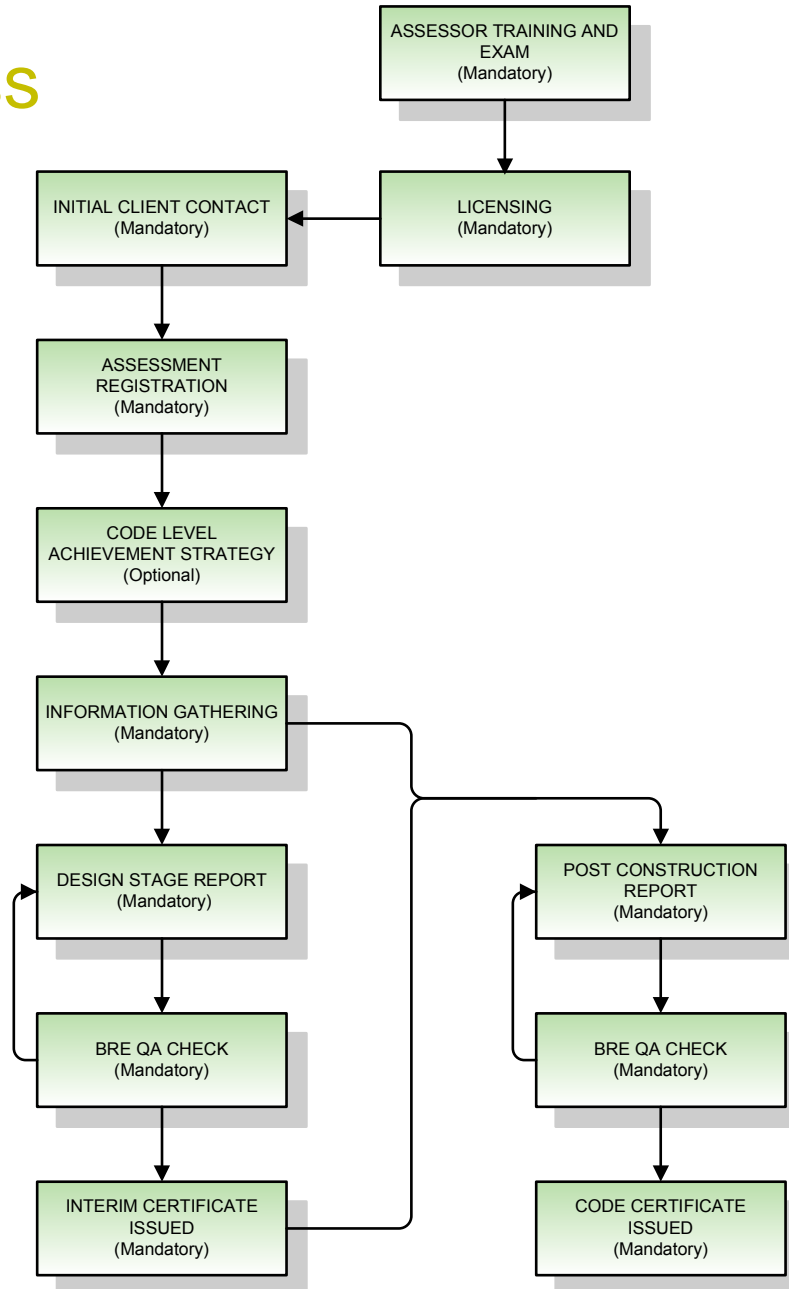
Not environmentally friendly - higher CO₂ emissions

The CO₂ rating is a measure of a home's Carbon Dioxide (CO₂) emissions. This rating is shown on your Energy Performance Certificate as the Environmental Impact Rating. This Certificate is available from the seller, and also includes information on how you can improve the home's performance.

The Code measures the sustainability of a home as a complete package, and takes into account other aspects of energy use as well as wider sustainability issues, such as water and waste.

The Environmental Impact Rating is shown here for information only and does not form part of the Code for Sustainable Homes. Neither BRE nor the assessment organisation is responsible for the accuracy of this number.

Code Process

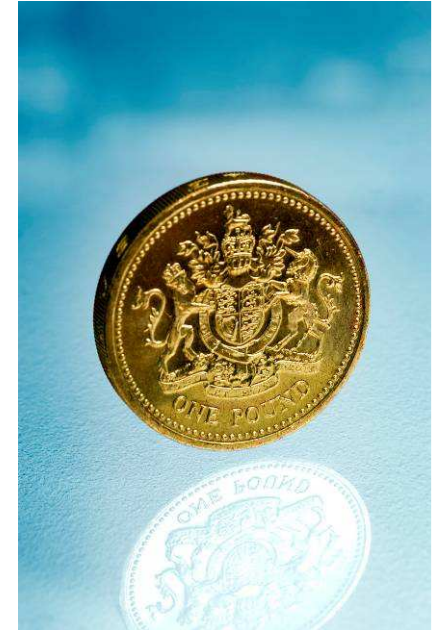


RIBA Outline Plan of Work			BREEAM / Code building certification		Stages of BREEAM communities certification
pre-agreement	PRE	Pre-agreement	BREEAM / Code Pre-Assessment Stage		BREEAM Communities Assessment and Certification
	preparation	A		Appraisal	
B		Design Brief	BREEAM / Code Design Stage Assessment		
design	C	Concept			
	D	Design Development			
	E	Technical Design			
pre-construction	F	Production Information			
	G	Tender Documentation			
	H	Tender Action			
construction	J	Mobilisation			
	K	Construction to Practical Completion		BREEAM / Code Design Stage Interim Certification	
use	L1	After Practical Completion		BREEAM / Code Post Construction Stage Assessment and Certification	
	L2	Initial Occupation Period			
	L3	Post Occupation Evaluation			

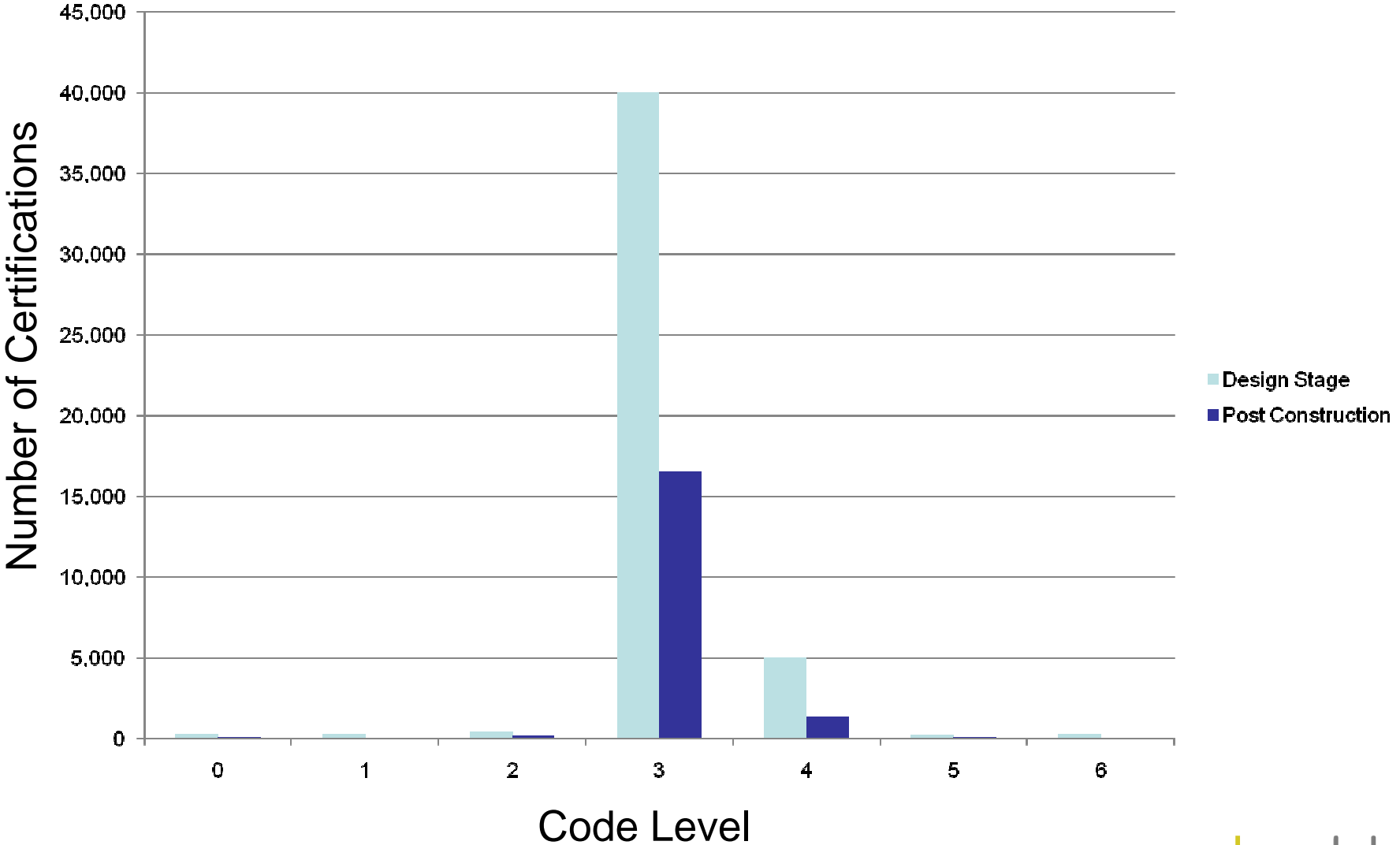
Fees

BRE fees for Code Assessments

- **£37** per dwelling (Covers both DS and PCS)
- **£370** minimum (per development/ ≤ 10 dwellings)
- This will be payable when the DS report is first submitted
- + Assessor fees – determined independently
- Annual, assessor licence fee **£375 (cost for assessor only)**.



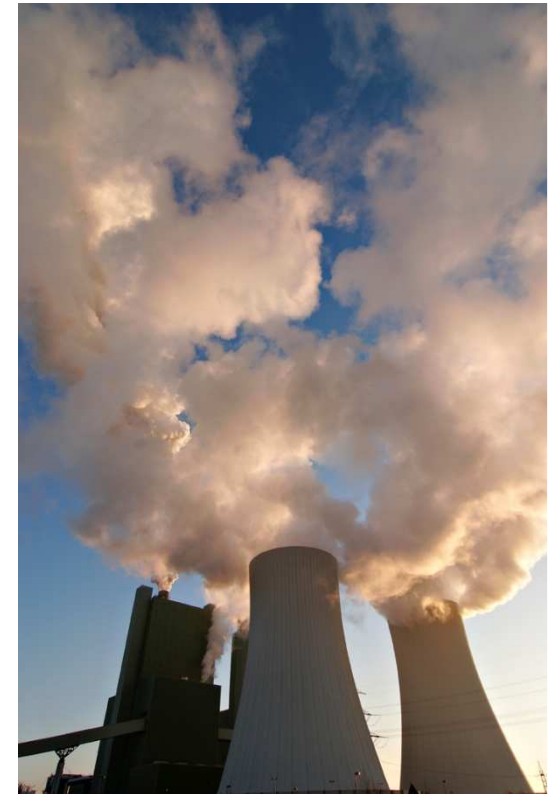
Number of CSH Certifications up to December 2010 for UK



Ene 1 - Dwelling Emission Rate

10 Credits

- % Improvement DER over TER
- DER – Dwelling Emission Rate
 - Estimated CO₂ emissions/m²
- TER – Target Emission Rate
 - Maximum allowable CO₂ emissions/m²
- Defined by Building Regulations AD L1A 2010
- Calculated using SAP 2009



Ene 1 – Dwelling Emission Rate

10 Credits

% improvement of DER over TER	Credits	Mandatory Levels
≥ 8%	1	
≥ 16%	2	
≥ 25%	3	Level 4
≥ 36%	4	
≥ 47%	5	
≥ 59%	6	
≥ 72%	7	
≥ 85%	8	
≥ 100%	9	Level 5
Zero Net CO₂ Emissions	10	Level 6

NB the tool will now award fractions of credits*




*using linear interpolation

Ene 2 – Fabric Energy Efficiency (FEE) **9 Credits**

- Focuses on the inherent properties of dwelling
- kWh/m²/year
- From SAP FEE Worksheet



Ene 2 – Fabric Energy Efficiency

Dwelling Type			
Apartment Blocks, Mid-Terrace	End Terrace, Semi-Detached & Detached		
Fabric Energy Efficiency kWh/m ² /year		Credits	Mandatory Levels
≤ 48	≤ 60	3	
≤ 45	≤ 55	4	
≤ 43	≤ 52	5	
≤ 41	≤ 49	6	
≤ 39	≤ 46	7	Levels 5 & 6
≤ 35	≤ 42	8	
≤ 32	≤ 38	9	

Wat 1 - Indoor Water Use

5 Credits

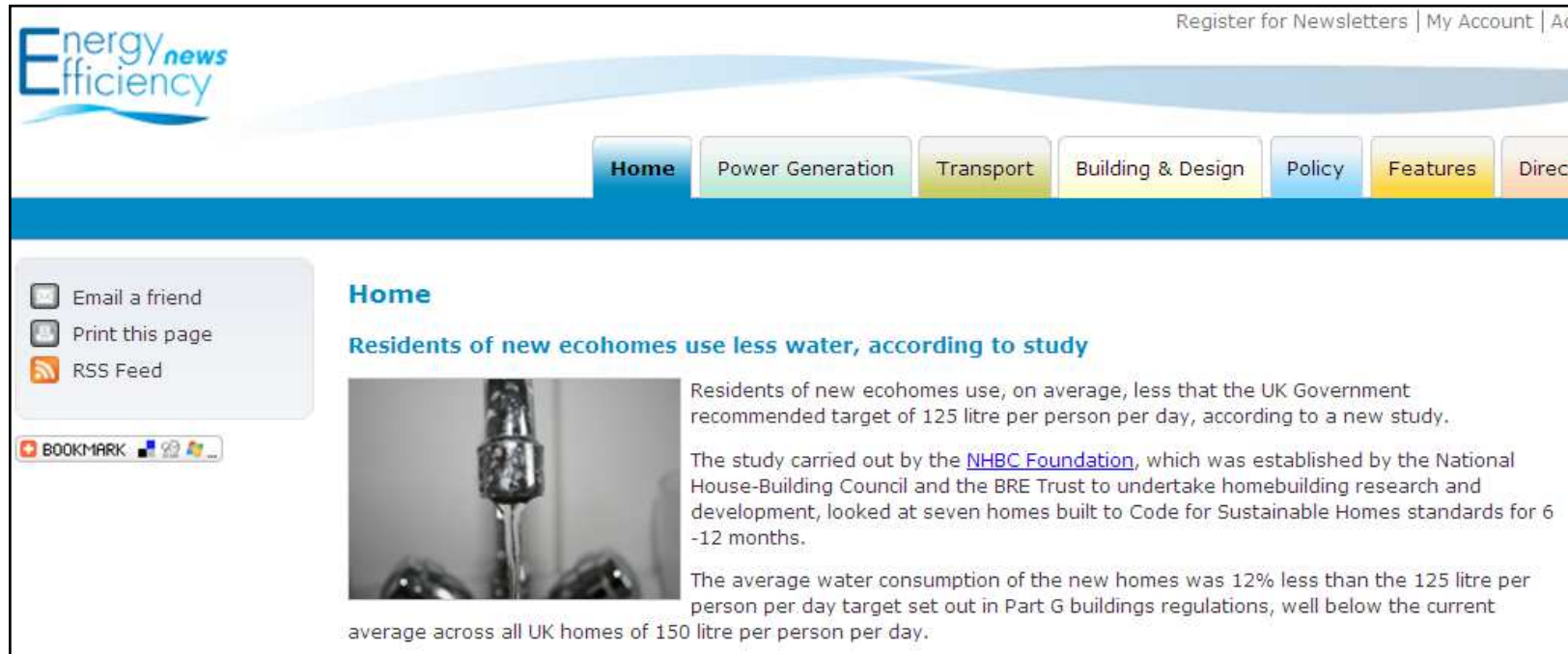
- Theoretical average water consumption, using normalised use patterns
- Measured in Litres / person / day



Wat 1 - Indoor Water Use

Water consumption (litres / person / day)	Credits	Mandatory Levels
≤120 l/p/day	1	Level 1 and 2
≤110 l/p/day	2	
≤105 l/p/day	3	Level 3 and 4
≤90 l/p/day	4	
≤80 l/p/day	5	Level 5 and 6

Proven Water Efficiency...

