

Planning Policy Wales

Technical Advice Note

22: PLANNING FOR SUSTAINABLE BUILDINGS



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

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List of Abbreviations

AEA	Accredited Energy Assessor
BER	Building Emission Rate
BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
CO2	Carbon Dioxide
CHP	Combined Heat and Power
CCHP	Combined Cooling, Heat and Power
CSH	Code for Sustainable Homes
DAS	Design and Access Statement
DEC	Display Energy Certificate
DER	Dwelling Emission Rate
DS	Design Stage Assessment
EPC	Energy Performance Certificate
LDP	Local Development Plan
LZC	Low or Zero Carbon Energy
PCS	Post Construction Stage Assessment
PPW	Planning Policy Wales
SAP	Standard Assessment Procedure
SA	Sustainability Appraisal
SBEM	Simplified Building Energy Model
SEA	Strategic Environmental Assessment
SPG	Supplementary Planning Guidance
TER	Target Emissions Rate

Ffordd Parc-y-Llyn, Aberystwyth



Client	Welsh Assembly Government
Architect	Powell Dobson
Assessment	BREEAM Offices
Level	Excellent

1. Introduction

1.1 Introduction

1.1.1 This *Technical Advice Note* (TAN) should be read in conjunction with *Planning Policy Wales* (PPW) which sets out the land use planning policies of the Welsh Assembly Government (the Assembly Government). PPW, *Ministerial Interim Planning Policy Statements* (MIPPS), TANs and Circulars should be taken into account by local planning authorities in the preparation of development plans. They may be material to decisions on individual planning applications and will be taken into account by the Welsh Ministers and Planning Inspectors in the determination of called-in planning applications and appeals.

1.1.2 Reference documents provide information that should be read in conjunction with this TAN.

1.2 Planning for Sustainable Buildings

1.2.1 The planning system can play an important part in improving the sustainability of new developments whilst also tackling climate change. As set out in PPW the planning system must provide for new homes and buildings in a way which is consistent with sustainability principles.

1.2.2 Buildings in Wales have an inherent environmental impact and contribute to carbon emissions; they require natural resources to be used both in their construction and use, and the way in which they are designed affects how the occupiers use the building over its lifetime. The way in which they are designed can also reduce the vulnerability to the effects of climate change.

1.2.3 It is the aspiration of the Welsh Assembly Government that in the future all new buildings achieve a zero carbon standard. This is part of a wider programme of action to tackle both the causes and consequences of climate change and to promote sustainable development¹.

1.2.4 Planning therefore has a role in encouraging and facilitating homes and buildings that meet higher sustainable standards. In response to this PPW sets out the Assembly Government's land use planning policies in respect of planning for sustainable buildings. This includes a national development management policy on planning for sustainable buildings that expects minimum sustainable building standards to be achieved for most new planning applications for residential and non-residential development.

1.2.5 This complements the building regulations which set mandatory standards for the design and construction of buildings, which include aspects of health, safety and environmental protection. They are updated regularly to reflect changes in required standards and development in technology².

References

¹ One Wales: One Planet: The Sustainable Development Scheme of the Welsh Assembly Government, 2009

² Powers to make Building Regulations in relation to buildings in Wales will be transferred to the Welsh Ministers on 31st December 2010

1.3 Purpose

1.3.1 The purpose of this TAN is to provide technical guidance on the implementation of the national planning policy on planning for sustainable buildings through the planning application process. The TAN provides an introduction to sustainable buildings and the standards of assessment (Chapter 2), the design solutions that may be employed in meeting these standards (Chapter 3), and further design guidance on delivering low carbon buildings (Chapter 4). It also sets out a ‘Policy Implementation Map’ to guide developers and local planning authorities through the steps necessary for full implementation of the policy (Chapter 5). The TAN also provides guidance for Local Development Plans (LDP) (Chapter 7).

1.4 Policy expectation

1.4.1 PPW contains the national planning policy on sustainable buildings to which this TAN refers. This sets out expectations for most new applications for residential and non-residential development (above a threshold) to achieve a minimum sustainable building standard, and within that standard a minimum carbon emission level. This is summarised in Figure 1 below. PPW should be referred to in the first instance.

Figure 1	National Planning Policy on Planning for Sustainable Buildings (Summary)
<p>A minimum sustainable building standard</p>	<p>Expecting a minimum level of sustainability within a prescribed sustainable building standard.</p> <p>For residential proposals this is the Code for Sustainable Homes.</p> <p>For non-residential proposals, this is the Building Research Establishment Environmental Assessment Method (“BREEAM”) or an equivalent quality assured scheme.</p>
+	
<p>A minimum carbon emission level</p>	<p>Through the sustainable building standard (above).</p> <p>Expecting a minimum number credits to be obtained under the Energy/CO₂ category which relates directly to carbon emissions.</p>

1.4.2 Regard must be had to national planning policy in the preparation of local development plans, and it is a material consideration in the determination of relevant planning applications by local planning authorities (LPAs). The Assembly Government therefore expects that all local planning authorities will seek to implement these standards in determining planning proposals which are subject to the policy.

1.4.3 The TAN however is policy neutral so that whatever minimum standard is expected at the national level, or required through a LDP, the guidance can still be followed. Therefore, developers should refer to the standards expected in PPW and the relevant LDP before considering this guidance.

Scope

1.4.4 In designing to the minimum sustainable building standard a whole building approach is needed to improve the sustainability of new developments in a cost effective way. This includes influencing the design, construction and materials used in the building's structure from the outset.

1.4.5 The national planning policy only applies to proposals for new buildings (whether following demolition of existing buildings or not) above the relevant thresholds set out in PPW. Applications for permission for development which results from a change of use, or for extensions or refurbishment, are therefore not expected to meet the standards set out in PPW.

1.4.6 The national planning policy should be applied to planning applications for development that fall below the relevant threshold where those developments form part of a more substantial scheme which would in its totality be above the policy threshold.

1.4.7 However, where the policy expectations do not apply developers are nevertheless encouraged to consider the environmental sustainability of their proposals, as this is a material planning consideration of general relevance as set out in PPW and Technical Advice Note 12 *Design* (2009) (TAN12). Where a design and access statement is required, consideration of environmental sustainability must be included.

Transitional Arrangements

1.4.8 The national planning policy on sustainable buildings only applies to outline and full planning applications received by local planning authorities after the date set out in PPW, and to reserved matters applications where the relevant outline permission was granted in respect of an application received after these dates. To provide certainty to applicants, "received" should be taken as the date of receipt of the application.

1.4.9 Reserved matters applications which arise from an outline permission where the application was received prior to the relevant commencement dates will not be expected to comply with the standards, and it is also recognised that the applicability of the standards to reserved matters applications will in any event depend on the subject matter of the reserved matters application (for example they will not be relevant if the reserved matter is landscaping).

1.5 Planning & Energy Act

1.5.1 The Planning & Energy Act 2008³ enables local planning authorities in Wales to set reasonable requirements in the LDP for the generation of energy from local renewable sources and low carbon energy and for energy efficiency. The Act is complemented by the policies contained in PPW relevant to these issues, and it provides a legal basis for the implementation of LDP policies against the national framework. The Act requires that LDP policies must not be inconsistent with relevant national policies for Wales relating to energy from renewable sources, low carbon and energy efficiency⁴. Further guidance on LDPs is provided in Chapter 7.

1.6 The role of design in delivering Sustainable Buildings

1.6.1 Delivering more sustainable buildings through good design is a key part of national planning policy as set out PPW. This TAN should be read alongside TAN12 which provides guidance on delivering good design through the planning system. Relevant references to TAN12 are included in this TAN where appropriate.

1.6.2 It is a statutory requirement that applications for planning permission and listed building consent (with exceptions) are accompanied by a design and access statement (DAS). It is expected that the DAS will contain the necessary information for the determination of a relevant planning application by a local planning authority. This is to ensure that the design of a sustainable buildings is integral to the design of the whole development. Further guidance relating to the requirement for a design and access statement can be found in TAN12.

References

³ http://www.opsi.gov.uk/acts/acts2008/ukpga_20080021_en_1

⁴ A Low Carbon Revolution - The Welsh Assembly Government Energy Policy Statement, Welsh Assembly Government, 2010

Notes

References

Unit 5, Great Oak Business Park, Llanidloes



Client	Welsh Assembly Government
Architect	B3 Architects
Assessment	BREEAM Offices
Level	Excellent

2. Sustainable Building Standards

2.1 Introducing Sustainable Buildings

2.1.1 The sustainability of new buildings are an integral part of planning for, and delivering sustainability. Designing buildings to be more sustainable can provide a number of benefits to both the occupant and to the wider society (see Figure 2).

Figure 2	Benefits of Sustainable Buildings
Environmental⁵	They can reduce the environmental impacts caused by new buildings.
Climate Change⁶	They can reduce the greenhouse gas emissions generated by new buildings in their operation.
	They can make new buildings more resilient to the effects of climate change.
People	They can make the internal environment of a building a pleasant and healthy place for people to live and work in.
Financial	They can make a building more cost effective to run and operate and occupiers less prone to energy price fluctuations.
Leading the way	They can help demonstrate to the wider industry and community the benefits of a sustainable building by leading by example.
A better country⁷	They can contribute to the move towards a low carbon economy; zero carbon buildings and to delivering sustainable development.

References

⁵ One Wales: One Planet: The Sustainable Development Scheme of the Welsh Assembly Government, 2009

⁶ A Low Carbon Revolution - The Welsh Assembly Government Energy Policy Statement, Welsh Assembly Government, 2010, www.wales.gov.uk/climatechange

⁷ Capturing the Potential - A Green Jobs Strategy for Wales, Welsh Assembly Government, 2009

2.2 Sustainable building standards

2.2.1 Nationally recognised quality assured standards provide a consistent and common framework against which the sustainability of most types of new buildings can be assessed. The planning for sustainable buildings national planning policy uses two well-known and established sustainable building standards of assessment. These are as follows:-

- For residential proposals the Code for Sustainable Homes ('the Code') has been adopted by the Assembly Government as the preferred tool to assess the sustainability of new homes in Wales.
- For non-residential proposals, the Building Research Establishment Environmental Assessment Method ("BREEAM") or an equivalent quality assured scheme is to be used. BREEAM although not a statutory standard, is widely used and understood by the construction industry.

2.2.2 Using sustainable building standards this way provides for a number of benefits, see Figure 3 below.

Figure 3	Benefits of using sustainable building standards
Certainty	They provide a consistent way of assessing and benchmarking how sustainable a new home or building is.
	They provide a quality assured assessment to an accredited standard of competency and impartiality in how buildings are assessed.
Marketing	They provide a selling point to customers, potential tenants or buyers who wish to occupy a more sustainable building.
Priority	They enable priority areas such as carbon emissions and water efficiency to be targeted.
Reward	They enable developers to demonstrate the sustainability features of their buildings.
Exemplar	They encourage best practice and innovation in the way that new buildings are designed and built.

2.3 Residential

2.3.1 The Code for Sustainable Homes (“the Code”) is a recognised national standard to improve the sustainability of new homes in the UK. The Code scheme currently covers nine sustainable design categories and uses a sustainability rating system - indicated by ‘stars’, to communicate the overall sustainability performance of a home.

