



RUGBY BOROUGH COUNCIL



LOCAL DEVELOPMENT FRAMEWORK

SUSTAINABLE DESIGN AND CONSTRUCTION



SUPPLEMENTARY PLANNING DOCUMENT



FEBRUARY 2012



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Abbreviations:

SPD	Supplementary Planning Document
DPD	Development Plan Document
WMSC	West Midlands Sustainability Checklist
SC	Sustainability Checklist
WSC	Warwickshire Water Cycle Study
SuDS	Sustainable Urban Drainage System
CABE	Commission for Architecture and the Built Environment

1. INTRODUCTION

1.1 Background

The purpose of this document is to support the increasing requirement to create more sustainable development. It focuses on the design and construction of built development, considering urban design, resource efficiency, the impact of climate change and the creation of places where people can live, work and play.

This SPD forms part of the Rugby Borough Local Development Framework and supports the policies set out in the adopted Rugby Borough Core Strategy Development Plan Document (DPD), particularly policies CS16 Sustainable Design and CS17 Sustainable Buildings.

This document replaces the Sustainable Design and Construction SPD June 2009 and the Residential Design Guide SPD 2005.

1.2 What is a Supplementary Planning Document?

A Supplementary Planning Document (SPD) is one of the material considerations that can be taken into account when determining a planning application for development. It is intended to provide helpful guidance for developers, applicants and other parties involved in the development process. The valuable role that Supplementary Planning Documents (SPD) can play in supplementing the policies and proposals of the Development Plan is set out in Planning Policy Statement (PPS) 12: Local Spatial Planning.

1.3 How to use this document:

This Supplementary Planning Documents should be used as a guide to aid the achievement of Rugby Borough Council's Core Strategy Design policies CS16 & CS17.

Within the first section of the document the statutory background to the Design policies contained within the Core Strategy is set out alongside the local evidence base that supports them.

The second section of the document contains advice and guidance on how the standards within Core Strategy policies can be achieved and how to demonstrate compliance to the Council as part of a planning application:

- Chapter 3 outlines the policy requirements of Core Strategy policy CS16 Design and recommends the use of guidance notes and toolkits that will enable an applicant to demonstrate compliance with this policy.
- Chapter 4 outlines the policy requirements of CS17 Sustainable Buildings and recommends further tools that can be used by applicants to investigate how they can achieve the required sustainability standards.

The third section relates to the implementation of Core Strategy policies. The policy requirements of policies CS16 and CS17 for different types of development are summarised and then the topics that are likely to be discussed as part of negotiations between Planning Officers and applicants relating to the financial viability and technical feasibility of proposals are outlined. This section also provides sample planning conditions.

Finally the appendices of the SPD contain, information about how the Council will monitor policies CS16 and CS17 and the Residential Design Guide which offers advice and outlines the principles of extending a dwelling, without unduly affecting neighbours and respecting the character of the area and existing property.

This document is wide ranging and currently comprehensive, however, it is recognised that the subject of sustainability particularly related to development, is rapidly changing, so the information will change over time. Section 6.3 of this document is particularly relevant here where the technical feasibility and financial viability of each scheme will result in different provisions on a case by case basis.

1.4 Link to Building Regulations

Building Regulations are set by the Government and provide technical standards for different aspects of a building's construction to ensure that minimum health and safety levels are achieved. These regulations apply to most new buildings and many alterations to existing buildings.

The Building Regulations include standards which relate to the environmental impact of buildings. These include standards on energy conservation (Part L), ventilation (Part F), drainage (Part H) and waste storage (Part H). Checking compliance with the Building Regulations is a separate process to getting planning approval.

However as both the Building Regulations and planning policies need to be met for a development to be able to go ahead it is more effective and faster if they are both considered together in the design process. CS16 and CS17 and the guidance in this SPD and online will help achieve compliance with the relevant Building Regulations. The Council encourages standards of design and construction that go beyond the minimum standards set out in the Building Regulations.

2. **BACKGROUND**

2.1 **Sustainable Design and Construction**

Sustainable development is central to the spatial planning system in the UK. As a result, consideration of sustainability criteria is now of prime importance in the design of new development.