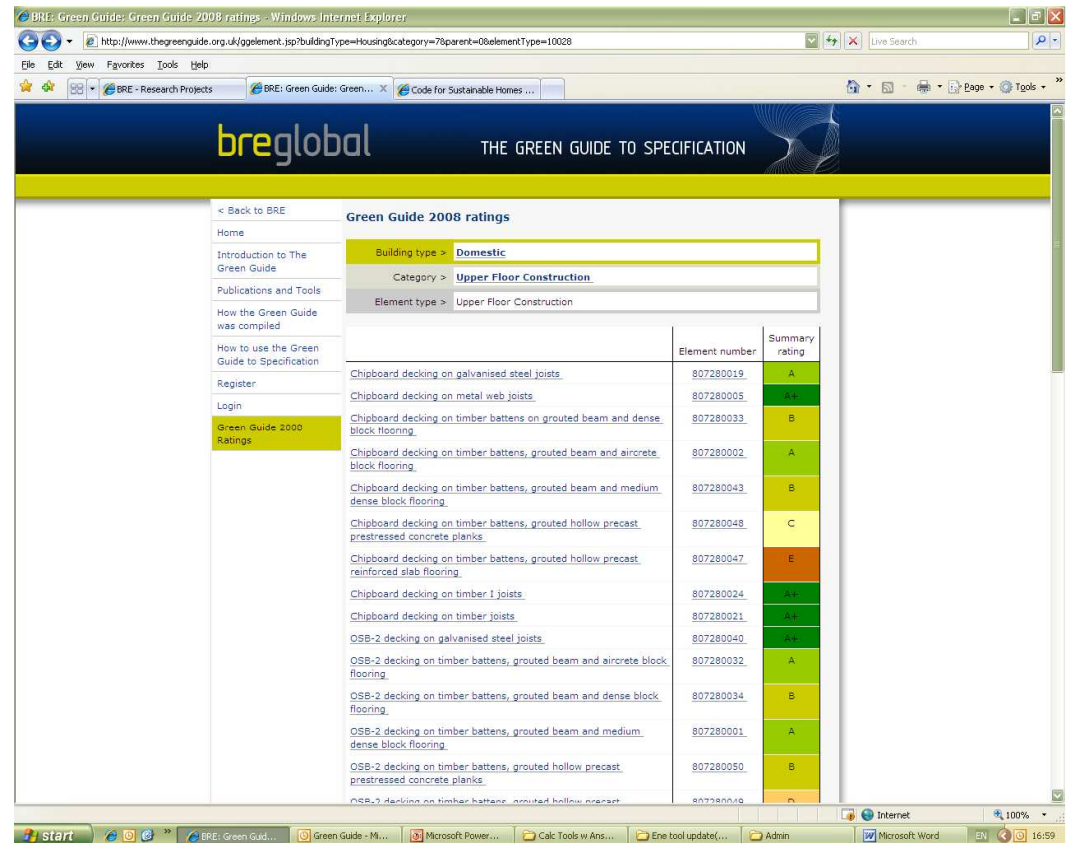


The screenshot shows the Energy Efficiency website. The top navigation bar includes links for Home, Power Generation, Transport, Building & Design, Policy, Features, and Direct. The main content area features a news article titled "Residents of new ecohomes use less water, according to study". The article includes a photo of a water tap and text stating that residents of new ecohomes use, on average, less than the UK Government recommended target of 125 litre per person per day. The study was carried out by the NHBC Foundation, which was established by the National House-Building Council and the BRE Trust to undertake homebuilding research and development, looked at seven homes built to Code for Sustainable Homes standards for 6-12 months. The average water consumption of the new homes was 12% less than the 125 litre per person per day target set out in Part G buildings regulations, well below the current average across all UK homes of 150 litre per person per day.

- Recent NHBC research confirms that the average water use for 'Eco' homes is 12% less than the 125 l/p/day target set by Building Regulations

Mat 1 - Environmental Impact of Materials

- Rates specifications based on environmental impact over life cycle
- Use Green Guide Online
- Simple to use guide
 - Elements
 - Specifications
 - A+ to E ratings



The screenshot shows the BRE Green Guide 2008 ratings website. The page is titled "Green Guide 2008 ratings" and displays a table of specifications and their environmental ratings. The table has three columns: "Element number", "Summary rating", and "Element description". The ratings range from A+ (green) to E (orange).

Element number	Summary rating	Element description
807280019	A	Chipboard decking on galvanised steel joists
807280005	A+	Chipboard decking on metal web joists
807280033	B	Chipboard decking on timber battens on grouted beam and dense block flooring
807280002	A	Chipboard decking on timber battens, grouted beam and aircrete block flooring
807280043	B	Chipboard decking on timber battens, grouted beam and medium dense block flooring
807280048	C	Chipboard decking on timber battens, grouted hollow precast prestressed concrete planks
807280047	E	Chipboard decking on timber battens, grouted hollow precast reinforced slab flooring
807280024	A+	Chipboard decking on timber I joists
807280021	A+	Chipboard decking on timber joists
807280040	A+	OSB-2 decking on galvanised steel joists
807280032	A	OSB-2 decking on timber battens, grouted beam and aircrete block flooring
807280034	B	OSB-2 decking on timber battens, grouted beam and dense block flooring
807280001	A	OSB-2 decking on timber battens, grouted beam and medium dense block flooring
807280050	B	OSB-2 decking on timber battens, grouted hollow precast prestressed concrete planks
807280046	C	OSB-2 decking on timber battens, grouted hollow precast

Mat 1 - Environmental Impact of Materials

- Assessment covers:
 - Roof
 - External walls
 - Internal walls
 - Floors
 - Windows
- Mandatory Requirement
 - 3 out of 5 named elements will need to be rated D or above
 - 3 elements which are rated D will result in compliance with the mandatory requirement, but no credits will be awarded

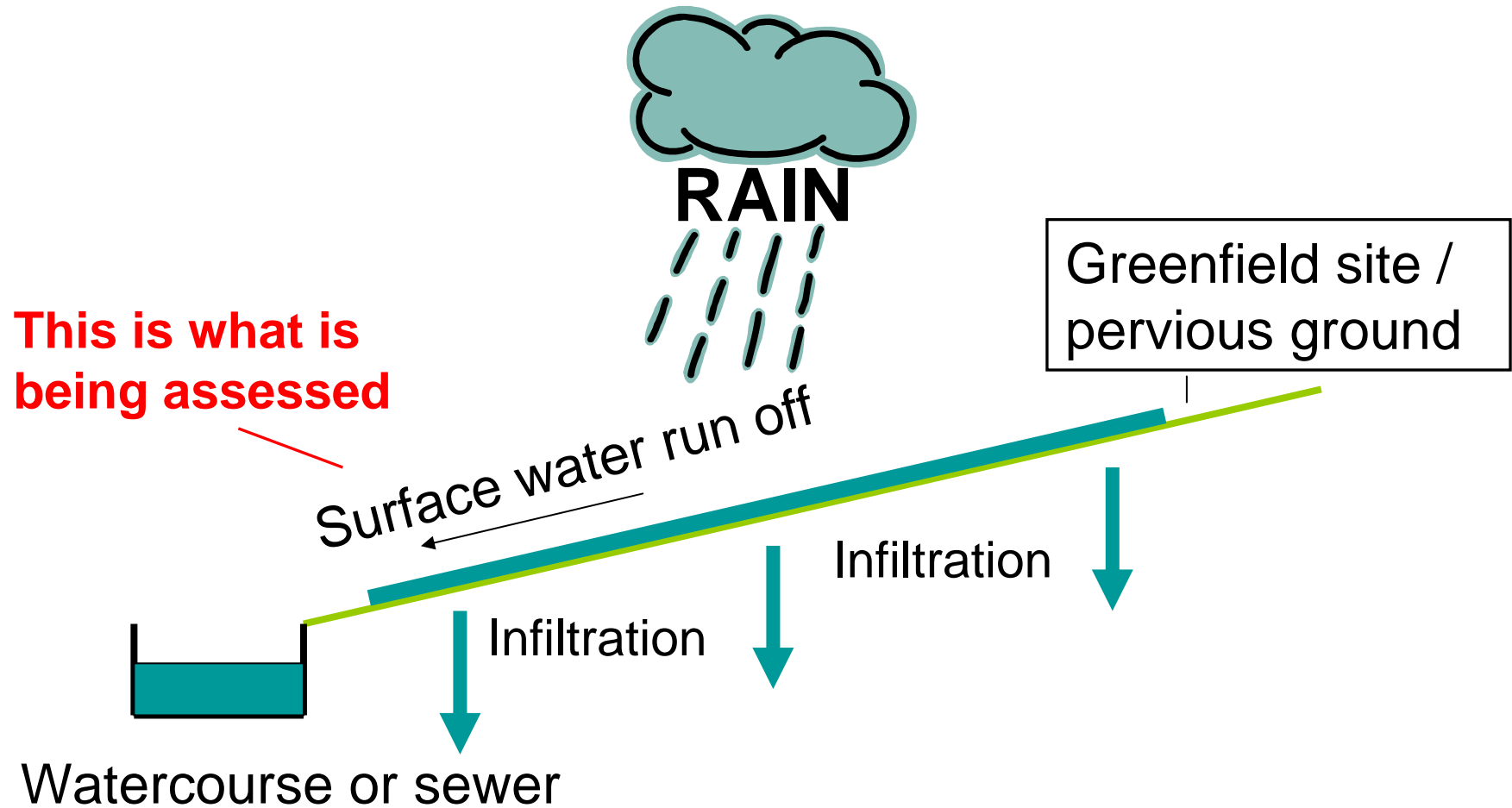


Sur 1 - Criteria Overview

Mandatory requirements:

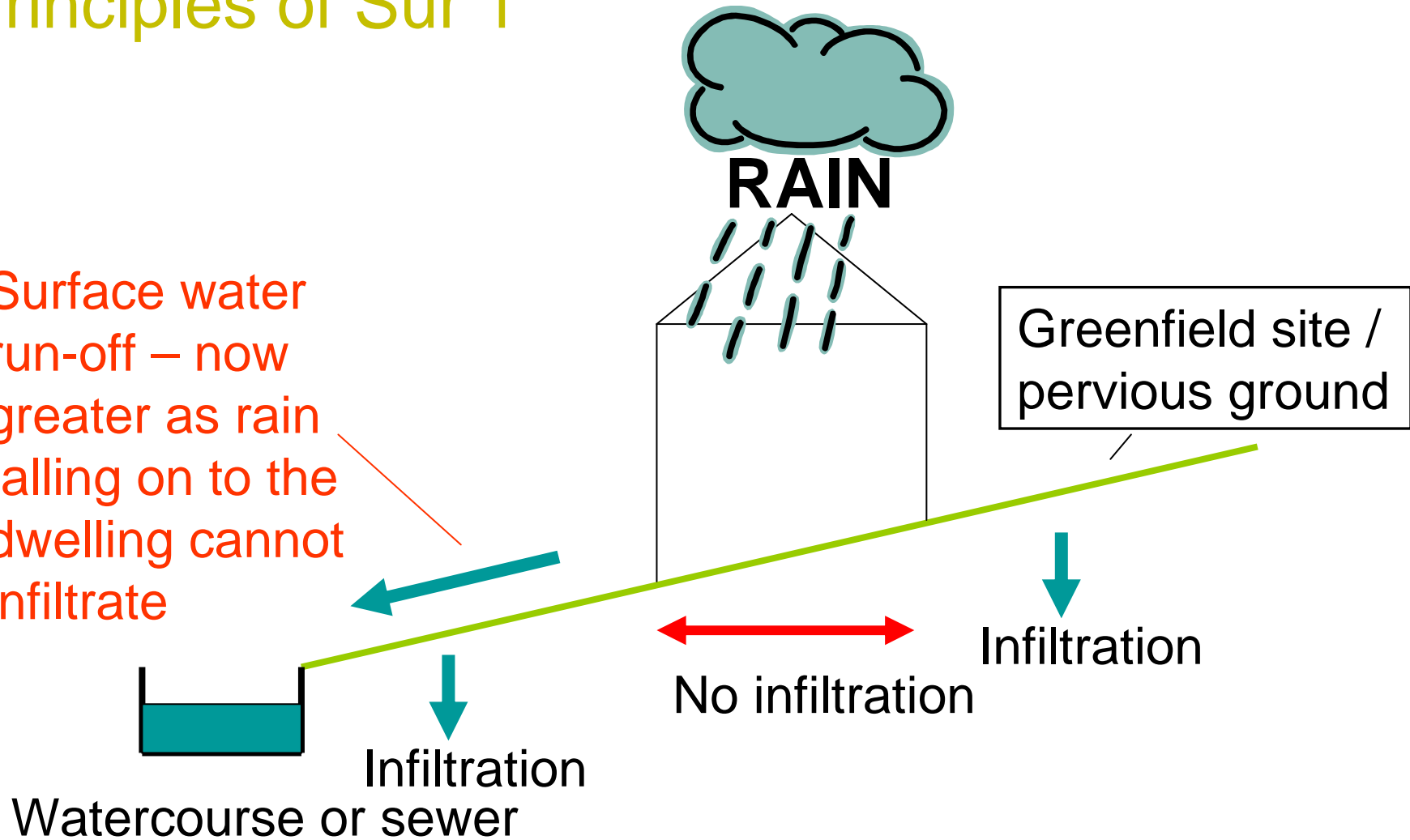
- **1 Peak rate of run off**
 - No greater than pre developed site
- **2 Volume of run off**
 - Additional volume entirely reduced
 - Infiltration or other SuDS techniques – non ‘holding back’ solutions
- **3 Designing for local drainage system failure**