Figure 4	Code for Sustainable Homes categories	
Energy/CO ₂	Surface water run-off	Health and Well-being
Water	Waste	Management
Materials	Pollution	Ecology

2.3.2 For each category there are a number of credits available, these credits can be awarded or withheld depending on a buildings performance according to the defined assessment criteria. Credits for each of the categories are weighted and added together to produce a single overall score. Under the Code a new home can achieve a sustainability rating from one (★) to six (★★★★★★) stars depending on the extent to which it has achieved Code standards. One star is the entry level; and six stars is the highest level - reflecting exemplar sustainable development. The star rating relates to the whole rating for the home, including mandatory minimum performance standards set for some credits.

References

Residential developments not covered by the Code for Sustainable Homes

2.3.3 For those residential units which cannot be assessed under the scheme (such as a sheltered housing scheme), it is expected that these will be assessed under the non-residential scheme (e.g. BREEAM Multi-Residential) and achieve the same minimum sustainable building standard expected for non-residential development proposals as set out in PPW. The residential threshold will still apply in these circumstances.

2.3.4 For more information on the Code for Sustainable Homes see www.planningportal.gov.uk.

2.4 Non-residential

2.4.1 BREEAM is the Building Research Establishment Environmental Assessment Method, which is used to assess the environmental performance of new buildings⁸. It is widely regarded as an effective measure of best practice in environmental design and management. The BREEAM standard covers a range of building types including offices, retail units, education (schools, further and higher education colleges), health care, prisons, courts, industrial and multi-residential buildings (e.g. halls or residence, sheltered housing). There will be cases where a building may fall outside the scope of the above described building types. These less common building types can be assessed against tailored criteria using the BREEAM Bespoke scheme.

2.4.2 There are ten categories in the current BREEAM standard and each category contains a number of assessment issues. For each issue there are a number of credits available, the credits can be awarded or withheld depending on a buildings performance according to the defined assessment criteria. The number of credits achieved in a section are then added together to produce a single overall score. Using this overall score, the BREEAM scheme rates the sustainability performance of the building on a scale of Pass, Good, Very Good, Excellent and Outstanding. Under the BREEAM scheme there are mandatory standards of performance that have to be met in order to achieve a specific BREEAM rating.

References

⁸ The BREEAM can also be used to assess existing buildings and refurbishment proposals but this is outside the expectation of the national planning policy on sustainable buildings

Figure 5	BREEAM categories	
Management	Transport	Waste
Health and Wellbeing	Water	Land Use and Ecology
Energy	Materials	Pollution
Innovation		

2.4.3 The BREEAM scheme is owned and operated by BRE Global Ltd, a subsidiary company of the BRE Trust. BRE Global act as the certifiers of buildings assessed using the BREEAM standard. As a result, no building can claim to have achieved a BREEAM rating without a BRE Global approved BREEAM certificate. The operation of BREEAM is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders, which itself reports to an independent BRE Global governing body.

2.4.4 For more information on the BREEAM standards and governance see www.breeam.org.

2.4.5 As set out in PPW the non-residential expectation may also meet an equivalent quality assured scheme to BREEAM. The TAN subsequently refers to BREEAM.

2.5 Assessment Routes

2.5.1 Under both schemes there are two primary routes to certification:

Figure 6	Assessment Routes
Route 1	<p>A building is assessed at the detailed design stage by collecting evidence for a Design Stage (DS) Assessment. This will result in an Interim Certificate.</p> <p>This evidence is then reviewed at the post construction stage through a Post Construction Stage (PCS) Assessment resulting in a Final Certificate.</p>
Route 2	<p>Complete the whole assessment and evidence collection at the Post Construction Stage (PCS) Assessment only. This will result in a Final Certificate.</p> <p>Only the Final Certificate, based on PCS evidence, will be issued.</p>

2.5.2 Applications for planning permission which are subject to the national planning policy are expected to take Route 1 and complete a Design Stage (DS) Assessment and a Post Construction Stage (PCS) Assessment. These will be secured through the imposition of appropriate planning conditions where permission is granted, expecting an Interim Certificate prior to construction, and a Final Certificate prior to occupation (see Chapter 6). Taking this route provides for a number of benefits in delivering sustainable buildings, as set out in Figure 7 below.

Figure 7	Benefits of carrying out a design stage assessment
Evidence	Preparing a Design Stage assessment will provide evidence of compliance with a planning condition to secure the overall sustainable building standard agreed as part of the permission granted.
Review	<p>Completing a Design Stage assessment may help to identify opportunities for re-design in order to maximise the number of credits achieved. At the DS stage it will be much easier to alter designs than at the PCS.</p> <p>However, the DS does not obviate the need to fully consider meeting the standards at application stage; opportunities for re-design of some elements (e.g. external features) within the scope of the permission may be very limited.</p>
Time	By preparing a Design Stage assessment a significant proportion of the information needed for a Post Construction Stage assessment would have been collected and this can reduce the time taken for the certification process at the post construction stage.

2.6 Service Providers

2.6.1 Service providers are licensed organisations that register sites, quality assure Code/BREEAM assessments, and provide certification.

Code for Sustainable Homes Service Provider

2.6.2 Code service providers operate the UKAS⁹ Accredited Product Scheme for the Code with the purpose of ensuring that assessors are technically competent, accurate and professional when carrying out CSH assessment services on behalf of their clients. The service provider will audit assessment services for quality assurance (QA) purposes. The QA process is in place to help protect both the credibility of the Code scheme and the assessor, as well as to safe guard the interests of developers and their customers.

⁹ www.ukas.com

2.6.3 A list of Code for Sustainable Homes service providers can be found on the Planning Portal www.planningportal.gov.uk.

BREEAM

2.6.4 BRE Global Ltd is the only service provider for the BREEAM Scheme. The BRE Global “Sustainability Board” oversees BRE Global’s guides, publications, standards and certification schemes in the area of sustainability and the environment. BRE Global has ISO 9001 certification for its BREEAM Buildings schemes and also for the assessment and certification of construction materials under the BREEAM LCA (Life Cycle Analysis) environmental profiles. The certification for the BREEAM schemes covers the operations relating to assessor training, licensing, quality management, and record keeping¹⁰.

¹⁰ <http://www.breeam.org/>

2.6.5 Assessors qualified to deliver the BREEAM buildings schemes are also covered under a UKAS accredited competent persons scheme. In addition, the operations relating to the certification of the BREEAM buildings versions and the environmental profiles are also covered under UKAS accredited product certification schemes.

2.7 Certificates

2.7.1 Certificates are produced to show what level of sustainability a building is likely to achieve (Design Stage) and what level is achieved (Post Construction). They are produced by the service provider upon a satisfactory submission of a design (DS) or post construction stage (PCS) assessment. In Wales certificates will include the following statements which will be needed by developers and local planning officers in order to discharge planning conditions (see Chapter 6);

1. The overall standard achieved/likely to achieve (e.g. Code for Sustainable Homes level/number of stars).
2. The credits obtained under the 'Energy/CO₂' category in order to demonstrate that the minimum carbon emission standard has been met.

2.7.2 Example certificates are contained in Annex C.

2.8 Assessors

2.8.1 The role of the assessor is to undertake credit score calculations and verify the validity and authenticity of evidence provided by the client/developer. The assessor will carry out calculations which are only pertinent to the Code/BREEAM assessment, where these are not undertaken by a professional under an appropriate regulatory requirement, competent person scheme or specialist requirement.

2.8.2 The assessor is at all times responsible for the content and scoring within the assessment report. It may be that assessors have competencies in other disciplines and as such are employed to undertake additional tasks that feed into the Code/BREEAM assessment, but these fall outside their role as an assessor. A list of assessors can be obtained from the service providers.

2.9 The role of Building Regulations

2.9.1 The planning and building control systems are complementary in ensuring appropriate development and buildings are in the right place, and that these buildings are well designed, safe, accessible and sustainable. While Building Regulations are generally concerned with the technical performance of a building's structure and services, there are wider aspects of sustainability that are not currently considered, but affect the delivery of sustainable development. These wider aspects are material to the broader remit of the planning regime in relation to sustainability. The Code and BREEAM provides an opportunity to consider these issues within a recognised standard.

2.9.2 In moving towards low and zero carbon and higher sustainable buildings standards, buildings designed now need to future proof their designs to respond to future standards. National planning policy and guidance complement building regulations by ensuring that developers in designing their buildings and developments consider relevant aspects of design, safety, accessibility and sustainability at the earliest opportunity.

2.9.3 Energy Performance Certificates (EPCs) are required by regulation for almost all new buildings constructed in Wales¹¹. They are similar to the certificates now provided with domestic appliances such as refrigerators and washing machines. An EPC rates the energy efficiency and carbon emissions of a property on a scale of A to G, where A is the best¹². They will form part of the evidence presented in a Home Information Pack (HIP).

2.9.4 The primary distinction between EPCs and the Code/BREEAM is that they only cover energy performance and carbon emissions, whereas the Code and BREEAM cover wider areas of sustainability. In working towards compliance with Building Regulations developers will be providing an energy rating which will generate an EPC. A Code/BREEAM assessor will not normally carry out calculations that will be undertaken by an Accredited Energy Assessor for the purposes of Building Regulations.

References

¹¹ <http://www.communities.gov.uk/planningandbuilding/theenvironment/energyperformance/homes/energyperformancecertificates/>

¹² The Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007, SI 2007/991, amended by SI 2007/1669, SI 2007/3302 and SI 2008/647

Canolfan Gorseinon Centre, Swansea



Client	City and County of Swansea/ Gorseinon Development Trust
Architect	Boyes Rees Architects
Assessment Level	BREEAM Bespoke Excellent

3. Sustainable Building Design Solutions

3.1 Design Approach

3.1.1 To design a building that meets the minimum level of sustainability expected¹³ a developer will need to incorporate **environmentally sustainable design solutions** into their proposed development. These design solutions will have an effect on the internal design and external appearance of a building and its relationship with its context. TAN12 sets out a number of environmentally sustainable design solutions in delivering ‘Environmental Sustainability’, a key aspect of good design. Design solutions will need to reflect the sustainability categories set out under the relevant sustainable buildings standard in order to achieve the minimum standard expected and the associated credits.

3.1.2 It is not the role of this TAN to provide detailed technical design advice on what design solutions are appropriate. This is already contained in relevant Technical Advice Notes¹⁴ and will be dependent on the circumstances of the proposed development. However a list of some of the design solutions that a developer may propose is set out in Annex B.

3.2 Technical and policy constraints to environmentally sustainable design solutions

3.2.1 There may be instances where there are site-specific technical and policy constraints to incorporating **environmentally sustainable design solutions** to achieve a sustainable building standard. It will be exceptional to find that all types of environmentally sustainable design solutions are technically constrained on a site. On their own, financial considerations do not constitute a technical constraint.

3.2.2 Constraints may be imposed by other material considerations such as nationally recognised designations (see PPW). These constraints should be considered in relation to the merits of individual applications. Judgement will be needed to ensure that the policy is applied in a way compatible with the reason for designation.

3.2.3 A full appraisal of context as advised by TAN12 (and expected in a design and access statement) can help to identify any constraints and opportunities for incorporating design solutions into a proposal. Each site should be considered for its individual potential to meet the minimum standard expected and propose design solutions that will help deliver the minimum (or higher) standards. Developers should investigate ways in which any constraints may be overcome before considering non-compliance with the minimum standard expected (See Chapter 6).

References

¹³ Including other legislative requirements such as Building Regulations

¹⁴ Technical Advice Note 12 *Design* Welsh Assembly Government 2009, Technical Advice Note 15 *Development and Flood Risk* Welsh Assembly Government 2004, Technical Advice Note 8 *Renewable Energy* Welsh Assembly Government 2005

3.3 Design and Access Statements - Sustainable Buildings

3.3.1 TAN12 advises that a design and access statement should explain how the design of the development will meet or exceed sustainable building standards, where required or expected in policy. Further guidance on what may be included in a design and access statement is set out below.

References

Figure 8 Sustainable Buildings in the Design and Access Statement

This may include:-

- A clear statement on the approach taken to meet or exceed the minimum sustainable building standard expected.
- Details and explanation of how the development has sought to deliver the minimum sustainable building standard by incorporating environmentally sustainable design solutions.
- Include details on the relevant plans of those environmentally sustainable design solutions proposed.

Notes

References

Barratt Greenhouse



Client	The Barratt Group
Architect	Gaunt Francis Architects
Assessment	Code for Sustainable Homes
Level	Level 6

4. Low and Zero Carbon Design Solutions

4.1 Design Approach

4.1.1 To move towards a low carbon economy it is important that the emissions of carbon dioxide (CO₂) to the atmosphere arising from a new buildings demand for energy, heat and cooling are minimised.

4.1.2 Developers should recognise the need to design for anticipated carbon standards as a fundamental part of the route to good design (see TAN12).

4.1.3 In considering a design approach to meeting a minimum carbon standard, developers should follow an energy/carbon hierarchy approach as advised by TAN12.

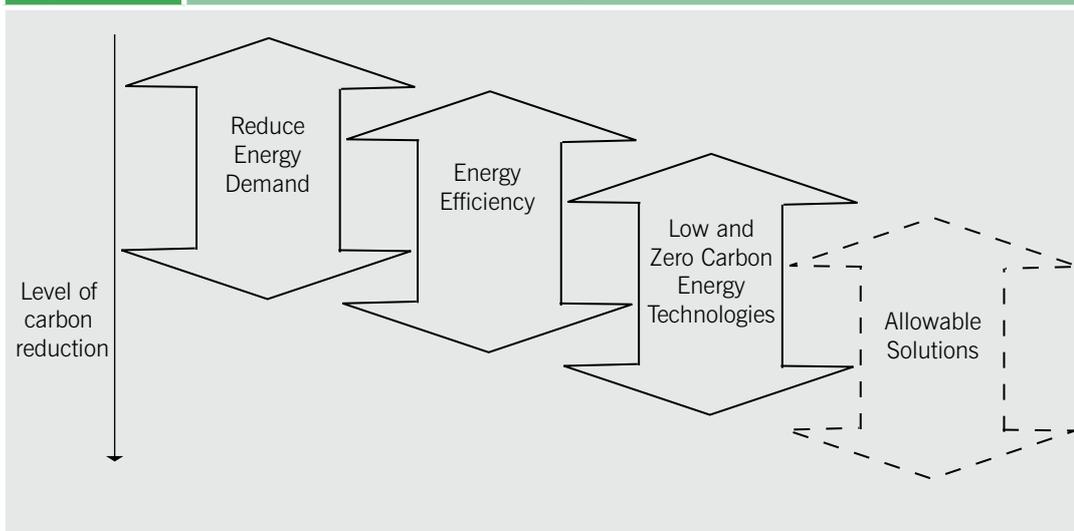
Technical Advice Note 12 Design

Good practice in mitigating the causes of climate change is to apply the energy hierarchy which details a series of steps that should be taken to minimise the carbon emissions associated with a new development in the most efficient and cost effective way. In taking forward an energy hierarchy, an approach to 'carbon reduction' can be prepared for developments, where appropriate, and included or summarised in a design and access statement to illustrate how the design of the development has sought to reduce the carbon emissions associated with the development - including opportunities to move towards zero carbon.

4.1.4 In satisfying the hierarchical approach there are a range of **low and zero carbon design solutions** that can be employed. These should follow a sequential approach against their ability to reduce carbon and deliver cost effectiveness in reducing carbon emissions (see Figure 9).

4.1.5 At the outset a full appraisal of context (see TAN12) can help to identify any constraints and opportunities to incorporating these low and zero carbon design solutions into a proposal. This should include an indication of the likely heating, cooling and energy demand (and subsequent carbon emissions) of the proposed building as this will inform how the energy/carbon hierarchy is implemented. Depending on the size and scale some sites may benefit from a development wide energy/carbon strategy which takes into account the energy/heat demand of the whole site to find the optimum carbon reduction solution (including opportunities from adjacent buildings).

Figure 9 Low and Zero Carbon Design Solutions



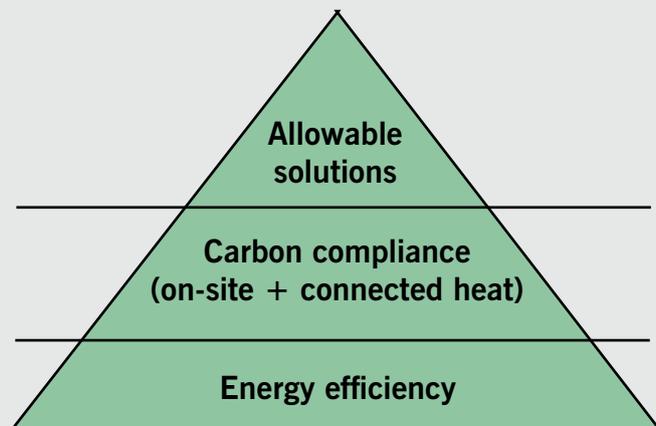
4.1.6 The level of carbon reduction expected will be determined by the minimum expected by the national planning policy (see PPW). The contribution and mix that each of these low and zero carbon design solutions provides will be dependent on the design approach taken.

4.1.7 It is the Assembly Government's aspiration that in the future all new buildings achieve a zero carbon standard. Under current proposals to define zero carbon at a UK level a broad hierarchy is used which sets out three stages of building design to achieving zero carbon¹⁵ (see Figure 11).

¹⁵ Definition of Zero Carbon Homes and Non-Domestic Buildings - Consultation, Communities and Local Government, (2008), Ministerial Statement on the definition of Zero Carbon Homes, Communities and Local Government, (2009), <http://www.communities.gov.uk/planningandbuilding/theenvironment/zerocarbonhomes/>

Figure 10

Current Zero Carbon Approach



1. **Energy efficiency:** to ensure that all buildings are built to very high standards of energy efficiency,
2. **Carbon compliance:** a minimum level of reduction in carbon dioxide emissions to be achieved onsite or through directly connected heat, and
3. **Allowable solutions:** a list of solutions to deal with the remaining emissions from the building.

4.2 Reduce Energy Demand - Passive Design

4.2.1 The layout the proposed development, the direction in which buildings face and the amount of shading from adjacent buildings or plants have a direct effect on the amount of daylight and heat from the sun that enters a building¹⁶. A buildings demand for energy, heat and cooling can therefore be reduced by applying passive design principles on the location, siting, orientation, form and layout of a building within a site. TAN12 provides advice on how development layout and approaches within a design can deliver many passive design elements. A summary of the three main features of passive design are set out below.

References

¹⁶ Code for Sustainable Homes guidance sheets, Energy Saving Trust

Figure 11	Passive Design	
Passive Solar Heating	Passive Cooling	Natural Lighting
Building orientation and internal layout	Minimise direct sun exposure and heat absorption (in summer months)	Maximise natural light
Window size and location	Natural ventilation to allow cool air to enter the building and hot air to escape	Special glazing and automated controls
Appropriate thermal mass to moderate temperature extremes		
	Adequate shading to guard against over-heating	

4.2.2 Proposals should consider how they have reduced the demand for energy through the location, siting and orientation of a building/development by applying passive design principles.

4.2.3 Local planning authorities should recognise that passive design principles may be employed in the location, siting and design of a new building and/or development in order to reduce the demand for energy¹⁷.

4.3 Energy Efficiency - Building Fabric

4.3.1 The design and specification of a buildings fabric is a key part in determining how much energy a building will require. The building fabric to the whole building envelope includes the ceiling, walls, windows, floors, roofs, foundations and doors of a building. The performance of these elements can secure energy and carbon savings over the lifetime of a building and minimise potential heating and cooling requirements. Minimum energy efficiency standards are contained within the Code/BREEAM to provide a higher performance of building fabric in areas such as air tightness, draught proofing, insulation and ventilation. Maximising the energy efficiency of a buildings fabric and systems is best achieved at the design and build stages¹⁸.

4.3.2 Changes to the climate may also have an effect on the energy use and efficiency of a building and the siting, location and form of buildings and landscape features on a site may minimise the effect of these changes.

4.4 Low and Zero Carbon Energy Technologies

4.4.1 Developers should look to achieve the minimum carbon standard through passive design and energy efficiency first, before considering how further emission savings can be achieved through the use of low and zero carbon (LZC) energy technologies.

References

¹⁷ Technical Advice Note 12 *Design* Welsh Assembly Government, 2009

¹⁸ Building Fabric - Energy saving techniques to improve the efficiency of building structures [CTV014] Carbon Trust, 2007

4.4.2 A list of LZC technologies is presented in Figure 12. These are taken directly from the current version of the Code and BREEAM. The list of technologies may increase and will be subject to recognition under the Code and BREEAM to obtain the necessary credits for installation. The technical guidance supporting these assessments should be referred to in the first instance¹⁹.

Figure 12	Low or Zero Carbon Energy Sources²⁰
Solar	Solar hot water
	Photovoltaics
Water	Small scale hydro
Wind	Wind turbines
Biomass	Biomass single room heaters/stoves
	Biomass boilers
	Biomass community heating schemes
Combined Heat and Power (CHP) from	Natural gas
	Biomass
	Sewerage gas and other biogases
Community/ District heating	Waste heat from processes such as large scale power generation where the majority of heating comes from waste heat
Heat Pumps	Air source heat pumps (ASHPs)
	Ground source heat pumps (GSHPs)
	Geothermal heating systems
Fuel cells	Using hydrogen generated from any of the above 'renewable' sources

4.4.3 The costs of these solutions and the associated carbon saved may vary, and the appropriate design and technical solutions will be dependent on the type, location and scale of development proposed.

4.4.4 LZC technologies can involve those directly incorporated into the fabric of the building (e.g. roof-mounted solar panels), those built within the development (e.g. development scale combined heat and power), and those that are off-site but have a direct connection. The eligibility of low and zero carbon technologies to form part of the minimum carbon standard under category Ene1 is determined by the Code and BREEAM assessment methods (see the relevant technical guidance).

References

¹⁹ Additional licences may be required from the Environment Agency

²⁰ Low or Zero Carbon Energy Sources: Strategic Guide, ODPM, 2006. http://www.planningportal.gov.uk/uploads/br/BR_PDF_PTL_ZEROCARBONfinal.pdf

4.5 Allowable Solutions

4.5.1 Allowable solutions are the measures permitted for dealing with residual emissions remaining from a home and building after achieving the carbon compliance standard as set out in the current zero carbon definition. The UK Government is currently considering the scope and delivery mechanisms for allowable solutions. The need to consider allowable solutions will be dependent on whether a zero carbon standard is to be met.