Principles of Sur 1



Principles of Sur 1

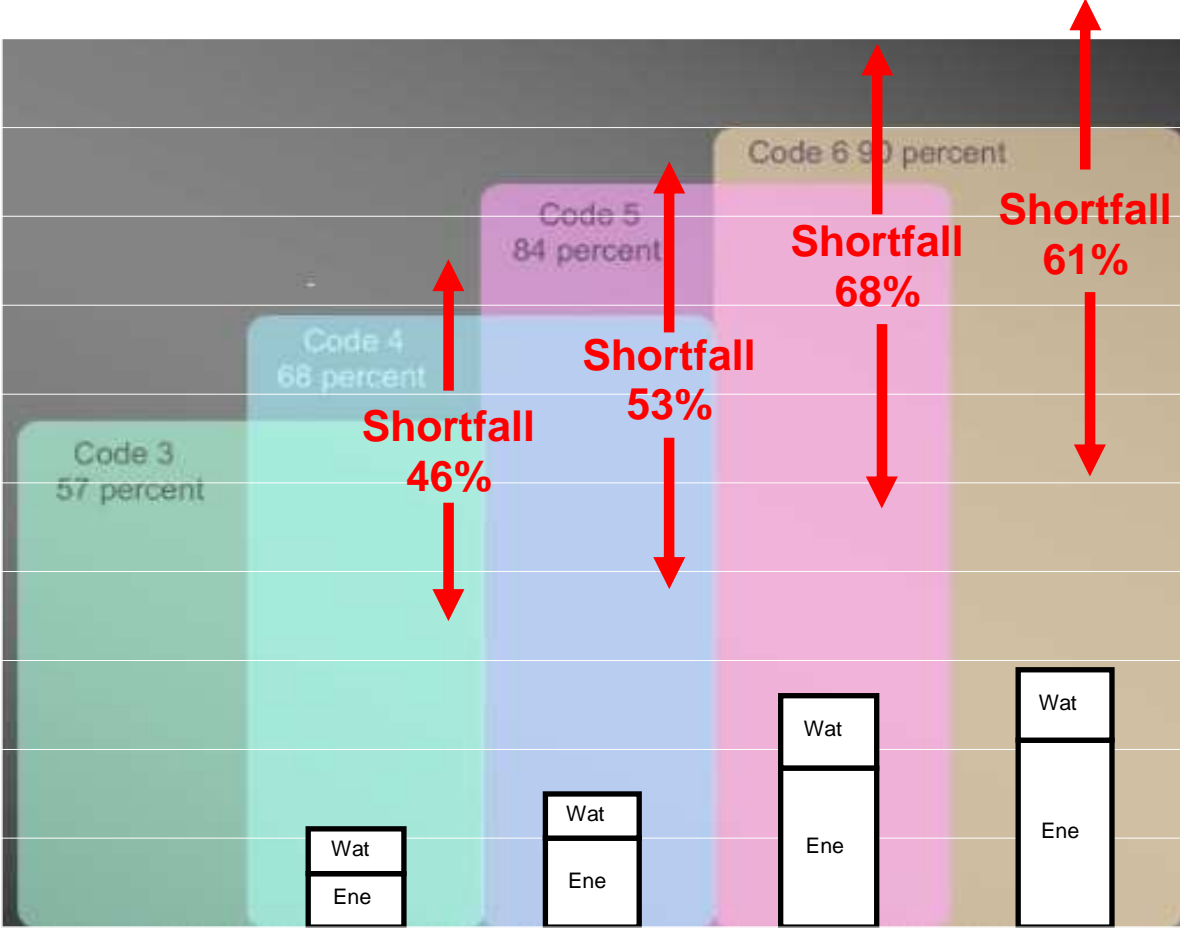
Surface water run-off – now greater as rain falling on to the dwelling cannot infiltrate



Was 1 - Storage of non-recyclable waste & recyclable household waste

- A suitable area of sufficient size to house the greatest volume of
 - EITHER*
 - All containers provided by the Local Authority (Refuse and Recycling)
 - OR*
 - The minimum capacity as calculated using BS 5906:2005
- All containers must be accessible to disabled people, particularly wheelchair users (see Checklist IDP)

What if we just do the minimum?



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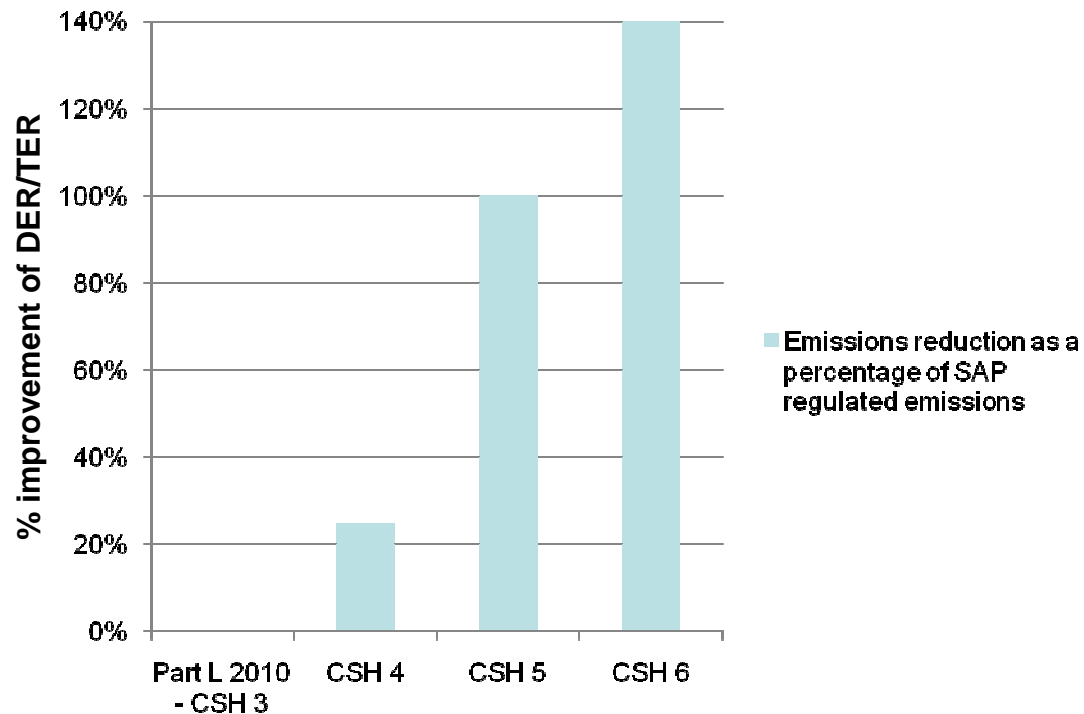


The BRE Innovation Park



Current energy levels within Code

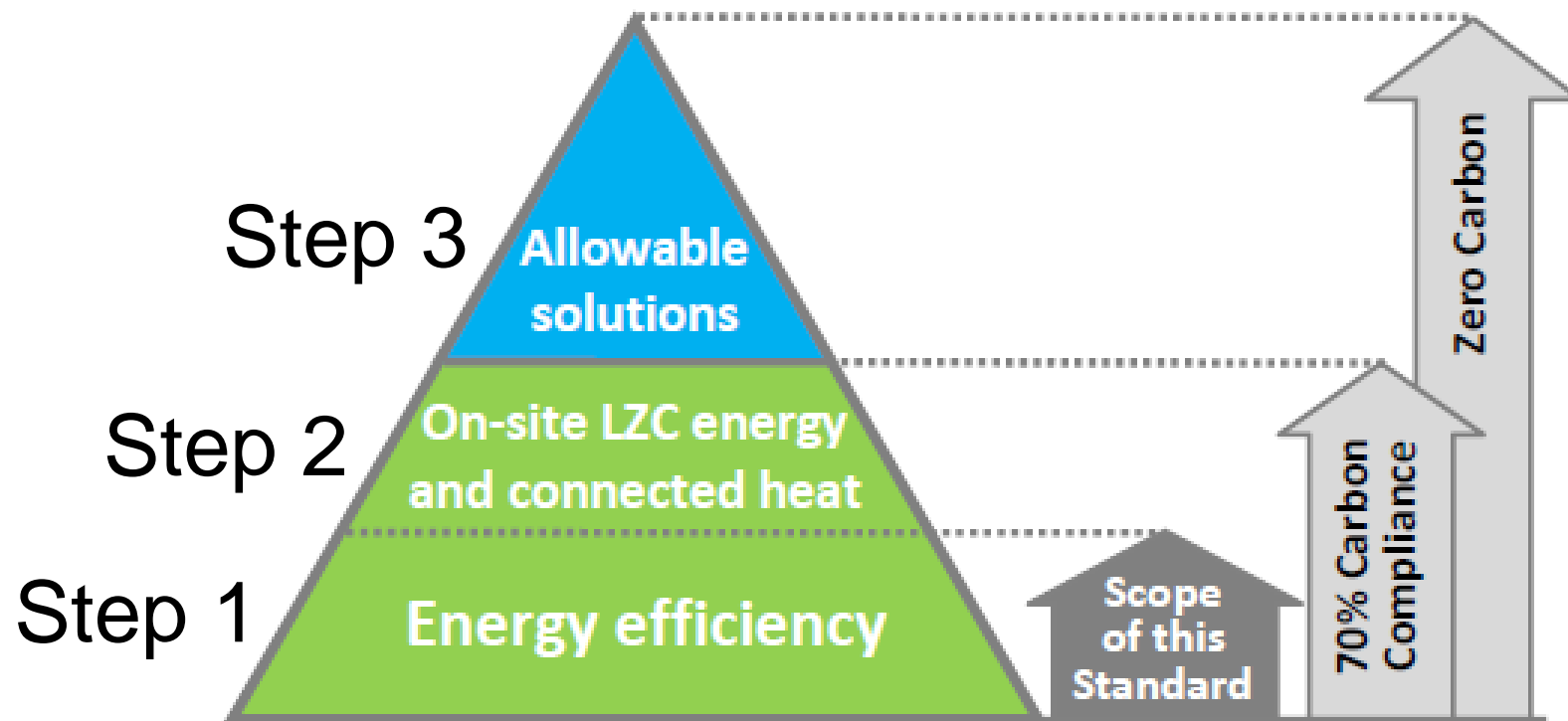
Emissions reduction as a percentage of SAP regulated emissions



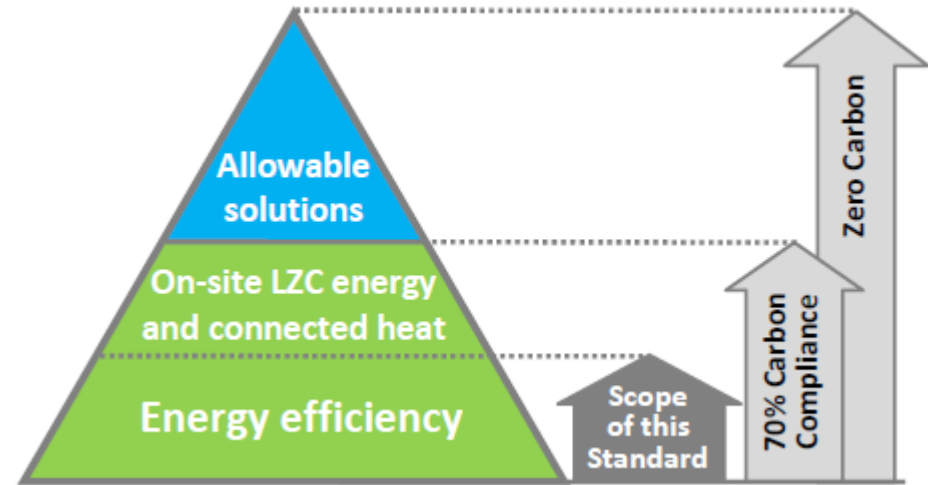
- Targets shown as a percentage of “Regulated” emissions compared to Part L 2010
- These are from heating, hot water, lighting, pumps and fans
- “Non-regulated” emissions from appliances and cooking are not included in Part L, but must be met for current CL6 – (net zero CO₂ emissions)
- These can add up to around 40% on top of SAP-regulated emissions

Definition of Zero Carbon - The Principle

Renewables should not be the first option – Fabric First...