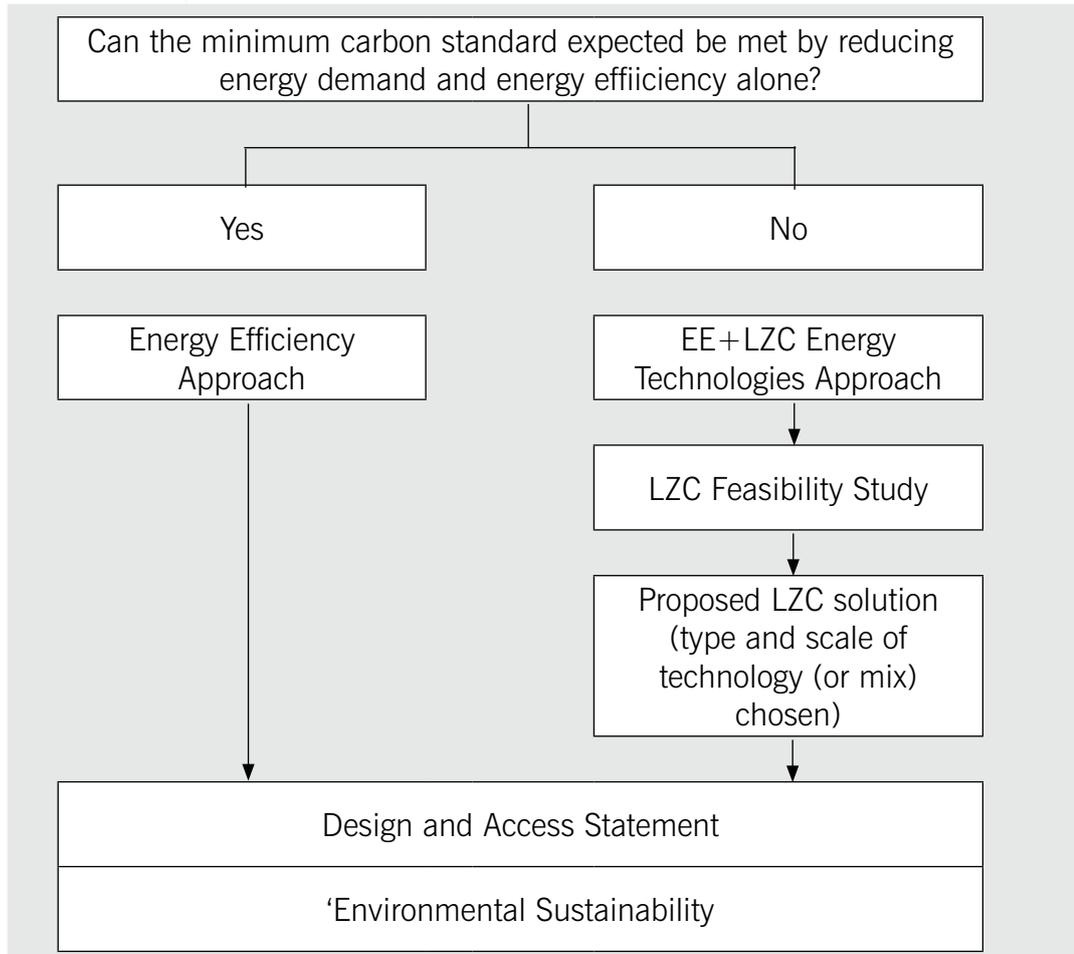
4.6 Energy/Carbon Implementation Map

4.6.1 A developer will need to consider their approach to the energy/zero carbon hierarchy at the outset to establish whether the minimum carbon standard expected by the national planning policy²¹ can be met (or exceeded) through reducing energy demand (passive design) and energy efficiency alone (see Figure 13). Where this is not the case and LZC energy technologies will need to be employed, developers should carry out a feasibility of LZC energy technologies (see Figure 13) to establish the technical opportunities and constraints for incorporating LZC energy technologies in their proposal.

References

²¹ Or local planning policy and Building Regulations

Figure 13 Energy/Carbon Implementation Map



References

²² See Technical Advice on BREEAM and Code for Sustainable Homes

4.6.2 The current Code/BREEAM assessment process provides a form and structure on how to conduct a LZC feasibility study. This details a clear format for the content of the feasibility study which enables a consistent approach to assessing the feasibility of LZC energy technologies (see Figure 14). The list of requirements for a LZC Feasibility Study may increase and will be subject to recognition under the Code and BREEAM²². For these reasons this is the preferred approach to assessing the feasibility of LZC energy technologies (where needed). Additional Code/BREEAM credits may also be awarded in carrying out a feasibility study in accordance with the Code/BREEAM.

4.6.3 A developer may elect to assess the opportunities and identify LZC energy solutions for their proposal through another approach. However, in all instances it will be important that the developer can demonstrate generally that they have taken a realistic, considered and achievable approach in selecting which LZC energy technologies to incorporate into their proposal.

Figure 14

LZC Energy Feasibility Study

- Energy generated from LZC energy source per year.
- Carbon emissions saved per £ spent.
- Expected carbon reductions from LZC sources.
- Land use.
- Planning (local requirements and other planning issues i.e. visual amenity).
- Noise.
- Whole life cost and lifecycle impact of the potential specification in terms of carbon emissions.
- Any available grants.
- All technologies appropriate to the site and energy demand of the development (including type and scale of technology chosen).
- Reasons for excluding other technologies.
- Drawings to indicate the location of LZC employed.

4.7 Technical and policy constraints to LZC energy technologies

4.7.1 There may be instances where there are site-specific technical and policy constraints to low and zero carbon energy technologies. It will be exceptional to find that all types of LZC energy technologies are technically constrained on a site. On their own, financial considerations do not constitute a technical constraint²³.

²³ Technical Advice Note 8 *Planning for Renewable Energy*, Welsh Assembly Government, 2005

4.7.2 Constraints may be imposed by other material considerations such as nationally recognised designations (see PPW). These constraints should be considered in relation to the merits of individual applications. Judgement will be needed to ensure that the policy is applied in a way compatible with the reason for designation.

4.7.3 A full appraisal of context (see TAN12) and a LZO feasibility study can help to identify any constraints and opportunities for incorporating LZO technologies into a proposal (including connected heat). Each site should be considered for its individual potential to meet the minimum carbon emission standard expected and propose low and zero carbon design solutions that will help deliver the minimum standard. Developers should investigate ways in which any constraints may be overcome.

4.8 Design & Access Statements - Low and Zero Carbon Energy Technologies

4.8.1 TAN 12 states:

In taking forward an energy hierarchy, an approach to 'carbon reduction' can be prepared for developments, where appropriate, and included or summarised in a design and access statement to illustrate how the design of the development has sought to reduce the carbon emissions associated with the development - including opportunities to move towards zero carbon.

4.8.2 Further guidance on what may be included in a design and access statement to demonstrate how a development has sought to reduce its carbon footprint is set out below.

References

Figure 15

Carbon Reduction in the Design and Access Statement

This may include :-

- A clear statement on the approach taken to reducing the carbon emissions from the development by implementing the energy/carbon hierarchy.
- Details and explanation of how the development has reduced carbon emissions by incorporating, for example:
 - Passive design solutions to reduce the demand for energy
 - Energy efficiency to maximise the use of energy in the fabric of a building
 - Low and zero carbon energy technologies (where proposed)

Where LZC energy technologies are proposed, evidence that all appropriate LZC technologies were considered (such as through a feasibility study) and identification of the LZC energy technology proposed (including details on the relevant plans).

- A clear statement to achieve the minimum carbon standard expected (through the Code/BREEAM), or where a developer has sought to go beyond the minimum standard, a statement on the expected minimum carbon standard (or credits).

References

Chapel Close, St Athans, Vale of Glamorgan



Client	Wales and West Housing Association Limited
Architect	Welsh School of Architecture DRU and Powell Dobson
Assessment Level	Code for Sustainable Homes Level 4

5. The Policy Implementation Map

5.1 Introduction to the map

5.1.1 There are a number of steps a developer and local planning authority will need to follow to ensure full implementation of the policy. Suggested steps and associated guidance is presented in Figure 17.

5.1.2 The policy implementation map does not attempt to replicate the steps needed in a planning application process nor set out every possible scenario that may arise in the implementation of the national planning policy on sustainable buildings. It is intended to provide assistance to those involved in the process. It should not be seen in isolation from other material considerations that may be present on an individual application.

5.1.3 Further detailed information is available on the Code/BREEAM from the service providers, and developers should use this as a reference.

5.2 Roles

Local Planning Authorities

5.2.1 Local planning authorities play a key role in ensuring the implementation of the national sustainable building planning policy in the local decision making process (see 1.4.2). They will not be expected to carry out a Code/BREEAM assessment or assess the technical details behind the credits and overall score obtained. This is the role of the accredited Code/BREEAM assessor in validating the evidence provided by the client.

5.2.2 LPAs will however be expected to

- confirm that the developer has taken a realistic, considered and achievable approach to meeting the minimum sustainable building standard;
- consider the land use planning implications of the environmental sustainable design solutions proposed (see Chapter 3 and 4); and
- confirm (after planning permission has been granted) through the certificates that the minimum sustainable building standard is likely to be met and has been met at the design stage and post construction stage (see Chapter 3 & 6).

5.2.3 Local planning authorities should ensure that they are equipped to fulfil their role, for example by encouraging planning officers to work effectively with Building Control colleagues, employing staff with relevant skills, sharing skills with other local authorities or through the use of consultants.

5.2.4 Local authorities should not require specific and standalone assessments of new development where the information can be provided through a design and access statement.