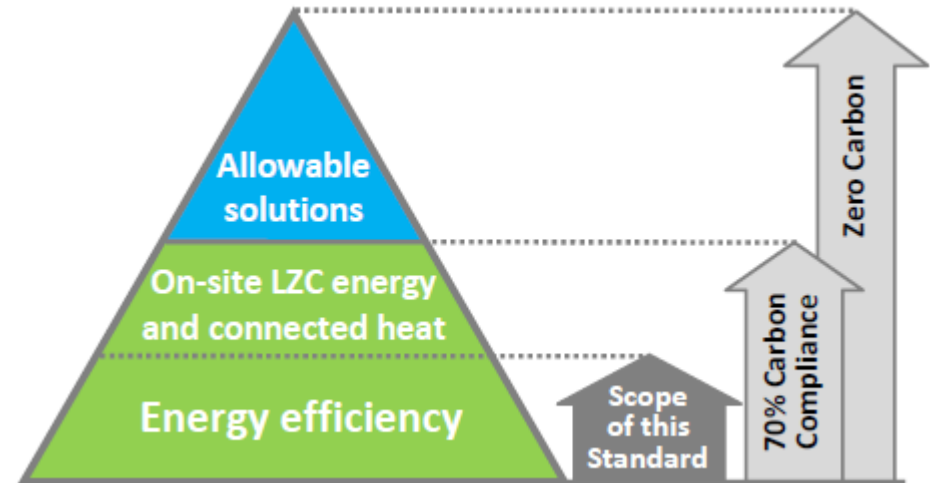
Definition of Zero Carbon – Step 1



- Fabric Energy Efficiency: Energy Demand for Space heating and cooling expressed in kWh/m²/year
- Required **minimum** performance standards will be:

Apartment block/ Mid Terrace	Semi Detach/ Detached/ End of Terrace
39 kWh/m ² /year	46 kWh/m ² /year

Definition of Zero Carbon – Step 2



Minimum Carbon Compliance Standards

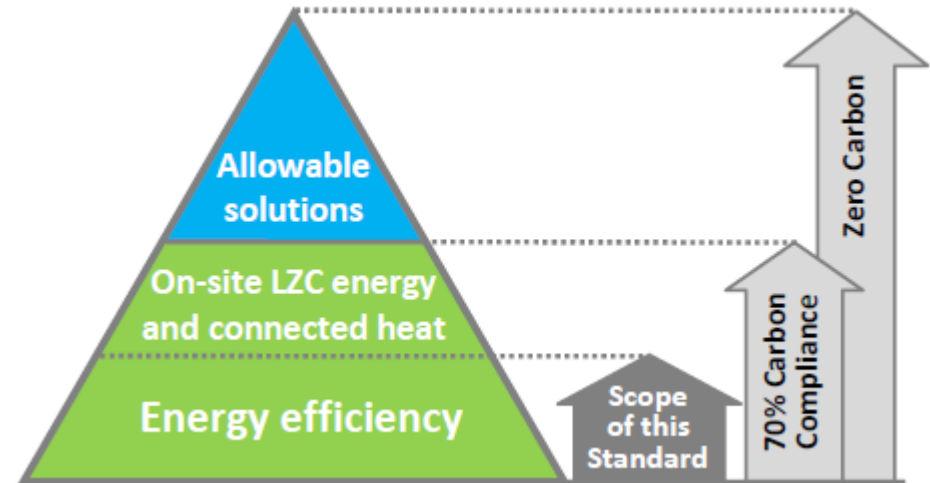
From 2016 the 'built performance' emissions from new homes should be required not to exceed the following limits: ¹

- 10 kg CO_{2(eq)}/m²/year for detached houses ^{2, 3}
- 11 kg CO_{2(eq)}/m²/year for other houses (semi-detached, terraced etc)
- 14 kg CO_{2(eq)}/m²/year for low rise apartment blocks.

- Approx. percentage improvement on 2006 Part L is therefore:
 - 60% for detached houses
 - 56% for other houses
 - 44% for low rise apartment blocks

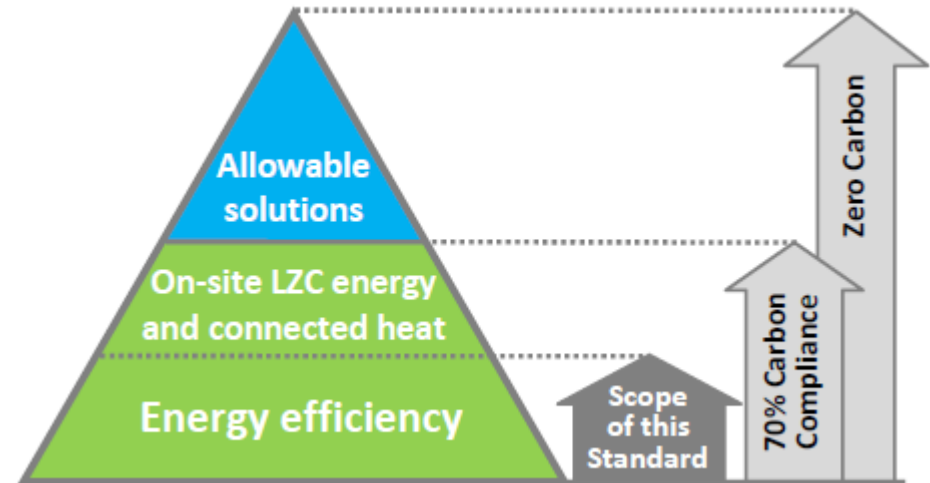
****No Longer 70% as first thought****

Definition of Zero Carbon – Step 2



- Limitations of the current definition for Step 2:
 - Not currently a standard for high rise apartment blocks, 4 storeys or more.
 - Figures are based on an as-built performance
 - Current standards look at designed performance – not a direct comparison
 - How will performance standards be demonstrated at Design Stage?

Definition of Zero Carbon – Step 3

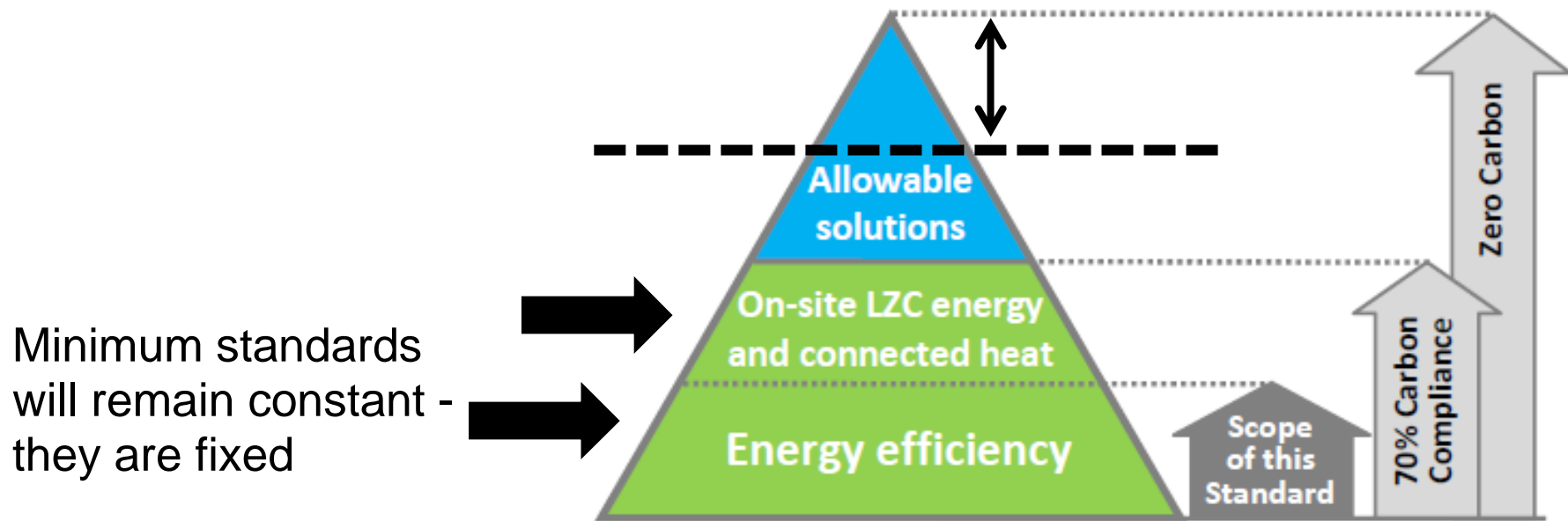


To be Announced...

- Allowable solutions secure a carbon saving away from the site.
- Likely to be community heating funds which will be managed by the Local Authority.

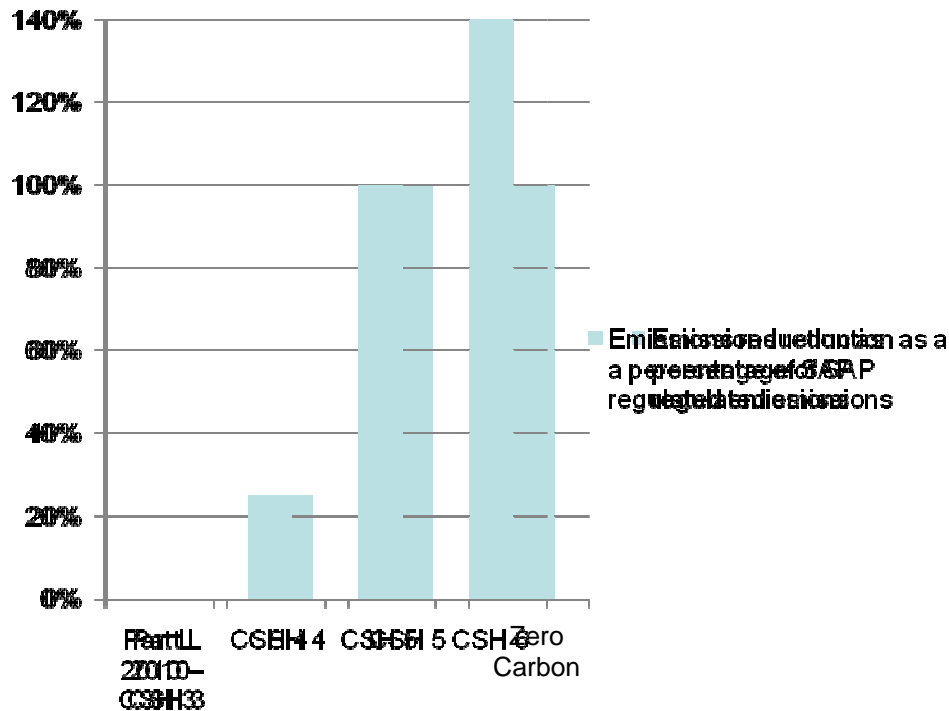
Recent announcement in the budget about ZC....

- The 'Plan for Growth' document which supported the budget statement (March 2011) claimed that emissions from 'zero carbon' homes will not take account of emissions related to cooking or appliances.



The definition of 'Zero Carbon' – Where will Code level 6 fit in?

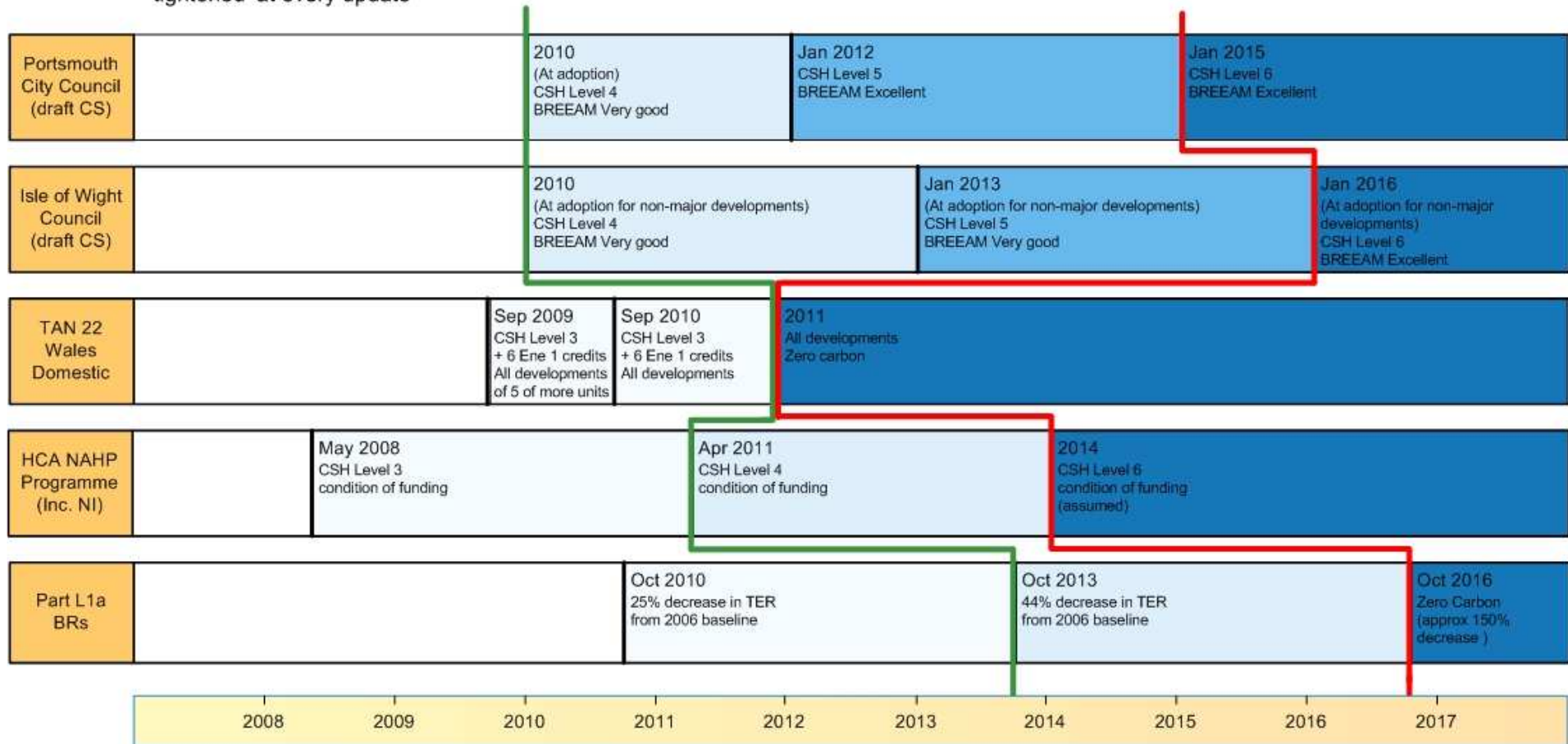
Emission reductions as a percentage of SAP regulated emissions



- The nearest current equivalent to this suggested new level is Code level 5

Welcome to localism!

Note: BREEAM Requirements typically remain static as BREEAM is 'tightened' at every update



The Merton Rule

- Developed by Merton Council in 2003
- Requires new development to generate at least 10% of their energy needs from on site renewables – (Ene 7 in CSH can be used to verify this)
- Has been adopted by several other Local Councils and the Mayor of London
- If all Local authorities across the country adopt the Merton rule it will trigger sufficient growth in the Industry to create Economies of Scale therefore reducing unit costs – More affordable for retrofitting...?

Mind the Merton (cont.)



TABLE 1

Main findings – costs and CO₂ savings

Scenario	Initial 20-year CO ₂ saving (tonnes)	60-year CO ₂ saving (tonnes)	Immediate cost (£)	60-year cost (£)	Cost per tonne of CO ₂ saved (£)
Built-fabric improvements only	163 (10.9%)	488 (10.9%)	47 787	60 546	124
Renewables only	180 (12%)	540 (12%)	101 198	283 593	525
Built-fabric improvements and renewables combined	343 (22.9%)	1028 (22.9%)	148 984	344 138	335

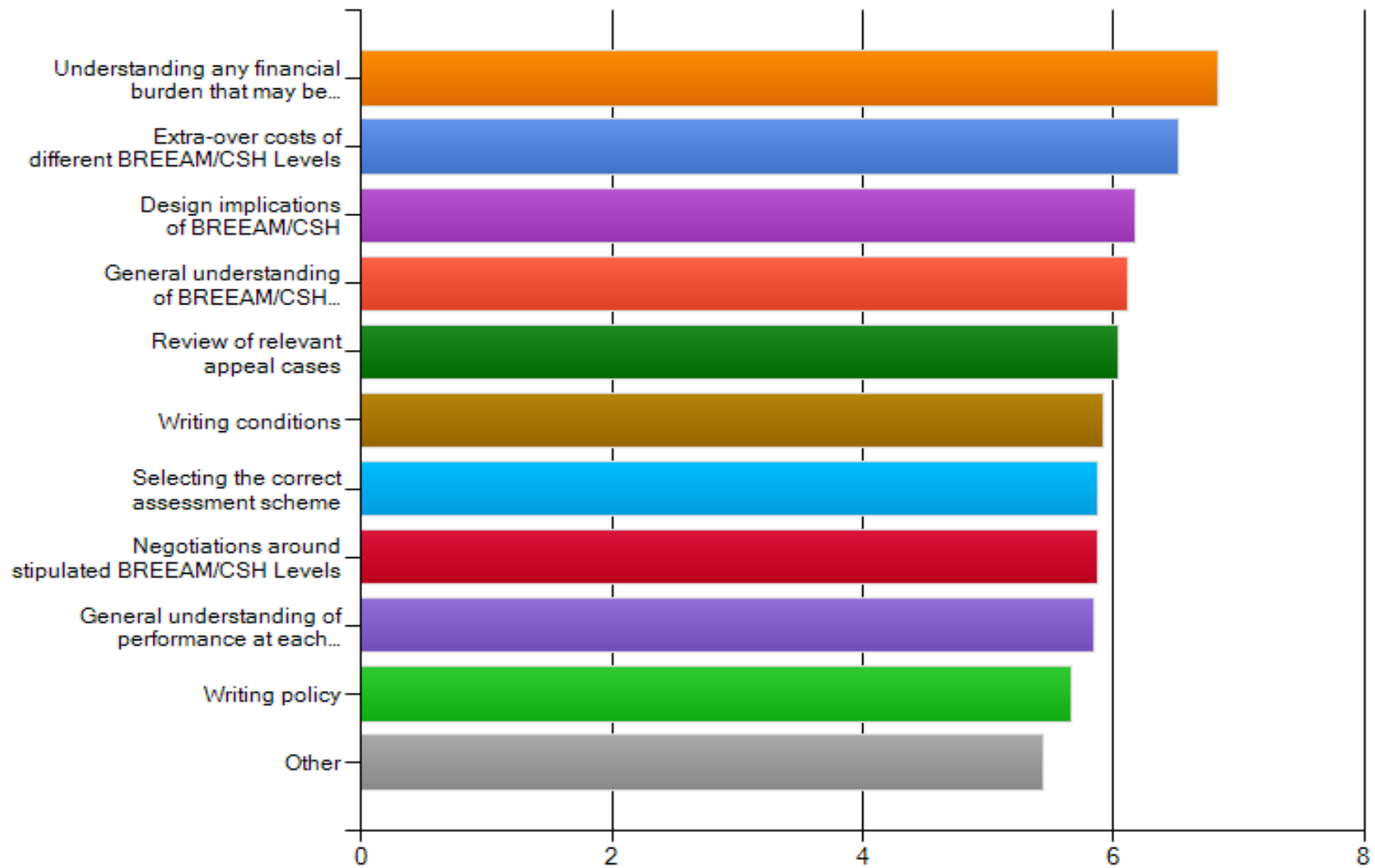
Overview

- Background on BRE and BREEAM
- The CSH overview
- The Future of the CSH
- **Delivery of the CSH**



In the end,
economics shape everything...

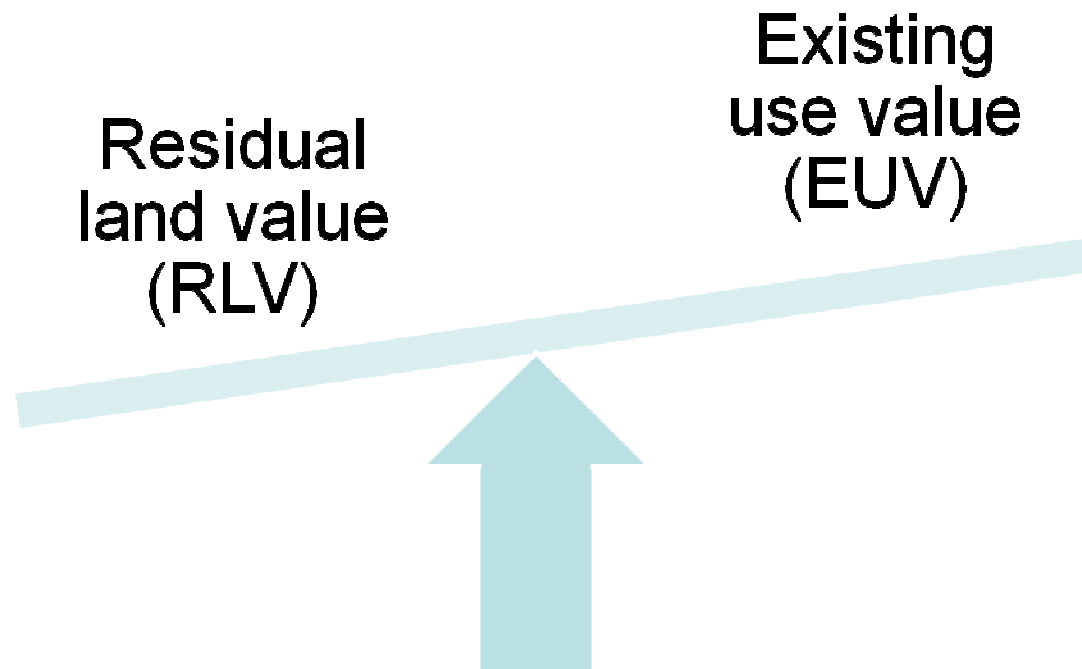
Please rank the following workshop topic from 1-8 in order of importance (1 being of little importance, 8 being an imperative for the day).



According to Galliford Try

Setting Targets Means Understanding Viability

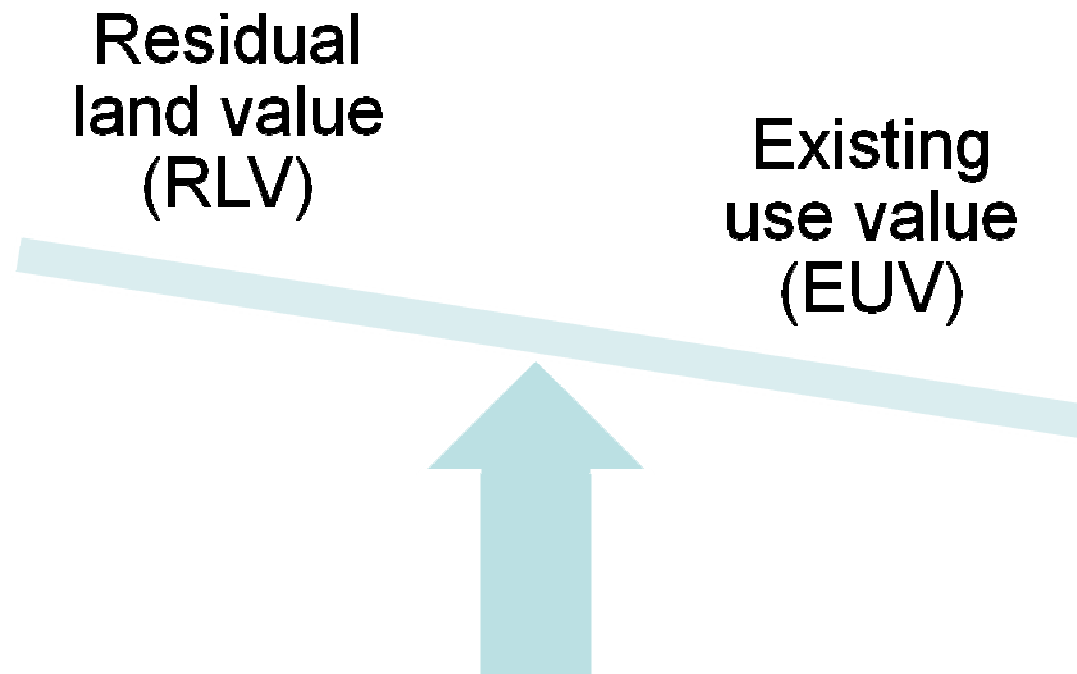
- ❑ If existing (or alternative) use value is greater than the residual land value, the site will not be developed



According to Galliford Try

Setting Targets Means Understanding Viability

- If residual land value is greater than the existing use value, the site will be developed



According to Galliford Try

Setting Targets Means Understanding Viability

Basic

Completed development
Value

Minus

Total Construction
Costs

Minus

Developer's Profit

Equals

Residual Land Value

With Planning Obligations

Completed development
Value

Minus

Total Construction
Costs

Minus

Developer's Profit

Minus

Planning Obligations

Equals

Residual Land Value

With Affordable Housing

Completed development
Value

Minus

Total Construction
Costs

Minus

Developer's Profit

Minus

Planning Obligations

Minus

Developer Contributions
for Afford. Housing

Equals

Residual Land Value

Example – Provided by DVS (commercial arm of Valuation Office Agency)

Small brownfield site in the South West, Building Regulations 2010

Gross development value (GDV):

	sq ft	£ per sq ft	
Market:	21,500	£250	£5,375,000
Afford:	9,546	£172	£1,641,912
Total GDV:			£7,016,912

Less:

Development costs

Land (incl costs):			£659,200
Build costs:	31,046	£98	£3,042,508
5% contingency			£152,125
Fees @ 10%:			£304,251
Sales & Marketing:			£176,496
S106			£982,368
Finance @ 6.0% 19 months:			£264,824
Total development costs:			£5,581,772

=

Profit:			<u>£1,435,140</u>
Profit on Cost:			25.71%
Profit on GDV:			20.45%

Example – Provided by DVS

Small brownfield site in the South West, CSH L4 2010

Gross development value (GDV):

	sq ft	£ per sq ft	
Market:	21,500	£250	£5,375,000
Afford:	9,546	£172	£1,641,912
Total GDV:			£7,016,912

Less:

Development costs

Land (incl costs):			£659,200
Build costs:	31,046	£106	£3,301,121
5% contingency			£165,056
Fees @ 10%:			£330,112
Sales & Marketing:			£176,496
S106			£982,368
Finance @ 6.0% 19 months:			£264,824
Total development costs:			£5,879,177

=

Profit:			<u>£1,137,735</u>
Profit on Cost:			19.35%
Profit on GDV:			16.21%

Example – Provided by DVS

Small brownfield site in the South West, CSH L4 2010

With 10% 'green premium'

Gross development value (GDV):

	sq ft	£ per sq ft	
Market:	21,500	£275	£5,912,500
Afford:	9,546	£172	£1,641,912
Total GDV:			£7,554,412

Less:

Development costs

Land (incl costs):			£659,200
Build costs:	31,046	£106	£3,301,121
5% contingency			£165,056
Fees @ 10%:			£330,112
Sales & Marketing:			£176,496
S106			£1,057,618
Finance @ 6.0% 19 months:			£264,824
Total development costs:			£5,954,427

=

Profit:			<u>£1,599,985</u>
Profit on Cost:			26.87%
Profit on GDV:			21.18%

Analysis of Examples – Provided by DVS (commercial arm of Valuation Office Agency)

	Build Regulation	Code 4	Code 4 & 10% Sales Premium
GDV	£7,016,912	£7,016,912	£7,554,412
Dev Costs	£5,581,772	£5,879,177	£5,954,427
Profit	£1,435,140	£1,137,735	£1,599,985
Profit on cost	25.71%	19.35%	26.87%
Profit on GDV	20.45%	16.21%	21.18%

Potential Limitations for a site

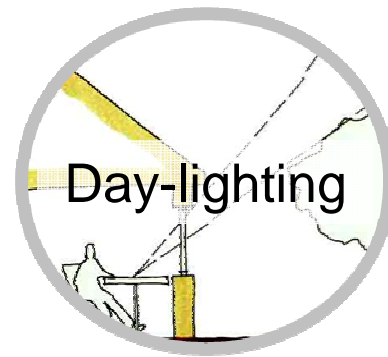
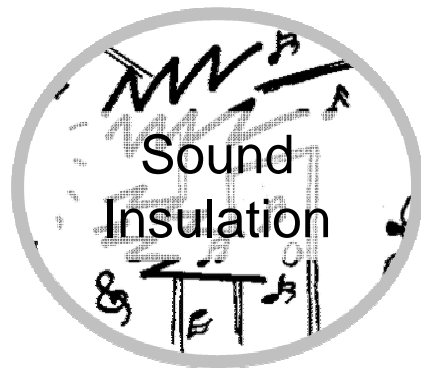
Figure 19

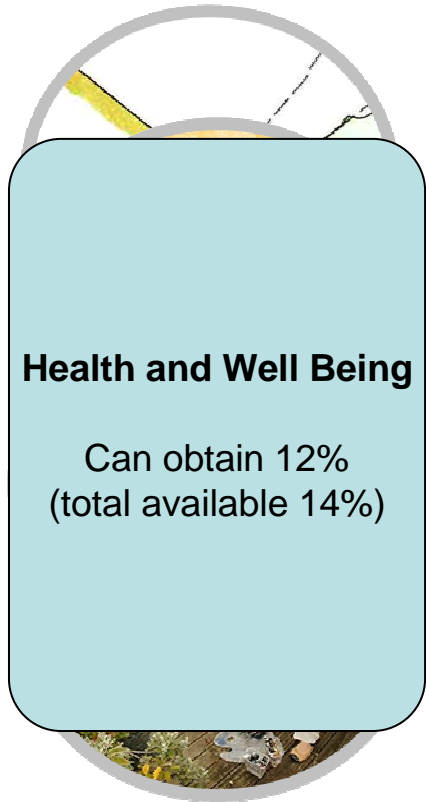
Factors in assessing the potential for sustainable building standards on strategic sites

- Existing landscape and topography features
- The availability of a local district heat network
- An energy/heat load within or adjacent to the site that improves the viability of a local energy system
- An existing or proposed Energy Services Company
- Site provides advantageous conditions for a low and zero carbon energy technology (i.e. wind speed)
- Higher densities and mixed use developments
- The soil type of a site
- Sites at risk of flooding
- The provision of site wide recycling facilities
- A local authority collection system
- Current ecological value of the site
- Accessibility of the site to a public transport network
- Proximity to accessible local amenities
- Other factors which would enable a sustainable building standards to be met on a strategic site.