Developers

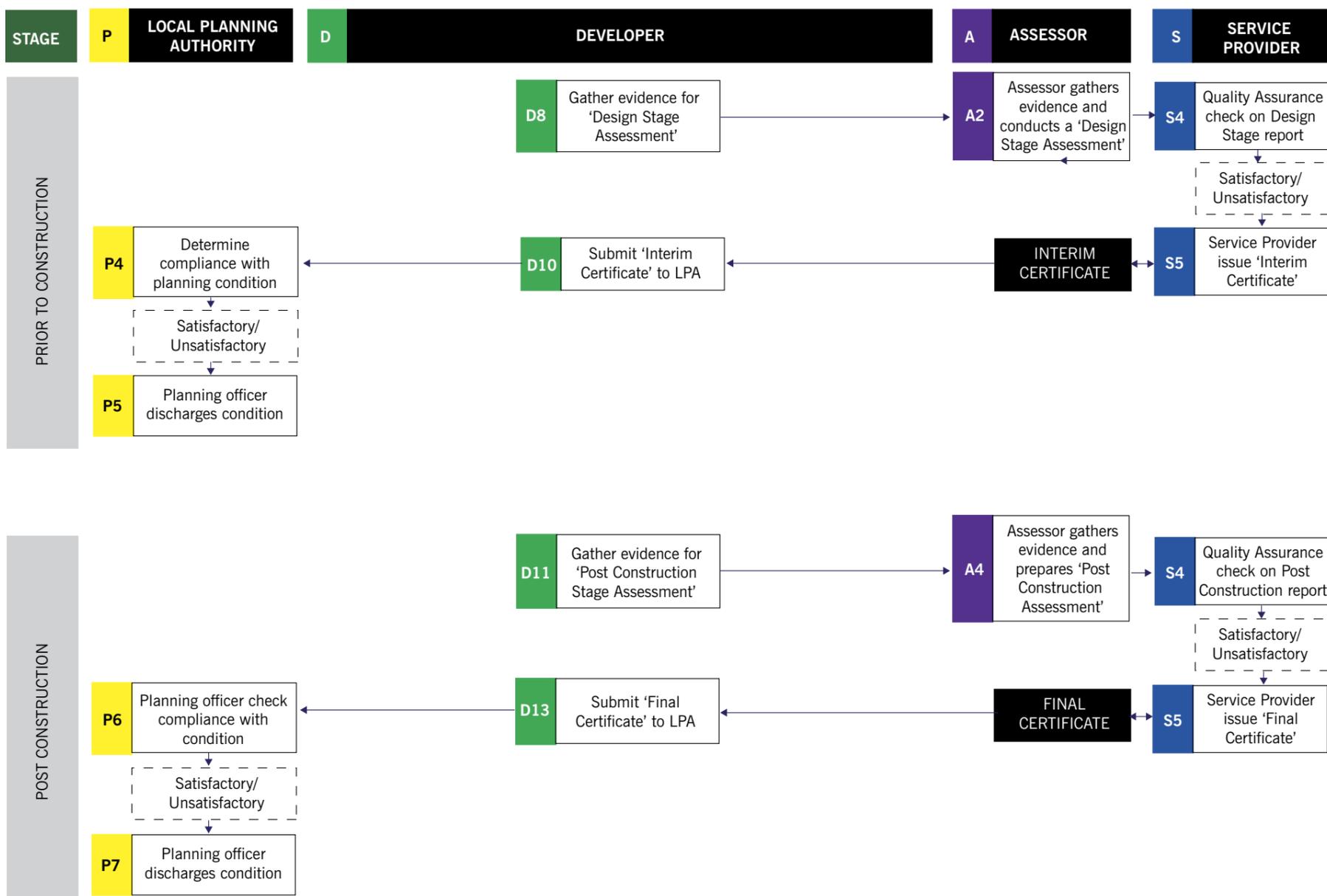
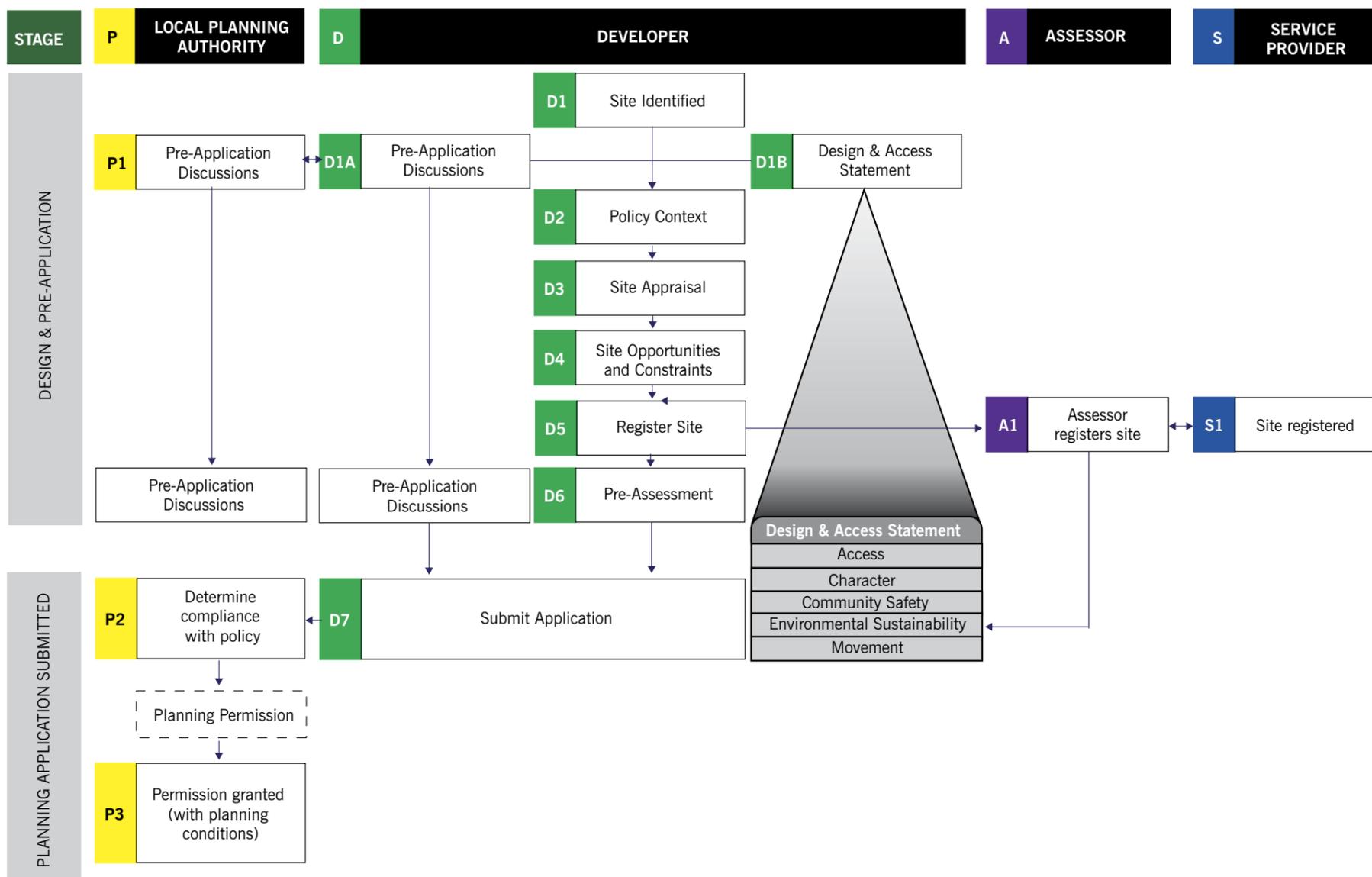
5.2.5 In order to assist efficient determination of planning applications, developers should provide clear evidence with their application (such as through the Design and Access Statement) to demonstrate compliance with national and local planning policies, and how they have taken a realistic, considered and achievable approach in designing to meet the policy.

5.2.6 Key principles for demonstrating compliance with the sustainable building standards are set out in Figure 16.

References

Figure 16	Role of the developer
	Early and continued commitment
	<ul style="list-style-type: none"> • Developers should be aware of the national planning policy to which this TAN refers, and other relevant TANs (TAN8, TAN12 and TAN15). They should be aware of the design implications on their proposal of the minimum sustainable building standard expected and consider this at the earliest opportunity. This may reduce the costs of meeting the minimum standards by avoiding retrofitting of design solutions at a later stage. • Developers should be aware of the ‘Route to Good Design’ as set out in TAN12 as a means of delivering sustainable design.
	Sustainable building standards quality assurance
	<ul style="list-style-type: none"> • Developers should be aware of the steps that need to be taken to assess their proposed building in accordance with the requirements of the respective sustainable building standards. • Developers should obtain an Interim Certificate and Final Certificate in accordance with the sustainable building standards in order to determine compliance with the relevant planning conditions. • It is the responsibility of developers to programme in the timetable needed to prepare, complete and obtain certification from the accredited body so as to avoid any delays in the discharging of planning conditions. The developer is responsible for providing accurate evidence as required by the assessor to carry out their assessment. • Developers are encouraged to appoint an accredited assessor at the earliest opportunity. The role of the assessor is to assess the building at each stage of the Code/BREEAM process. It is not their primary role to provide advice on how best to meet the standards for the development proposal. However they should work closely with the design team in order to demonstrate that the requirements have been met. • In providing the Interim and Final Certificate the developer must confirm which dwellings/buildings are built to the same specification as those inspected by the assessor on site.
	Collaboration
	<ul style="list-style-type: none"> • Collaboration is an important part of delivering good design. Developers should work with other developers and utility providers on larger sites where two or more separate development schemes are proposed. • Opportunities for connection to a local low or zero-carbon energy supply, where available, is encouraged, as are opportunities for working together to benefit from economies of scale.

Figure 17 The Policy Implementation Map



Key

D	Developers	P	Local Planning Authority	A	Assessor
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D1 Site Identified

D1A Pre-Application Discussions

Developers should ensure that when pre-application discussions take place that they:-

- can demonstrate understanding of the policy to which this TAN refers, and/or any other similar adopted local policy,
- give an indication of the standard their proposal is likely to achieve,
- give an indication of the ‘Environmentally Sustainable Design Solutions’ that will be incorporated in order to meet the minimum standard,
- identify any constraints or opportunities to meeting the minimum standard expected (such as through a Pre-assessment).

An early version of a ‘Design and Access’ statement could be used to present the various design solutions incorporated in order to comply with the policy (see TAN12).

P1 Pre-Application Discussions

Local Planning Authorities should ensure that when pre-application discussions take place:-

- that the developer is fully aware of the policies to which this TAN refers,
- that the developer has given an indication of the minimum standard they are seeking on the site and the ‘Environmentally Sustainable Design Solutions’; that may be incorporated to meet the minimum standard.

Local planning authorities are encouraged to:-

- give a clear opinion as to whether the initial approach to meeting the sustainable building standards is in accordance with policy and guidance,
- reaffirm the evidence needed to determine compliance with the policy,
- signpost the applicant to sources of information such as case studies and local and national guidance,
- highlight what additional information the local planning authority would require,
- highlight opportunities for delivering higher standards through local solutions, such as information on existing or proposed local energy sources including district heating schemes.

References

D1B Design and Access Statement

Please refer to paragraph 3.3 and 4.8 and TAN12.

D2 Policy Context

PPW sets out the policy context for planning for sustainable buildings.

Developers should also consider any relevant local planning policies expecting minimum sustainable building standards to be met (See Chapter 7).

D3 Site Appraisal

As advised in TAN12 a developer should carry out an appraisal of the physical, social, economic and policy context of the development.

Opportunities and constraints in achieving the standards expected (or going beyond) should be an essential part of this appraisal (see TAN12).

D4 Site Opportunities and Constraints

Developers should identify any constraints and opportunities that the site and proposed development possess to give an early indication of the design approach needed to meet the minimum sustainable building expected.

D5 Register Site

Registration of a site is the initial stage of the process of assessment in accordance with the Code for Sustainable Homes or BREEAM. Registration ensures that the development will be assessed against the standard in force at the time of registration. This enables the version used to remain the same across the site and throughout the carrying out of the development, irrespective of when it is commenced within the time limits imposed by planning permission. Registration therefore provides certainty to the developer, and also to the local planning authority in assessing whether the development will be capable of meeting the standards if permission is granted.

Site registration is a matter for the developer's discretion. However, for the above reasons, developers are strongly encouraged to appoint an assessor and register the site prior to submitting a planning application. Registration of a site needs to be carried out by a licensed assessor.

The developer may elect to assess the Code under a newer version (in agreement with the assessor and service provider), where this is the case the developer should indicate this at the application stage.

A1 Assessor Registers Site

The appointed licensed assessor will register the development formally with the service provider under the current version.

S1 Site Registered

Once a site is registered, it is given a unique registration number and logged on the service provider database.

D6 Pre-Assessment

It is unlikely that sufficient technical detail will be available for a developer to complete a formal design stage assessment prior to the submission of a planning application. It is therefore important that a developer carries out a pre-assessment estimate of the rating that a development may achieve against the minimum expected. This should arise from a full appraisal of context and identify any constraints and opportunities arising from the site in meeting these standards (see D2, D3 and D4) (see TAN12).

A local planning authority will wish to avoid a situation where permission is granted, but the development subsequently proves to have been incapable of meeting the standards.

A pre-assessment can only provide an estimate of the rating likely to be achieved. It cannot claim that a building achieves a specific rating as a pre-assessment is not part of the quality assurance process. The purpose of pre-assessment, therefore, is not to provide detailed evidence of every aspect of how the standards will be met, but to demonstrate generally that the developer has taken a realistic, considered and achievable approach.