Typical “Code Level Achievement” strategies...

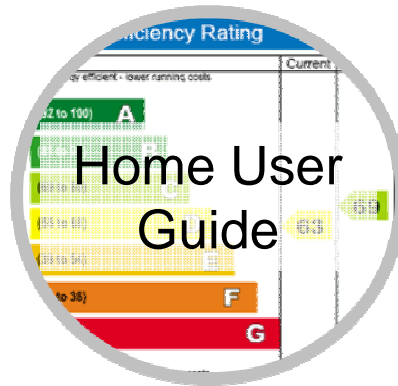
Where attention is focused initially...





Health and Well Being

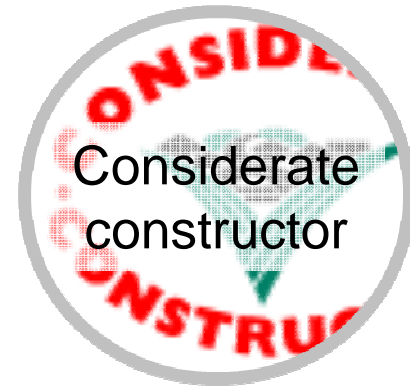
Can obtain 12%
(total available 14%)



Efficiency Rating

Home User Guide

A
B
C
D
E
F
G



CONSIDERATE
CONSTRUCTOR

Considerate constructor



Site impacts



STAVELEY COMMUNITY CENTRE
WAS OFFICIALLY
OPENED ON 12 JANUARY
BY THE LORD LIEUTENANT OF DERBYSHIRE
MR JOHN RATHER
AND
A MEMBER OF THE STAVELEY POLICE

Security

Health and Well Being

Can obtain 12%
(total available 14%)

Management

Can obtain 8%
(total available 10%)

Ecology

Can obtain 8%
(total available 12%)

Waste

Can obtain 5%
(total available 6%)

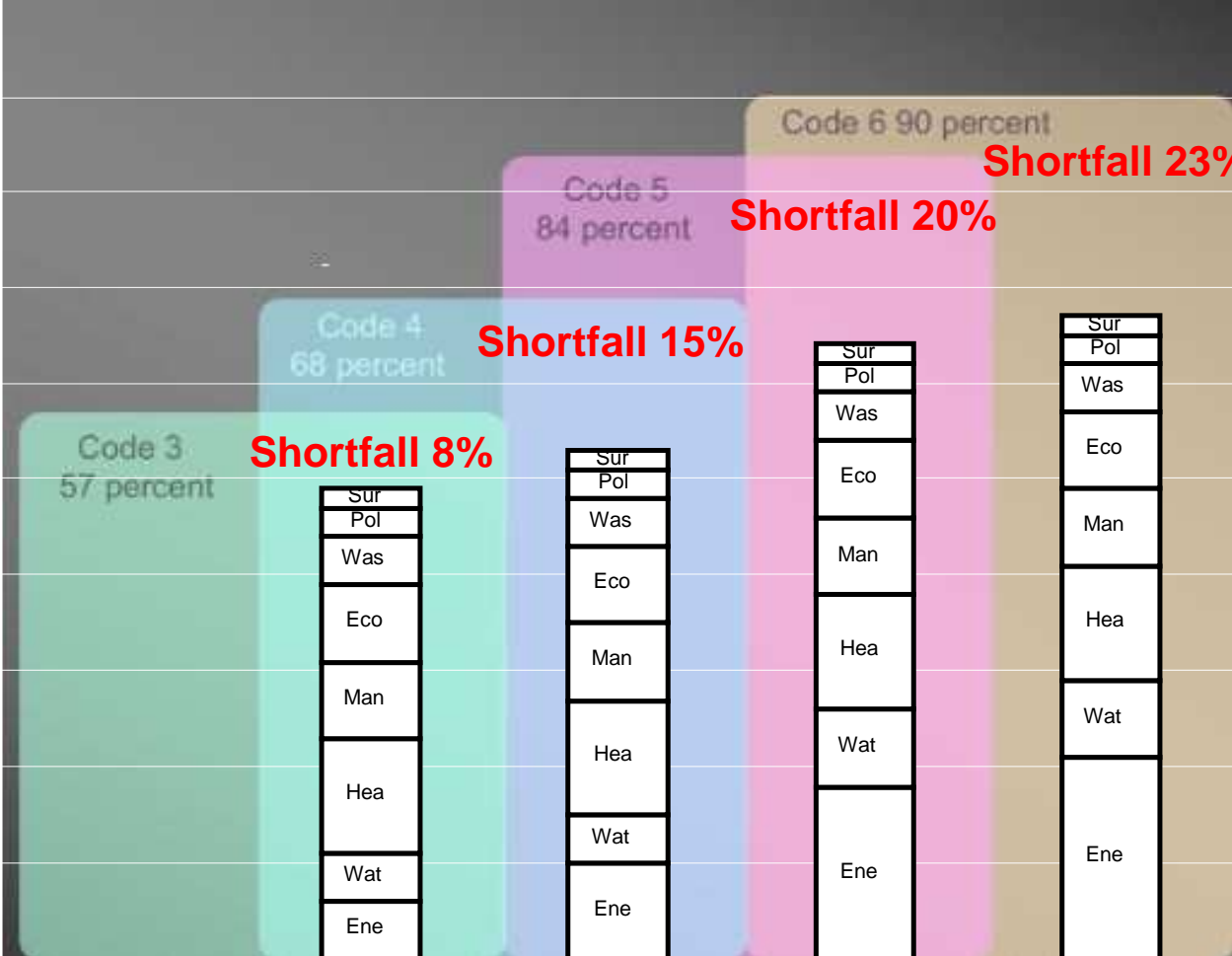
Pollution

Can obtain 2%
(total available 3%)

Surface water run-off

Can obtain 2%
(total available 2%)

Where do we stand when we add in the credits awarded for the easy to achieve categories?

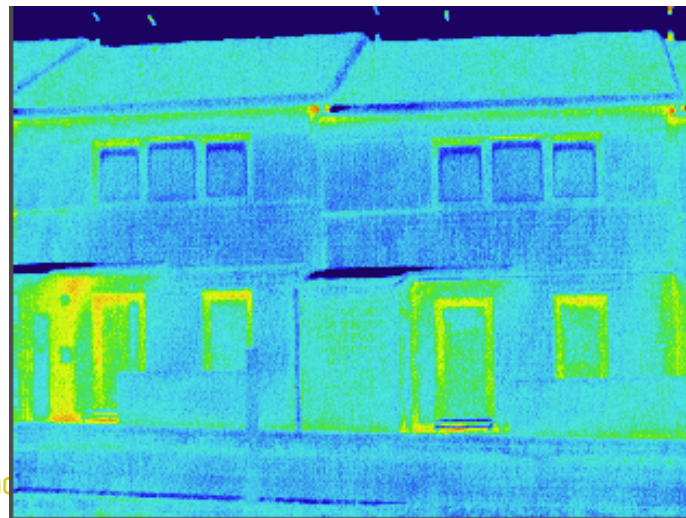
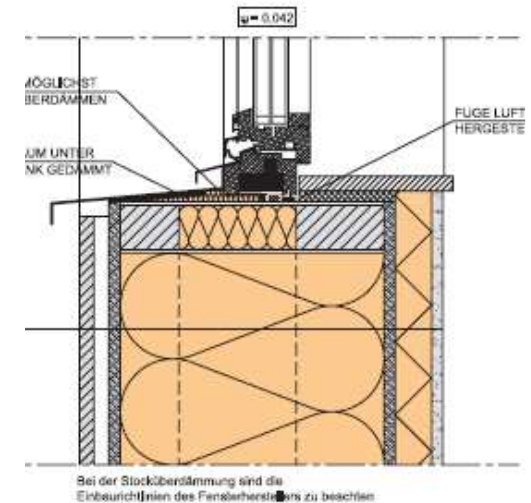


Where next?

Energy Credits (Ene 1)

Code level 4 for energy can be achieved without renewables

- Good Fabric efficiency needs to be considered
- Needs to be considered early on in the design stage!
- Does the contractor understand the requirements?



UK Airtightness (q_{50})

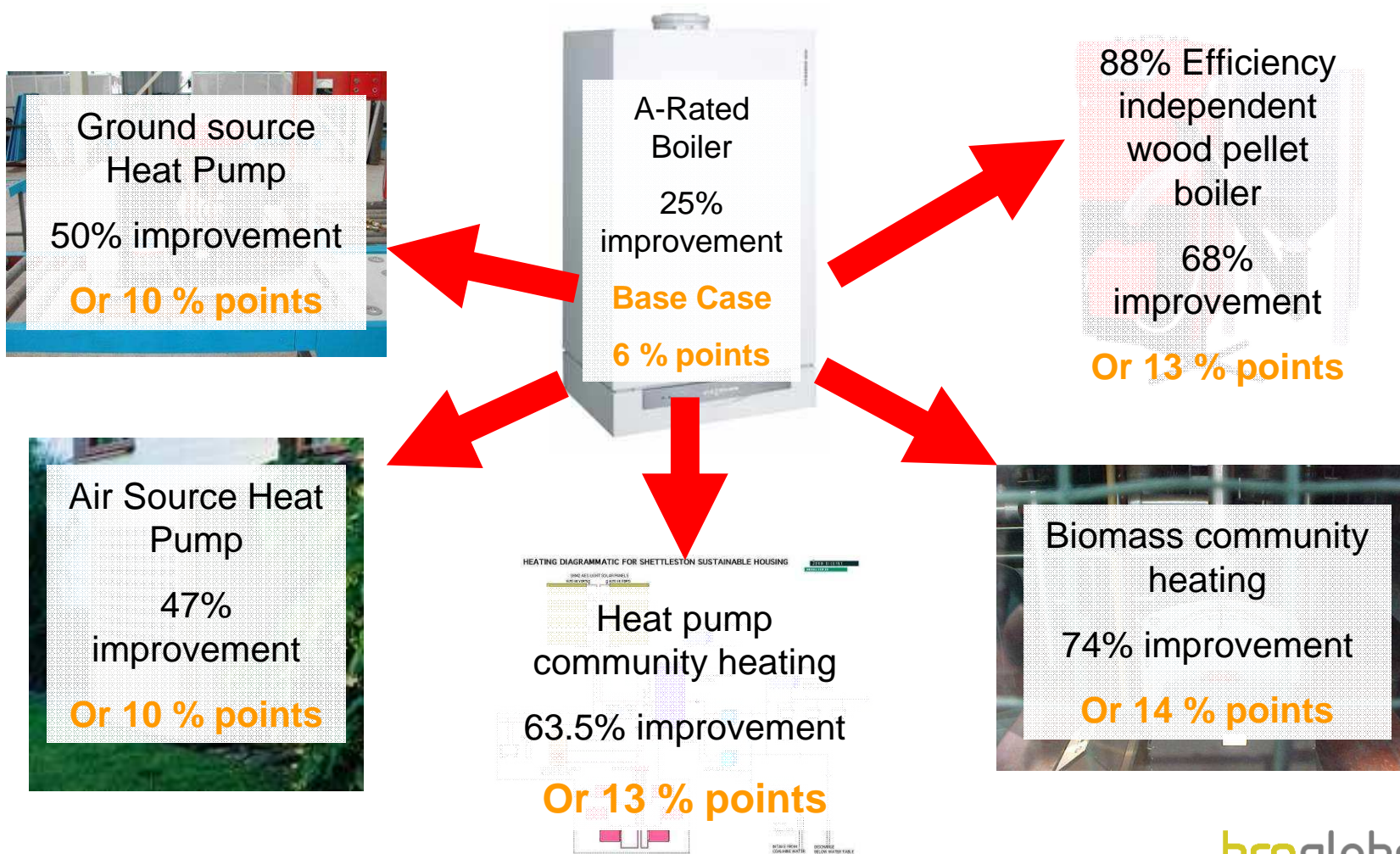
Max: 10

Typical: 7

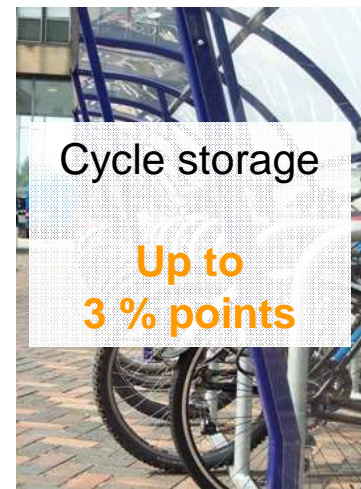
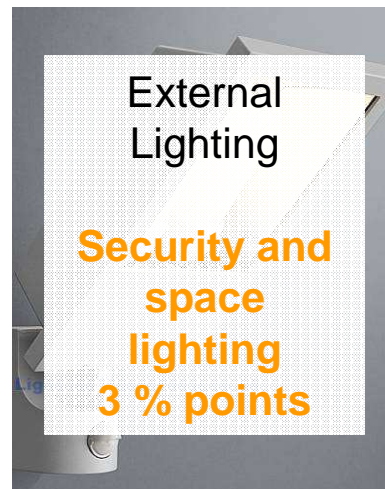
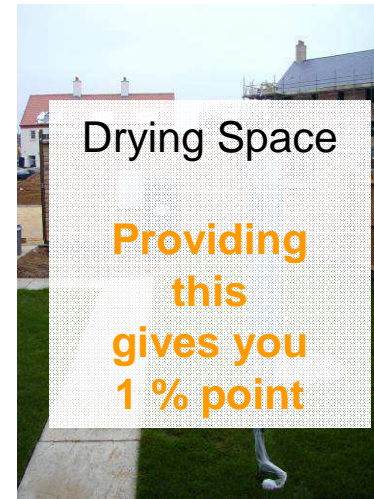
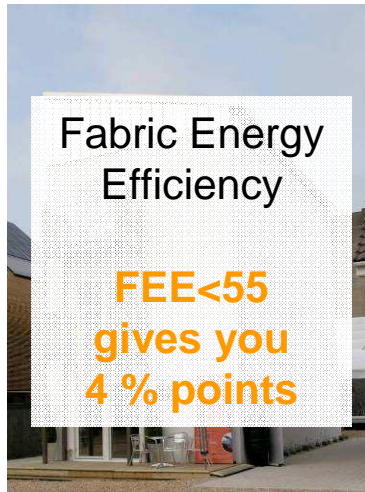
PassivHaus: 1 (ideally less!)

High risk?

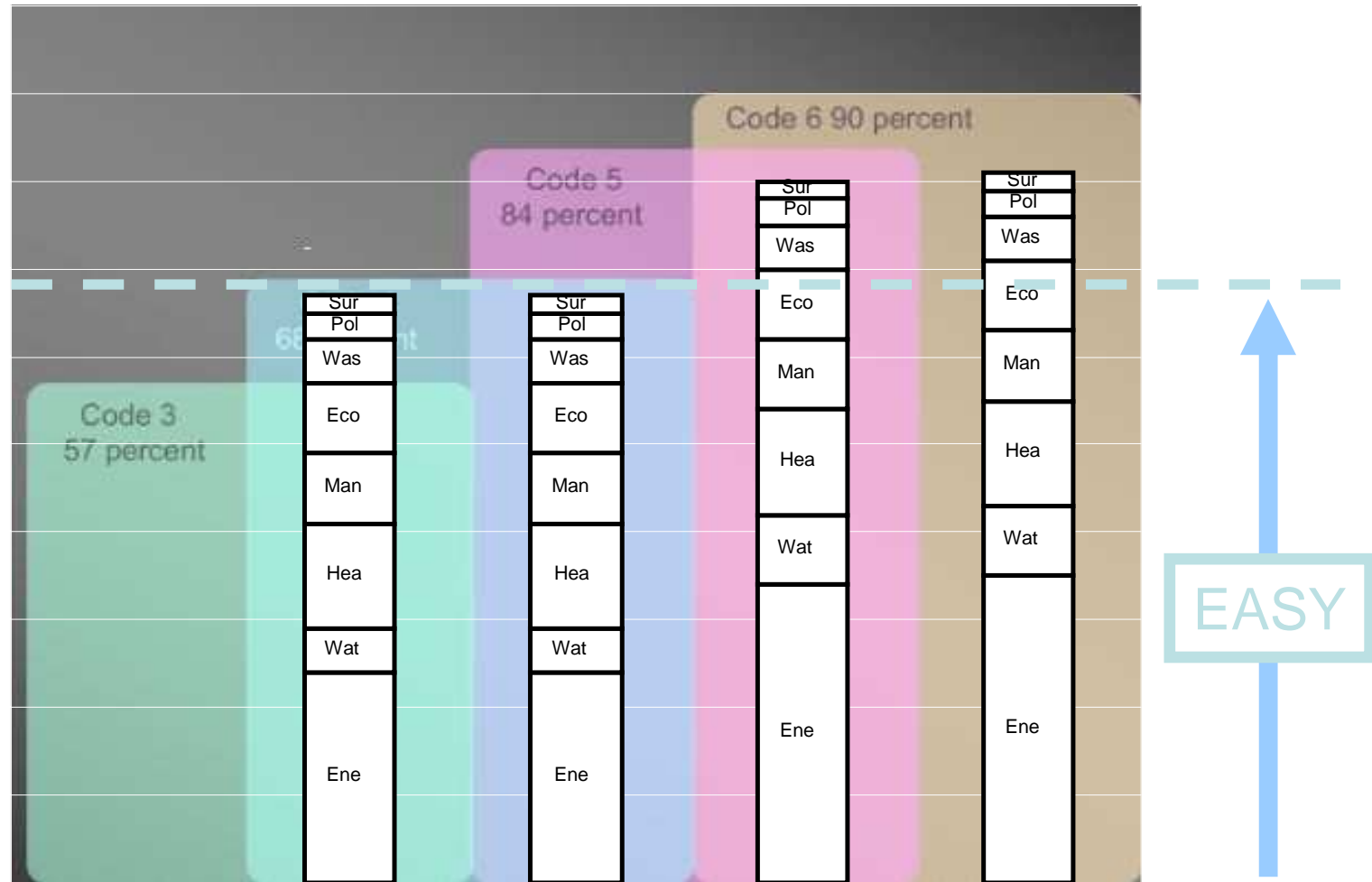
Ene 1: Fuel choice can make a big difference



Energy Credits: Other easy wins...



Now lets add in the remainder of the 'easy to achieve' energy credits...



**10%
Surplus**

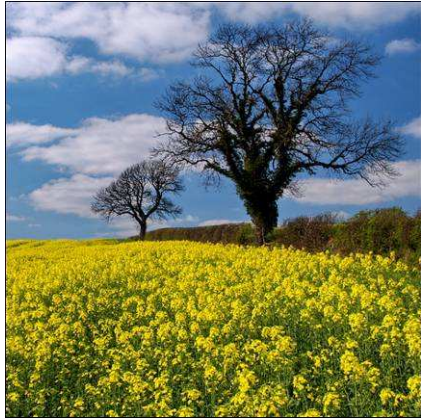
**Pass
..Just!**

**4%
Shortfall**

**9%
Shortfall**

EASY

Where next?



Major enhancement of Ecology of site

- Relatively easy out of the remaining credits

Materials

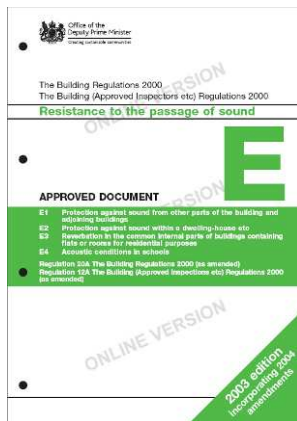
- Potential 1 or 2% of score for doing the minimum
- Going beyond this could get you up to the full 7.2% of credits but is difficult to achieve
- Responsible sourcing (Mat 2/Mat3) is only worth pursuing where a large amount of Tier 1 materials (e.g. FSC Timber and recycled components)
- Lots of paper work! (or is it?)

Where next?



Water

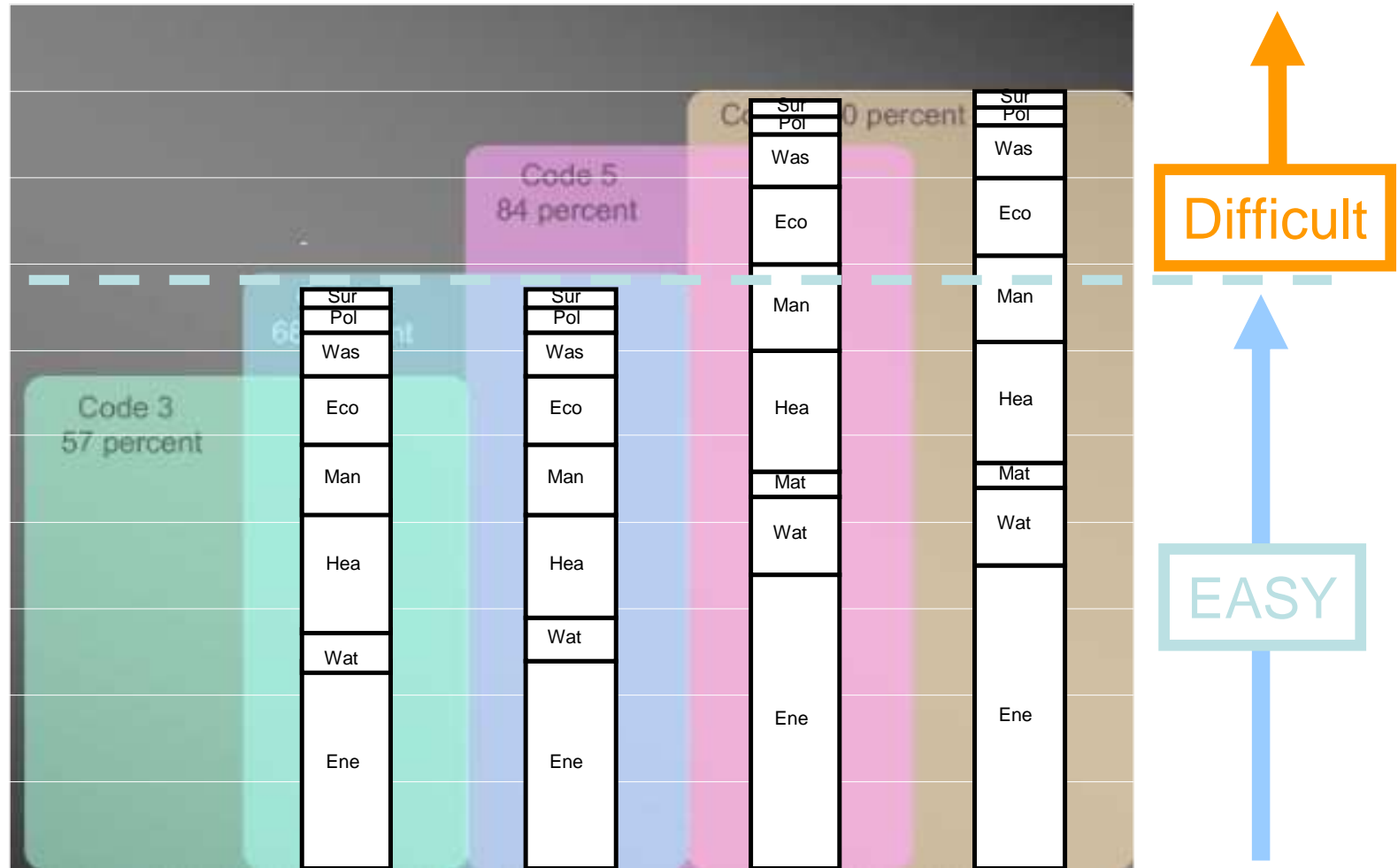
- Unless going for higher levels of the CSH ignore?
- Only potential 4% of credits beyond CL3 mandatory
- CL5 & 6 may need a combination of greywater and rainwater recycling for flats



Sound

- Very difficult to achieve 8 dB improvement over minimum standards – High Risk

Add in the difficult, yet possible, credits...



**10%
Surplus**

**Pass
...Just!**

**5%
Surplus**

**Pass
...Just!**

Code homes are 'the new normal'

Illingworth Estate, Halifax – Level 3



Some of the first Code homes in the country

For Pennine Housing 2000 built by Bramall Construction Ltd



Code homes are 'the new normal'

- Mid Street, Nuffield in Surrey by Osborne for the Raven Housing Trust – Level 5



Includes photovoltaic panels and rainwater harvesting

Photographs: Jeannette Henderson and Geoffrey Osborne Ltd

According to Galliford Try

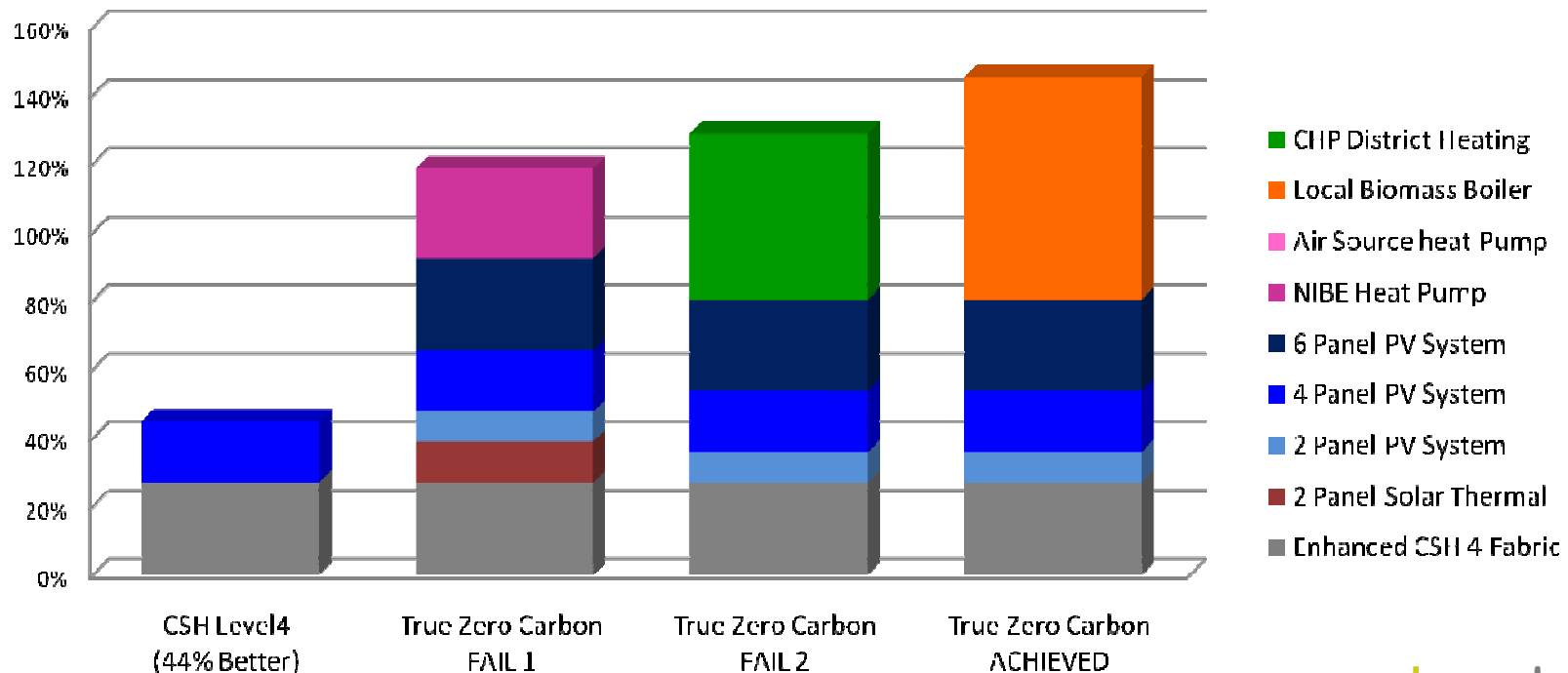
Use of Renewable systems for CSH Level 6

Notes

TRUE Zero Carbon can only be achieved by utilising a Biomass system

All other routes fail at this time

CSH Level 6 Solutions (140% Better) - True Zero Carbon



Phew!