There is no prescribed format for a pre-assessment, although templates have been published by the service providers. A pre-assessment estimate may benefit from being informed by a licensed assessor who understands the full details of the process.

For outline applications the amount of information required at outline application stage will be determined by the nature and circumstances of the development as well as what matters are “reserved”.

As a minimum a pre-assessment statement should set out:

A	a clear and reasoned statement that the proposed building/ development has been designed to meet or exceed the minimum sustainable buildings standard expected;
B	the predicted overall score;
C	the predicted credits against Ene1; and
D	the environmentally sustainable design solutions proposed in order to meet the standard expected.

References

D7 Submit Application

Design and Access Statement - Environmental Sustainability

Developers are encouraged to use the Design and Access Statement to illustrate their approach to delivering sustainable buildings and how the development has applied the energy hierarchy (see TAN12). This will ensure that it is integral to the design of the whole development and not seen as an add-on. In circumstances where design solutions are being proposed that affect the external appearance of a building and its relationship with its context, developers are encouraged to reflect these in the relevant drawings (see paragraph 3.3 and 4.10). Developers are encouraged to reflect the findings of a pre-assessment in the design and access statement.

P2 Determine Compliance with Policy

Minimum Sustainable Buildings Standard (and minimum carbon emission standard)

It is intended that the achievement of the planning for sustainable buildings national planning policy will be monitored and secured through the imposition of appropriate conditions where permission is granted (see Chapter 6).

At the application stage the Design and Access Statement (including a pre-assessment) should give an indication of whether the application will meet or exceed the policy requirements (see D7).

Land use planning implications of design solutions proposed

Local planning authorities should recognise that in meeting the relevant sustainable building standard there will be environmentally sustainable design solutions (see Annex B and TAN12) proposed that will feature in the external appearance of a building. This may include a safe, secure and weather-proof cycle storage unit, a storage unit for recyclable waste, or a biomass plant. Local planning authorities will need to take into account the contribution these sustainable building design solutions make to meeting the sustainable building standard in considering other planning considerations which may arise. In turn, developers should seek to identify and manage (e.g. by appropriate siting and location) all the planning implications of such design solutions in designing their proposals.

P3 Permission Granted (with planning conditions)			
Where planning permission is to be granted, the LPA should impose planning conditions to ensure that the policy is complied with (1A, 1B, 1C). Example planning conditions are presented in Chapter 6			
Residential	RES1A ✓	RES1B ✓	RES1C ✓
Non-Residential	NRES1A ✓	NRES1B ✓	NRES1C ✓

D8 Gather evidence for design stage assessment	
Evidence is collated and used as the basis for the assessor to determine how many credits are to be awarded for each issue and what overall standards is achieved. This is an information gathering process to enable the developer to provide the relevant technical information needed for a Design Stage Assessment (see 2.5).	

A2 Design Stage Assessment	
The assessor gathers the evidence collected in stage D8 and carries out a Design Stage Assessment (see 2.5). This assessment is then submitted to the service provider.	

S2 Quality Assurance	
The service provider will quality assure the assessors Design Stage Assessment and verify whether it meets the required standard.	

S3 Interim Certificate	
If the Design Stage Assessment is considered satisfactory the service provider will issue an Interim Certificate to the assessor.	

D9 Submit Interim Certificate to Local Planning Authority

Once the accredited body has quality assured the ‘Design Stage Assessment’ report and issued an **Interim Certificate** this should be provided to the Local Planning Authority to allow them to discharge the planning condition.

P4 Determine compliance with planning conditions (Prior to construction)

Local Planning Authorities should determine whether the **Interim Certificate** indicates that the development achieves:

- the minimum sustainable building standard expected, and
- the minimum carbon emission level (Ene1)

P5 Conditions discharged

Where a local planning authority is satisfied that the above (P4) has been met the pre-commencement planning condition (1B) should be discharged.

Example planning conditions are presented in Chapter 6

Residential	RES1A ✗	RES1B ✓	RES1C ✗
Non-Residential	NRES1A ✗	NRES1B ✓	NRES1C ✗

D10 Gather evidence for Post Construction Stage Assessment

Evidence is collated and used as the basis for the assessor to determine how many credits are to be awarded for each issue and what overall standards is achieved. This is an information gathering process to enable the developer to provide the relevant technical information needed for a **Post Construction Stage Assessment**.

A3 Post Construction Stage Assessment

The assessor gathers the evidence collected in stage D10 and carries out a **Post Construction Stage Assessment**. This assessment is then submitted to the service provider.

S4 Quality Assurance

The service provider will quality assure the assessors Post Construction Stage Assessment and verify whether it meets the required standard.

S5 Final Certificate

If the Post Construction Stage Assessment is considered satisfactory the service provider will issue a **Final Certificate** to the assessor.

D11 Submit 'Final Certificate' to Local Planning Authority

Once the accredited body has quality assured the **Post Construction Stage** report and issued a **Final Certificate** this should be provided to the Local Planning Authority to allow them to discharge the planning condition.

P6 Determine compliance with policy (Post Completion)

Local Planning Authorities should determine whether the **Final Certificate** indicates that the development achieves:

- the minimum sustainable building standard expected, and
- the minimum carbon emission level (Ene1).

P7 Conditions discharged

Where a local planning authority is satisfied that the above has been met the overarching planning condition (1A) and post-construction planning condition (1C) should be discharged.

Example planning conditions are presented in Chapter 6.

Residential	RES1A ✓	RES1B ✗	RES1C ✓
Non-Residential	NRES1A ✓	NRES1B ✗	NRES1C ✓

Canolfan Hyddgen, Machynlleth



Client	Powys County Council
Architect	JPW Construction Ltd
Assessment	BREEAM Offices
Level	Excellent

6. Planning Conditions And Negotiations

6.1 The use of conditions to deliver sustainable building standards

6.1.1 It is intended that the achievement of the planning for sustainable buildings national planning policy will be monitored and secured through the imposition of appropriate planning conditions to achieve the development and use of land in a way that contributes to meeting the national planning policy on sustainable buildings.

6.1.2 It is important that conditions are realistic and capable of being complied with²⁴. LPAs will need to be clear about the relationship between local planning policies, which regulate the location, siting, design and impact of development, and building regulations. It will not be necessary for planning authorities to use planning conditions to control those aspects of a building's construction and fittings that will be required to be in place to meet environmental performance targets set out in building regulations.

6.1.3 Any condition should comply with Circular 35/95, which requires conditions to be necessary, relevant to planning, relevant to the development to be permitted, enforceable, precise and reasonable in all other respects. The standard, which is to be achieved, should be that which applies at the time the condition is imposed, and either clearly stated, or a reference provided to its source in PPW. The condition should not create a moving target or seek to apply any future changes retrospectively.

6.1.4 Close working relationships between planning and building control will be necessary to ensure integrated and timely decisions under the complementary regimes. Planning conditions or obligations may be used to secure the longer term management and maintenance of those aspects of a development proposed to comply with planning policy.

6.1.5 An example of a set of conditions to secure the achievement of the standards is set out below for both residential and non-residential development. Text included within square brackets can be substituted depending on the level set and the updated version of the Code and BREEAM and associated technical guidance.

6.1.6 The example conditions require that no building be occupied until the 'Final Certificate' (Post Construction Stage Assessment) has been issued. It is an essential part of the policy approach that the standards set out in the national planning policy on sustainable buildings are secured on those developments which are subject to the policy. Completing a design stage assessment (Interim Certificate) will assist in the process of obtaining a 'Final Certificate' (see para 2.5).

6.1.7 It is for the local planning authority to decide whether the example conditions provided are appropriate to the individual application. There may be instances where these example conditions will require amendment to reflect local and site specific circumstances, such as the phasing of sites "or individual buildings/units" and subsequent phasing of certificates at the design or post-construction stage.

References

²⁴ Welsh office Circular 35/95, *The use of conditions in planning permissions*, 1995

6.1.8 Given the importance of the standards in setting a framework for acceptable development, where an outline application is made, LPAs should consider making provision for securing compliance with the standards within the outline permission.

Figure 18

Example planning conditions

Example 1 : Residential

RES1A - Code for Sustainable Homes Standard overarching condition

Each new dwelling hereby permitted shall be constructed to achieve a minimum Code for Sustainable Homes [Level X] and achieve a minimum of [X credits] under category 'Ene1 - Dwelling Emission Rate' in accordance with the requirements of the Code for Sustainable Homes: Technical Guide [Date Year]. The development shall be carried out entirely in accordance with the approved assessment and certification.

RES1B - Code for Sustainable Homes pre-commencement condition

Construction of any dwelling hereby permitted shall not begin until an 'Interim Certificate' has been submitted to the Local Planning Authority, certifying that a minimum Code for Sustainable Homes [Level X] and a minimum of [X credits] under 'Ene1 - Dwelling Emission Rate', has been achieved for that individual dwelling or house type in accordance with the requirements of the Code for Sustainable Homes: Technical Guide [Date Year].

RES1C - Code for Sustainable Homes post construction condition

Prior to the occupation of the individual dwelling hereby permitted, a Code for Sustainable Homes 'Final Certificate' shall be submitted to the Local Planning Authority certifying that a minimum Code for Sustainable Homes [Level X] and a minimum of [X credits] under 'Ene1 - Dwelling Emission Rate', has been achieved for that dwelling in accordance with the requirements of the Code for Sustainable Homes: Technical Guide [Date Year].

Example 2: Non-residential

NRES1A - [BREEAM] overarching condition

Each new non-residential building hereby permitted shall be constructed to achieve a minimum [Building Research Establishment Environmental Assessment Method (BREEAM)] (or subsequent equivalent quality assured scheme) overall [minimum overall standard] and achieve a minimum of [X credits] under category Ene1 - Reduction of CO₂ Emissions in accordance with the requirements of [BREEAM] [date]. The development shall be carried out entirely in accordance with the approved assessment and certification.

NRES1B - [BREEAM] pre commencement condition

Construction of any building hereby permitted shall not begin until an 'Interim Certificate' has been submitted to the Local Planning Authority, certifying that a minimum [BREEAM] overall [minimum standard] and a minimum of [X credits] under Ene1 - Reduction of CO₂ Emissions has been achieved for that individual building in accordance with the requirements of [BREEAM] [date].

NRES1C - [BREEAM] post construction condition

Prior to the occupation of the individual building hereby permitted, a 'Final Certificate' shall be submitted to the Local Planning Authority, certifying that a minimum [BREEAM] overall [minimum standard] and a minimum of [x credits] under 'Ene1 - Reduction of CO₂ Emissions' has been achieved for that building in accordance with the requirements of [BREEAM] [date].

6.2 Exceptions

6.2.1 There is a strong presumption that these sustainable building standards can be achieved on all sites captured by the policy. In some limited circumstances, and in a small number of exceptional cases, technical and policy constraints may exist which would prevent the standards being met, or the nature of the development means that they are not appropriate.

6.2.2 For example, compliance with the standards might necessitate a design approach which would have an unacceptable impact on the setting of a nationally recognised designation or the development might have an inherently very low energy and heat demand (e.g. a barn), or the development cannot be assessed under the relevant standard (including BREEAM 'Bespoke'²⁵).