Allowable Solutions

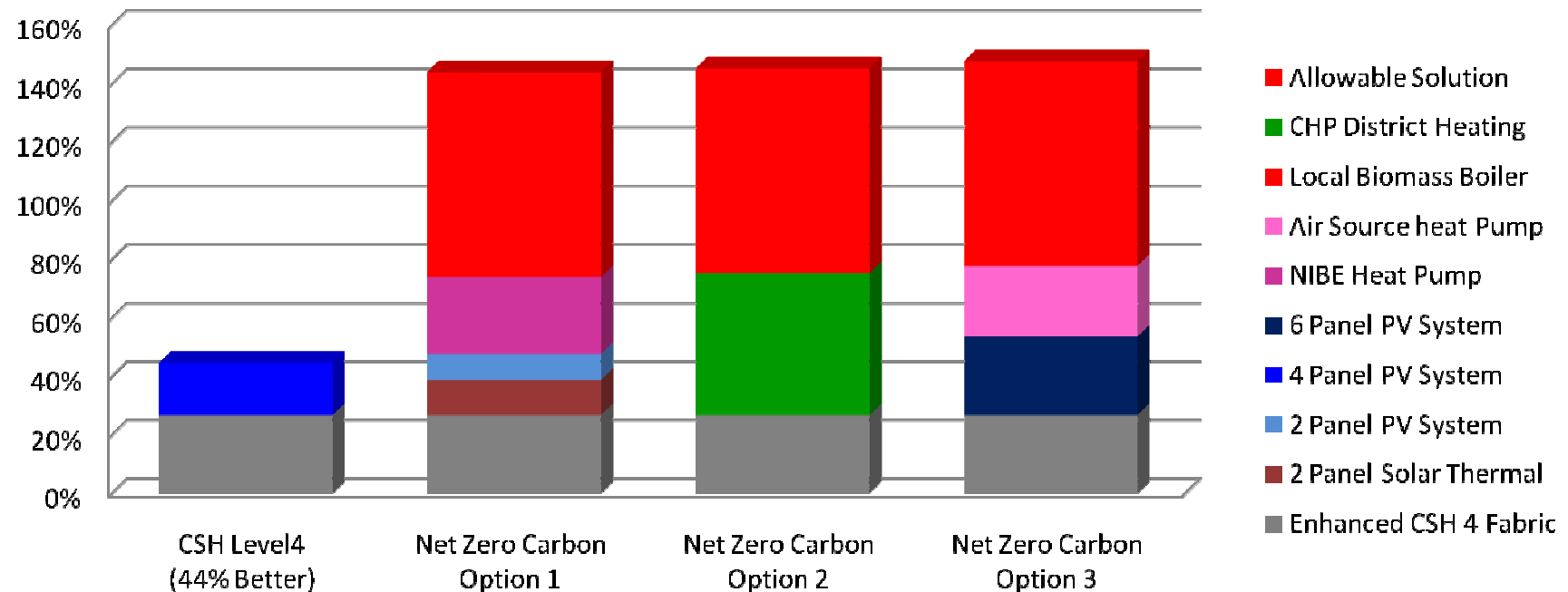
Notes

There are multiple solutions for achieving the 70% CO2 reductions

Allowable Solutions play an important part in achieving CSH level 6 and GTR can deliver these

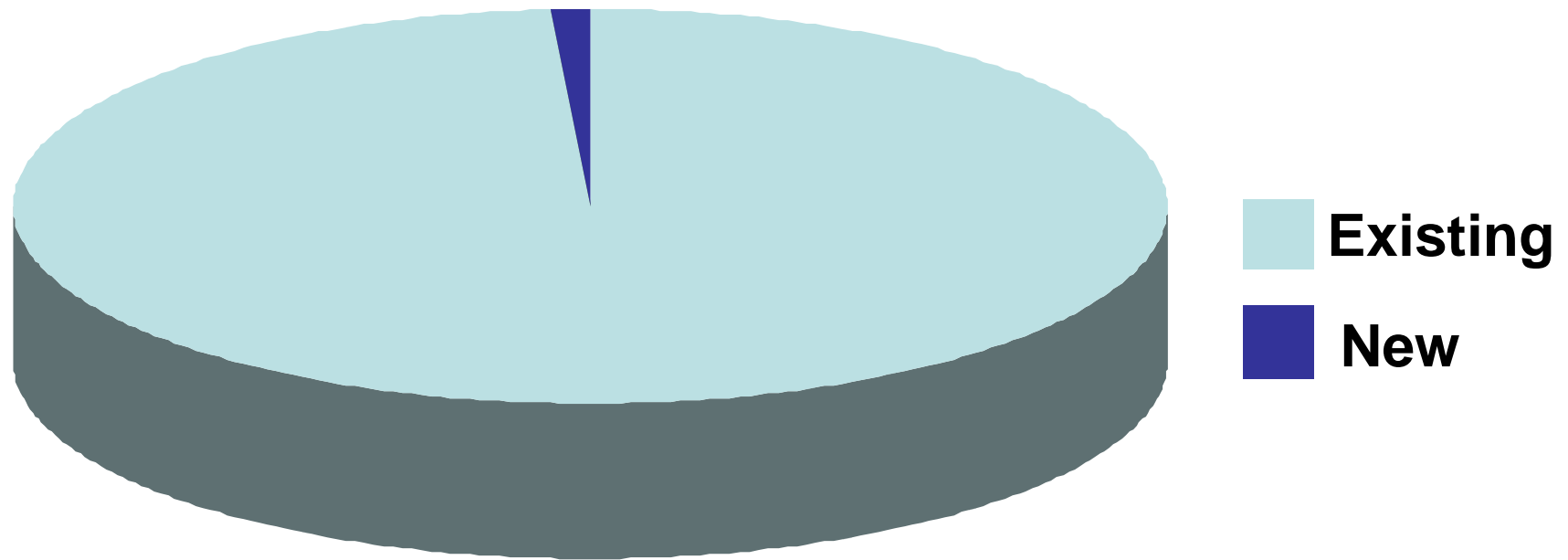
The CHP system achieves the 70% reduction with no other renewables

CSH Level 6 Solutions (140% Better) - Net Zero Carbon



A final thought...

“98% of the talk is about 2% of the problem”



BREEAM for Domestic Refurbishment



Protecting People, Property and the Planet

breglobal

BREEAM for Domestic Refurbishment

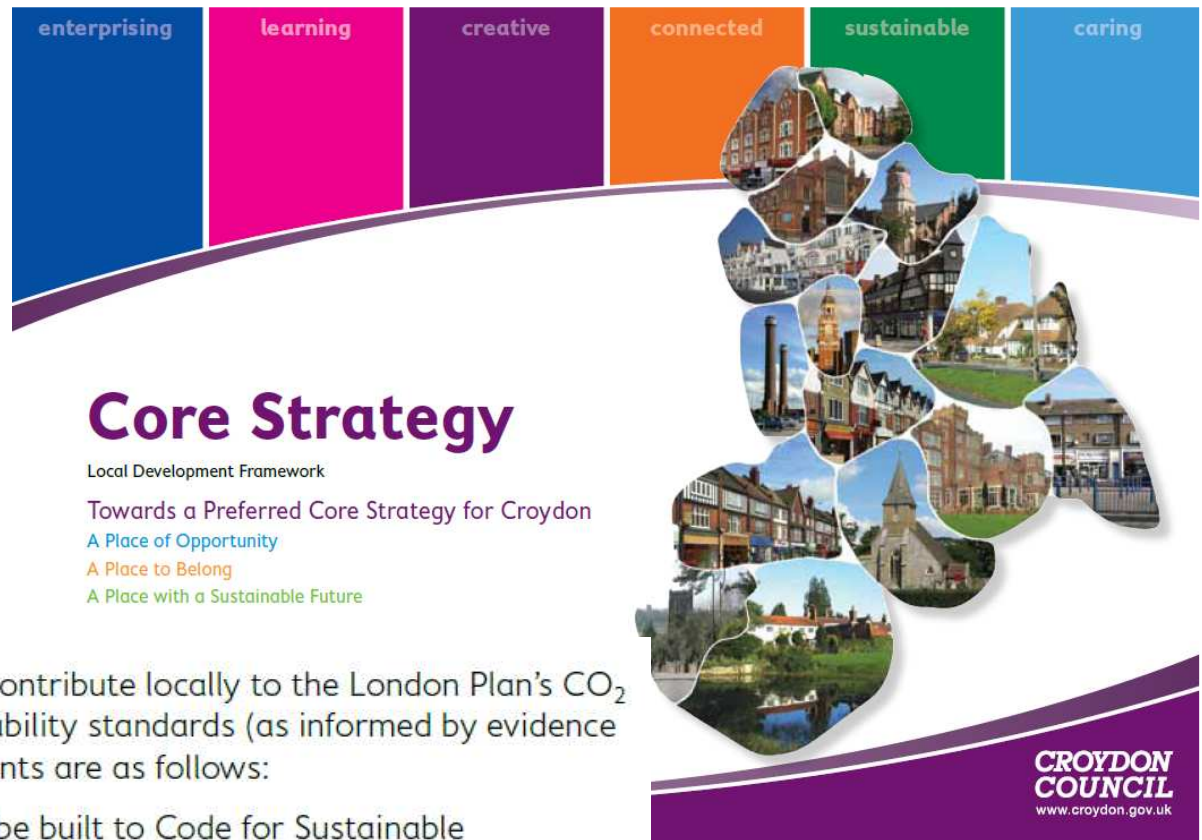
- National certification scheme for refurbishment
- Provides a method for **supporting better design by measuring the outcomes** delivered giving confidence to the consumer



Key issues it will promote

- Moving towards an 80% reduction in CO₂
- Impacts on overheating and health
- Flood resilience
- Embodied impacts of materials
- Recycling of refurbishment waste
- Water efficiency
- Health, security and fire
- Good project management and design





Core Strategy

Local Development Framework

Towards a Preferred Core Strategy for Croydon

A Place of Opportunity

A Place to Belong

A Place with a Sustainable Future

7.26 In order to ensure high standards and contribute locally to the London Plan's CO₂ reduction target, Croydon's minimum sustainability standards (as informed by evidence base) for new build and retrofitted developments are as follows:

- New build residential developments should be built to Code for Sustainable Homes Level 4
- New build non-residential development over 500sqm should be built to BREEAM 'Excellent'
- Conversion and refurbishment of existing residential buildings will be expected to meet high standards of the forthcoming 'BREEAM Domestic Refurbishment standard'. Extensions to residential buildings will be expected to improve the overall energy and water efficiency of the existing building (the exact level will be set out in the Development Management DPD, after publication of the 'BREEAM Domestic Refurbishment' standard and following further analysis)
- Major refurbishment of existing non-residential buildings or conversions greater than 500m² floor space should achieve BREEAM 'Very Good' standard

Why BREEAM ?

- Allows **focused goals** for sustainability to be set according to the development
- A **uniform and consistent** standard by which to specify sustainability into communities
- Aims to encourage an **aura of partnership** between the local planning authority and developers to work together towards realistic goals in relation to sustainable construction



Development location and type

- A number of area types struggle with meeting some aspects of sustainability requirement e.g. transport provision, renewable etc.
- A number of councils have varied their minimum sustainability requirements according to the development location, eg:

- Urban extensions
- Greenfield sites
- Town centre sites

or

- Unit numbers
- Housing type
- Size of development



- Area-specific requirements may be set out in Area Action Plans

Case Study – Milton Keynes

Policy CS 14

Sustainable Construction

Developments of over 5 dwellings or 1,000 sq m of non-residential floorspace will be expected to achieve at least the following standards, or any new standards set out in a future DPD, unless the Local Planning Authority is satisfied that the application demonstrates the requirement would not be technically or financially viable.

	Area	Older Town Centres ⁽⁹⁹⁾	City estates, including CMK ⁽¹⁰⁰⁾	Strategic Development Areas	Rural Area ⁽¹⁰¹⁾	Conversion or alteration of existing buildings
A	Code for Sustainable Homes	Code Level 4	Code Level 4	Code Level 4	Code Level 4	EcoHomes Very Good
	BREEAM	Very good	Excellent	Excellent	Very good	Very good
B	Minimum carbon dioxide reduction through renewable energy and/or low carbon technologies					
		10%	20%	20%	10%	10%

To achieve the Council's objective of carbon neutrality, all developments over 5 dwellings or 1,000 sq m will be expected to make a contribution into the Milton Keynes Carbon Offset Fund.

Setting standards ahead of national policy

- National planning policy allows LPAs to set requirements for building-level sustainability exceeding the statutory minima of the Building Regulations.

All new non-residential developments will be completed to a Building Research Establishment Environmental Assessment Method (BREEAM) of 'very good' up to 2013 and thereafter a minimum rating of 'excellent'.

Stockton on Tees Borough Council, Core Strategy Policy 3 (CS3) – Sustainable Living and Climate Change

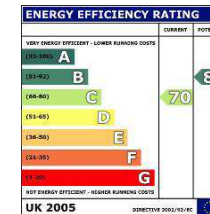
Case Study – North Northamptonshire

- *“Residential units to be delivered 2008-2012 will meet the Code for Sustainable Homes (CSH) Level 3 as a minimum; those delivered 2013-2015 will meet the CSH Code [sic] Level 4 as a minimum; and those delivered from 2016 onwards will meet the CSH Code [sic] Level 6 as a minimum.”*

North Northamptonshire Council, Core Strategy Policy 14: Energy Efficiency and Sustainable Construction

Addressing specific issues

- A number of councils are choosing to address local sustainability issues through the use of specific credits in addition to, or instead of an overall rating



- As when setting overall ratings, any policy requiring certain levels of performance must be justified in the evidence base

Water efficiency

- *Policy DC 5 – Energy and Waster Efficiency in New Buildings*
 - *All **new residential** developments will be expected to reduce their dwelling emission rate by at least 25% and reduce their **water consumption rate** to at most 105 lpppd, consistent with Level 3 of the Code for Sustainable Homes. By 2016, dwelling emission rates and water consumption rates **consistent with Code Level 6** will be expected in new homes.*
 - ***Non-residential** developments will be expected to reduce their building emission rate and **improve their water efficiency** consistent with the BREEAM Good rating for that type of development. By 2016, building emission rates and water efficiency will be **expected to meet the BREEAM Excellent rating** for new non residential development*

Castle Point Borough Council Submission Core Strategy

Sustainability through Planning: 2011

2nd June and 14th July 2011, BRE Global, Watford

This series of conferences is aimed at:

- Disseminating information on specification of BREEAM and the Code for Sustainable Homes as tools to drive increased environmental standards through the planning system
- The sharing of information experiences and best practice between Local Government attendees
- Reviewing and discussing the successes and pitfalls of specifying sustainability standards in the planning system.

For more information:

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BREEAM@bre.co.uk

+ 44 (0) 1923 664462



Further information from BRE

- BREEAM Planning Awareness Days
 - Can be tailored to specific needs
 - Just need to get a group of people together!
- Technical Training Courses (CSH and/or BREEAM)
 - Local Planning Authorities get 25% DISCOUNT
 - Just quote Discount Code: LPA2011
- New starter at BRE - Planning Expert

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