6.2.3 In these cases the onus is on the developer to demonstrate why these standards cannot or should not be met.

6.2.4 If the local planning authority is satisfied that it is not appropriate to require the standards to be met in their entirety, they should consider whether it may be appropriate to seek;

- a lower sustainable building standard,
- a specific element of a sustainable building standard such as energy/CO₂ emissions and/or water standard at an identified level within the sustainable building standard,
- the incorporation of such design solutions and/or technologies that are feasible as indicated in a LZC feasibility report (where provided),
- measures to be incorporated, so as to facilitate future installation or conversion to higher standards.

6.2.5 Local Planning Authorities may wish to seek independent specialist advice before taking decisions on exceptions.

References

²⁵ There may be additional administration costs as a result of undertaking a Bespoke assessment

6.3 Enforcement

6.3.1 A local planning authority will wish to avoid a situation where permission is granted, but the development subsequently proves incapable of meeting the standards. Development carried out without planning permission or which breaches planning control and the conditions attached to a permission may result in a development that does not meet the minimum standard of sustainability expected by the Assembly Government. Policy and guidance on the enforcement of planning control can be found in PPW and Technical Advice Note 9 *Enforcement of Planning Control* (1997).

6.3.2 Local planning authorities will in particular need to monitor conformity with the certification process and take appropriate enforcement action when a breach of relevant planning conditions has occurred.

6.3.3 In circumstances where at the submission of an 'Interim Certificate' (pre commencement) there is an indication that the development will not meet the minimum standard expected, the local authority may seek further information from the applicant to demonstrate that sufficient alterations can be made to the design to comply with the minimum expected. In these circumstances the developer may need to submit an application for planning permission in order to secure amendment to the relevant conditions.

References

Upton Square, Northamptonshire



Client	Metropolitan Housing Trust
Architect	ZEDfactory Ltd
Assessment	Code for Sustainable Homes
Level	Level 6

7. Local Development Plan

7.1 Developing local policies

7.1.1 Local circumstances may provide opportunities for LPAs to set local requirements on strategic sites identified in **Local Development Plans** (LDP) that exceed the sustainable building standards set out in the national planning policy on sustainable buildings (see also 1.5).

7.1.2 Planning authorities should not duplicate national planning policy which sets out minimum expectations on sustainable building standards, but should apply the policy to their local circumstances and explore opportunities to promote the underlying objectives of the policy in moving towards more sustainable and zero carbon buildings in Wales.

7.1.3 PPW sets out guidance on the selection of sites in order to deliver sustainability. The potential for strategic sites to contribute to the delivery of sustainable buildings (including zero carbon) should form part of this assessment. New development can be located so as to maximise opportunities for delivering higher sustainable building standards. This may, for example include locating sites of specific uses together so as to make community heating schemes more viable by providing a sufficient heat load.

7.2 Strategic Sites

Site opportunities and constraints

7.2.1 The ability of a site to meet a minimum sustainable buildings standard will be dependent on the technical opportunities and constraints present. The location, layout, type, scale and mix of a development can provide opportunities and constraints to deliver the range of environmentally sustainable design solutions needed to meet a sustainable building standard.

7.2.2 For example higher densities and mixed use developments may make community heating, cooling and power (and reducing energy use from transport) supplied by low/zero carbon technologies²⁶ both technically feasible and financially viable. On the other hand tall buildings may reduce the potential for solar panels to be incorporated on adjacent buildings due to overshadowing. Table 13 present a list of some of these factors but it will be the site specific circumstances that determine the potential for higher standards.

²⁶ Community heating for planners and developers, Energy Saving Trust

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.

7.2.3 Planning authorities should engage with developers, landowners and the community to identify and discuss the opportunities for achieving higher sustainable building standards on a strategic site. An important part of this will be to consider whether local requirements are viable and will not act as an unreasonable barrier to development or planned growth, including the delivery of affordable housing.

Local requirements for sustainable buildings

7.2.4 When proposing any local requirements for sustainable building standards on strategic sites, planning authorities must be able to provide sufficient justification through an evidence base.

7.2.5 Local requirements for sustainable building standards on strategic sites should;

- be set out in the LDP, so as to ensure examination by an independent inspector. This is so that standards and requirements are properly consulted on and tested to ensure their ambition reflects local potential and are deliverable;
- relate to a strategic site as identified by the local planning authority in the LDP;

- be specified in terms of achievement of nationally described sustainable buildings standards (For housing, this the Code for Sustainable Homes);
- be specified only in terms of a specific level against a sustainable building standard, and should not seek to identify individual categories or credits that should be met (i.e. energy/CO₂);
- ensure the requirement is consistent with current and future changes to the Building Regulations, and take these timescales into account when setting higher sustainable building standards;
- be consistent with the key objectives of good design;
- not set out area-wide policies that include requirements for sustainable building standards, unless sufficient justification can be established.

Evidence base

7.2.6 In preparing policies in an LDP which seek higher sustainable building standards local authorities will need to establish:-

- what is proposed is evidence-based and viable, having regard to the overall costs of bringing sites to the market (including the costs of any necessary supporting infrastructure) and the need to avoid any adverse impact on the development needs of communities;
- the need for higher sustainable building standards on that site above that expected by national planning policy;
- what site specific opportunities are provided by the site to allow a building/development to achieve a higher sustainable building standard;
- the costs and benefits of delivering higher sustainable building standards.

7.3 Design guidance

7.3.1 Planning authorities may provide appropriate advice to developers on the implementation of these requirements, and how these will be monitored and enforced through Supplementary Planning Guidance. National guidance on good design is contained in TAN12; additional guidance is contained in this TAN.

References

West Coast Energy Ltd, Head Office, Mold



Client	Welsh Coast Energy Ltd
Architect	Aire Design
Assessment	BREEAM Offices
Level	Excellent (design stage)

8. Monitoring

8.1 Monitoring of the national planning policy on sustainable buildings will be carried out by the Welsh Assembly Government, through existing data held by service providers. The intention is to monitor the number of new buildings in Wales that meet Code for Sustainable Homes and/or BREEAM standards per local planning authority, per quarter.

References

Eithinog Road, Bangor



Client	Cymdeithas Tai Eryri
Architect	PRP Architects
Assessment	Code for Sustainable Homes
Level	Level 4

Annex A

Glossary

Adaptation

Adjustment of behaviour to limit harm, or exploit the beneficial opportunities arising from the impacts of a changing climate.

Allowable Solutions

The measures permitted for dealing with residual emissions remaining from a home or building after taking account of carbon abated through on-site technologies and connections to low and zero carbon heat networks in order to achieve zero carbon status.

The UK Government is currently considering the scope and delivery mechanisms for allowable solutions.

BREEAM

Building Research Establishment Environmental Assessment Method - independent appraisal method to certify the environmental performance of a building.

Carbon Emissions

Carbon is used as a shorthand unit derived from carbon dioxide

Climate Change

Refers to changes in long-term trends in the average climate, such as changes in average temperatures.

Climate Change Act

The Climate Change Act 2008 puts into statute the UK's targets to reduce greenhouse gas emissions through domestic and international action by at least 80 per cent by 2050 and to reduce CO₂ emissions by at least 26 per cent by 2020, against a 1990 baseline.

Code for Sustainable Homes

A national standard to assess the sustainability of new homes which uses 'stars' (1 to 6) to communicate the overall sustainability performance of a home.

Greenhouse Gas Emissions

Any atmospheric gas (either natural or released as a result of human action) which absorbs thermal radiation emitted by the Earth's surface. This traps heat in the atmosphere and keeps the surface at a warmer temperature than would otherwise be possible; this commonly called the greenhouse effect.

Combined Heat and Power/Combined Cooling Heat and power (CHP/CCHP)

The simultaneous generation of heat and power, putting to use heat that would normally be wasted. This results in a highly efficient way to use both fossil fuel and renewable energy fuels.

Energy Efficiency

Making the best or most efficient use of energy in order to achieve a given output of goods or services, and of comfort and convenience.

Feed-in tariffs

A type of support scheme for electricity generation, whereby renewable generators obtain a long-term guaranteed price for the output they deliver to the grid.

Mitigation

Action to tackle the causes of climate change by reducing the emissions of greenhouse gases (or enhance the sinks that can absorb the gases).

Planning & Energy Act

The Planning & Energy Act 2008 enables local planning authorities in Wales to set reasonable requirements in the LDP for the generation of energy from local renewable sources and low carbon energy and for energy efficiency.

Renewable energy

Energy generated from natural resources which are naturally replenished.

Notes

Rogiet Primary School, Newport



Client	Monmouthshire County Council
Architect	White Design
Assessment	BREEAM Bespoke
Level	Excellent

Annex B

Environmentally Sustainable Design Solutions

Environmentally Sustainable Design Solutions (This list is not exhaustive)

Categories	Environmentally Sustainable Design Solutions
Energy/CO₂	<ul style="list-style-type: none"> • A building may be sited and orientated to reduce the demand for energy (i.e. benefit from sunlight in order to reduce the amount of energy it requires) • A building may incorporate high levels of energy efficiency • A low or zero carbon energy technology may be proposed such as <ul style="list-style-type: none"> • a solar hot water panel may be incorporated into the building or on the site to reduce the carbon emissions associated with the buildings • a biomass plant may be located on the site to provide heat to the development • A cycle storage outbuilding may be included in the proposal to benefit from extra credits to promote sustainable modes of travel
Water	<ul style="list-style-type: none"> • A rainwater harvesting system that uses wastewater from showers, baths and hand basins collected and treated for purposes around a building such as toilet flushing or garden watering (non-potable) • Space for a water butt may be provided
Materials	<ul style="list-style-type: none"> • Use of materials with a low environmental impact • Use of materials that are responsibly sourced • Use of hard landscaping • Reuse of facades • Designing for robustness
Surface water run-off	<ul style="list-style-type: none"> • Sustainable drainage systems
Waste	<ul style="list-style-type: none"> • The provision of site wide recycling facilities • Dedicated external space for the storage of bins
Health and well-being	<ul style="list-style-type: none"> • Orientation of buildings, fenestration, windows • Private space • Lifetime Homes Standard • External lighting
Management	<ul style="list-style-type: none"> • Incorporation of 'Secured By Design' principles

Categories	Environmentally Sustainable Design Solutions
Pollution	<ul style="list-style-type: none"> • Air quality • The location of the development and flood risk (flood zones) • Watercourse pollution • The impact of night time light pollution • Noise
Transport	<ul style="list-style-type: none"> • Accessibility to public transport network • Proximity to local amenities • Proximity to accessible local amenities • Secure and well-lit cycle storage facilities • Pedestrian and cyclist safety through site layout • Travel Plan • Car parking
Land Use	<ul style="list-style-type: none"> • Use of previously developed land • Use of contaminated land through remediation
Ecology	<ul style="list-style-type: none"> • Ecological value of land • Design and protection of ecological features • Change in ecological value of the site • Building Footprint • Impact on biodiversity

Notes

Mid Street, South Nutfield, Surrey



Client	Raven Housing Trust
Architect	Harrington Design and Bloomfield Ltd
Assessment	Code for Sustainable Homes
Level	Level 5

Sample certificates have been provided by BRE Global Ltd

Sample Certificates

Code for Sustainable Homes Certificate (Example)																	
Interim Certificate	Final Certificate																
<div data-bbox="190 327 869 497"> <p>THE CODE FOR SUSTAINABLE HOMES</p>  <p>INTERIM CERTIFICATE (Issued at the Design Stage)</p> </div> <div data-bbox="459 510 571 534"> <p>ISSUED TO:</p> </div> <div data-bbox="369 558 672 638"> <p>Example Plot 1, Example Street, Example Town, Example County, EX1 1ST</p> </div> <div data-bbox="280 662 750 726"> <p>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 2008 version.</p> </div> <div data-bbox="324 734 705 790">  </div> <div data-bbox="324 790 750 837"> <p>Above Regulatory Standards Current Best Practice Highly Sustainable and Zero Carbon</p> </div> <div data-bbox="280 837 750 853"> <p>The next page sets out how this home achieved its rating in the nine categories.</p> </div> <div data-bbox="347 869 705 885"> <p>ENE 1 - Dwelling Emission Rate - Credits achieved: 6</p> </div> <table border="1" data-bbox="257 901 795 1077"> <tr> <td>Licensed Assessor Example Assessor Name</td> <td>Assessor Organisation Code Assessor Organisation</td> </tr> <tr> <td>Client Example Client</td> <td>Developer Example Developer</td> </tr> <tr> <td>Architect Example Architect Firm/Name</td> <td>Certificate Number EXAMPLE-DS-2009427021817</td> </tr> <tr> <td>Date XX XXXXXXXXXX XXXX</td> <td>Signed for and on behalf of BRE Global Ltd</td> </tr> </table> <div data-bbox="246 1220 369 1268">  </div> <div data-bbox="380 1204 672 1276"> <p>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 SD123). To check the authenticity of this certificate, please contact BRE Global Ltd.</p> </div> <div data-bbox="694 1228 795 1252"> <p>Service provider</p> </div>	Licensed Assessor Example Assessor Name	Assessor Organisation Code Assessor Organisation	Client Example Client	Developer Example Developer	Architect Example Architect Firm/Name	Certificate Number EXAMPLE-DS-2009427021817	Date XX XXXXXXXXXX XXXX	Signed for and on behalf of BRE Global Ltd	<div data-bbox="1008 327 1680 497"> <p>THE CODE FOR SUSTAINABLE HOMES</p>  <p>FINAL CERTIFICATE (Issued at the Post Construction Stage)</p> </div> <div data-bbox="1288 510 1400 534"> <p>ISSUED TO:</p> </div> <div data-bbox="1198 558 1500 638"> <p>Example Plot 1, Example Street, Example Town, Example County, EX1 1ST</p> </div> <div data-bbox="1086 662 1624 726"> <p>The sustainability of this home has been independently assessed at the Post Construction Stage and has achieved a Code Rating of 3 out of 6 stars under the October 2008 version.</p> </div> <div data-bbox="1131 734 1512 790">  </div> <div data-bbox="1131 790 1556 837"> <p>Above Regulatory Standards Current Best Practice Highly Sustainable and Zero Carbon</p> </div> <div data-bbox="1097 845 1568 869"> <p>The next page sets out how this home achieved its rating in the nine categories.</p> </div> <div data-bbox="1153 877 1512 901"> <p>ENE1 - Dwelling Emission Rate - Credits Achieved: 6</p> </div> <table border="1" data-bbox="1064 909 1601 1085"> <tr> <td>Licensed Assessor Example Assessor Name</td> <td>Assessor Organisation Code Assessor Organisation</td> </tr> <tr> <td>Client Example Client</td> <td>Developer Example Developer</td> </tr> <tr> <td>Architect Example Architect Firm/Name</td> <td>Certificate Number EXAMPLE-DS-2009427021817</td> </tr> <tr> <td>Date XX XXXXXXXXXX XXXX</td> <td>Signed for and on behalf of BRE Global Ltd</td> </tr> </table> <div data-bbox="1064 1204 1198 1260">  </div> <div data-bbox="1198 1197 1489 1268"> <p>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 SD123). To check the authenticity of this certificate, please contact BRE Global Ltd.</p> </div> <div data-bbox="1523 1220 1624 1244"> <p>Service provider</p> </div>	Licensed Assessor Example Assessor Name	Assessor Organisation Code Assessor Organisation	Client Example Client	Developer Example Developer	Architect Example Architect Firm/Name	Certificate Number EXAMPLE-DS-2009427021817	Date XX XXXXXXXXXX XXXX	Signed for and on behalf of BRE Global Ltd
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Client Example Client	Developer Example Developer																
Architect Example Architect Firm/Name	Certificate Number EXAMPLE-DS-2009427021817																
Date XX XXXXXXXXXX XXXX	Signed for and on behalf of BRE Global Ltd																

BREEAM Certificate (example)

Interim Certificate



The Code for Sustainable Buildings

This is to certify that

**Building 1, Example Street,
Example Town, Example County,
EX1 1ST**

has achieved an interim score of 58.50%, and a BREEAM rating of

VERY GOOD



This Design stage assessment was carried out under the 2008 version of BREEAM Offices

Richard Boyd

Signed on behalf of BRE Global Ltd

XX XXXXXXXXXXX XXXX
Date

Example Assessor Name
Licensed Assessor

Example Assessor Organisation
On behalf of

Example Developer
Developer

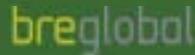
Example Architect Firm/Name
Architect

Example Client
Client

Example Contractor
Contractor

Certificate Reference: OS-OFF-TA12-3

Building CO₂ Index: 35
Ene1 Reduction of CO₂ emissions credits achieved: 7



The certificate is valid for a period of 12 months from the date of issue. For more information on the BREEAM certification process, please visit www.breeam.org

Final Certificate



The Code for Sustainable Buildings

This is to certify that

**Building 1, Example Street,
Example Town, Example County,
EX1 1ST**

has achieved a final score of 56.24%, and a BREEAM rating of

VERY GOOD



This Post Construction assessment was carried out under the 2008 version of BREEAM Offices

Richard Boyd

Signed on behalf of BRE Global Ltd

XX XXXXXXXXXXX XXXX
Date

Example Assessor Name
Licensed Assessor

Licensed Assessor Organisation
On behalf of

Example Developer
Developer

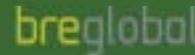
Example Architect Firm/Name
Architect

Example Client
Client

Example Contractor
Contractor

Certificate Reference: OS-OFF-TA12-3

Building CO₂ Index: 23
Ene1 Reduction of CO₂ emissions credits achieved: 11



The certificate is valid for a period of 12 months from the date of issue. For more information on the BREEAM certification process, please visit www.breeam.org

Notes

Pembrokeshire College Construction Centre, Haverfordwest



Client	Pembrokeshire College
Architect	Austin-Smith: Lord
Assessment	BREEAM Bespoke
Level	Excellent

Sources and further information

Planning

Welsh Assembly Government/

- Climate Change
- Sustainable Development
- Energy

www.wales.gov.uk/climatechange
www.wales.gov.uk/sustainabledevelopment
[http://wales.gov.uk/topics/
environmentcountryside/energy](http://wales.gov.uk/topics/environmentcountryside/energy)

Planning Policy Wales/

- Technical Advice Note 8 Planning for Renewable Energy
- Technical Advice Note 12 Design
- Technical Advice Note 15 Development and Flood Risk
- Technical Advice Note 18 Transport

www.wales.gov.uk/planning

Planning Inspectorate Wales

Planning Portal

Design Commission for Wales

<http://www.planning-inspectorate.gov.uk/>
www.planningportal.gov.uk
www.dcfw.org.uk

General Information and Resource

BREEAM

BSI British Standards (BSI)

Building Cost Information Service (BCIS)

Building Regulations

www.breeam.org

www.bsi-global.com

<http://www.bcis.co.uk>

www.communities.gov.uk

[http://www.planningportal.gov.uk/england/
professionals/en/1115314112742.html](http://www.planningportal.gov.uk/england/professionals/en/1115314112742.html)

Building Research Establishment

www.bre.co.uk

Carbon Trust

Centre for Alternative Technology (CAT)

Code for Sustainable Homes

www.carbontrust.co.uk

www.cat.org.uk

[http://www.planningportal.gov.uk/england/
professionals/en/1115314116927.html](http://www.planningportal.gov.uk/england/professionals/en/1115314116927.html)

Code for Sustainable Homes -
Additional Guidance

<http://www.breeam.org/page.jsp?id=235>

Constructing Excellence

www.constructingexcellence.org.uk

Ebbw Vale Energy Strategy	http://www.theworksebbwvale.co.uk
Energy Saving Trust	www.est.org.uk
- Code For Sustainable Homes guidance	
- Passive Solar Estate Layout (GIR27)	
- Community heating - a guide for developers and planners	
Environment Agency Wales	www.environment-agency.gov.uk
Forestry Stewardship Council	http://www.fsc-uk.org/
Lifetime Homes	http://www.lifetimehomes.org.uk/
National Green Specification	http://www.greenspec.co.uk/
National Home Energy Rating	http://www.nher.co.uk/index.php
NetRegs - free environmental guidance for small and medium-sized businesses throughout the UK	http://www.netregs.gov.uk/netregs/default.aspx
Passiv Haus (BRE)	http://www.passivhaus.org.uk/
PassivHaus	www.passivhaus.org.uk
Secured By Design	http://www.securedbydesign.com/
Smart Waste	http://www.smartwaste.co.uk
Sustainable Development Commission - Wales	http://www.sd-commission.org.uk/wales.php
Sustainable Buildings Portal	www.sustainablebuildingportal.gov.uk
The Carbon Trust	www.carbontrust.co.uk
UK Green Building Council	www.ukbc.org
Wales Low/Zero Carbon Hub	http://wales.gov.uk/topics/sustainabledevelopment/design/zerocarbonhub
Waste Resource Action Programme (WRAP) (Wales)	www.wrap.org.uk/construction
- Opportunities to use recycled materials in house building, reference guide, 2004	http://dowtb.wrap.org.uk
- Setting a requirement for recycled content in building projects (2008)	
- Designing out Waste Tool for Buildings	
- Designing out waste: a design team guide for buildings	
Wood knowledge Wales	http://www.woodknowledgewales.co.uk

Professional Bodies and Trade Associations

General

Royal Town Planning Institute Cymru	www.rtpi.org.uk/cymru
Royal Society of Architects in Wales	http://www.architecture.com/Regionsandinternational/UKNationsandregions/Wales/RSAW.aspx
Royal Institution of Chartered Surveyors Wales	http://www.rics.org/wales
The Chartered Institute of Building	http://www.ciob.org.uk/home

Energy Trade Associations

The Renewable Energy Association	http://www.r-e-a.net/
Solar Trade Association	www.greenenergy.org.uk/sta
British Photovoltaic Association	www.greenenergy.org.uk/pvuk2
Renewable UK	www.bwea.com
British Hydro-power Association	www.british-hydro.co.uk
The National Energy Foundation (Biomass)	www.nef.org.uk/logpile
Ground Source Heat Pump Association	www.nef.org.uk/gshp
UK Heat Pump Network	www.heatpumpnet.org.uk
Combined Heat and Power Association	www.chpa.co.uk
Association for the Conservation of Energy	http://www.ukace.org/

Others

Association for the Conservation of Energy	www.ukace.org
UK Rainwater Harvesting Association	http://www.ukrha.org/
UK Timber Frame Association	http://www.timber-frame.org/
Construction Products Association	http://www.constructionproducts.org.uk/
Construction Industry Council	www.cic.org.uk
Construction Industry Research and Information Association (CIRIA)	http://www.ciria.org.uk/
Town and Country Planning Association - Sustainable Energy By Design	http://www.tcpa.org.uk/
NHBC - Guide to renewable energy (R17/A4.2)	http://www.nhbc.co.uk/