Sustainable design seeks to lay out development so that it makes maximum use of natural and renewable resources such as the sun, the rain and the wind. It encourages people to use and move around a development in more sustainable ways, by walking, cycling and using public transport rather than being totally dependent on using private cars. Sustainable design allows people to reuse and recycle their waste materials and creates a range of interesting and different environments, with green space well integrated with built space. It also seeks to use non-renewable resources, such as land, more efficiently.

Sustainable construction seeks to build development in an efficient way so that scarce and valuable resources are not wasted. It insulates walls and roofs to keep people warm in winter and cool in summer, with minimum need for additional energy. Where energy is provided renewable sources are used such as solar panels set within the fabric of the building. Water is re-circulated, either as rainwater or grey water or both, before being released into the drainage system. Construction materials are locally sourced from renewable resources, whilst buildings are erected by local labour, so that transportation is minimised.

Sustainable design and construction is a positive response to the effects of climate change through achieving the following:

- Reducing energy consumption and promoting the use of renewable energies;
- Reducing the use of transport, which increases the emission of carbon dioxide and other greenhouse gases into the atmosphere;
- Conserving and reusing water, thereby reducing consumption;
- Slowing the speed at which rain flows into the natural water course network, so as to reduce flooding;
- Using materials more efficiently;
- Reducing and reusing waste;
- Increasing recycling so that the material left to go to landfill can be accommodated in the very limited facilities available.

2.2 **Key drivers and policy framework:**

The **Climate Change Act 2008** puts into statute the governments target to reduce CO₂ emissions through domestic and international action to 60% below 1990 levels by 2050.

National Policy Framework

Planning Policy Statement (PPS) 1: Delivering Sustainable Development

Paragraph 5 of PPS1 requires local authorities to facilitate and promote sustainable and inclusive patterns of urban and rural development by:

- Making suitable land available for development in line with economic, social and environmental objectives to improve people's quality of life;
- Contributing to sustainable economic development;
- Protecting and enhancing the natural and historic environment, the quality and character of the countryside, and existing communities;

- Ensuring high quality development through good and inclusive design, and the efficient use of resources;
- Ensuring that development supports existing communities and contributes to the creation of safe, sustainable, liveable and mixed communities with good access to jobs and key services for all members of the community.

The **Supplement to Planning Policy Statement 1 (Planning and Climate Change)** sets out how spatial planning should contribute to reducing emissions and stabilising climate change (mitigation) and take into account the unavoidable consequences (adaptation). It requires local planning authorities to set policies on the provision of low carbon and renewable sources of energy to provide the platform necessary for securing and complementing the increasingly high levels of energy efficiency required by Building Regulations.

Local Policy Framework

Chapter 7: Design, of the Core Strategy seeks to achieve high quality, inclusive design alongside the highest viable standards of environmental performance in all developments. This SPD supports policies CS16 Sustainable Design and CS17 Sustainable Buildings. The content of these policies is outlined in subsequent chapters of this document.

2.3 Local Evidence Base

Warwickshire and Solihull Renewable and Low Carbon Energy Resource Assessment and Feasibility Study (“Renewable Energy Study”), Camco, 2010

In accordance with PPS1 and PPS22 this study informed the local authorities of Warwickshire and Solihull Metropolitan Council of the potential viability and deliverability of various renewable and low carbon options which provided an evidence base for the production of subsequent Development Plan documents.

The study assessed the potential for local renewable energy looking at decentralised generation together with opportunities in future new development and retrofit within existing buildings. Options for setting carbon standards have been considered, in particular the viability of exceeding the nationally proposed zero carbon buildings road map.

The findings of this Warwickshire based study are supported by the findings of the West Midlands Renewable Energy Capacity Study, commissioned by Telford and Wrekin Council, on behalf of the West Midlands local authorities, and published March 2011. The conclusions found wind and biomass to be the most significant renewable energy resources in Rugby Borough followed by the technologies used to improve the carbon efficiency of new developments. The study is available to view on the Telford and Wrekin web pages, www.telford.gov.uk.

The various renewable and low carbon energy feasibility studies conclude that in Rugby decentralised wind energy and decentralised biomass will be the most significant renewable energy sources in the Borough in future, followed by the technologies used to improve the carbon efficiency of new developments.

Warwickshire Water Cycle Study, Halcrow, 2010

Halcrow Group Ltd was commissioned to undertake a WCS for the five Warwickshire Planning Authorities in consultation with the Environment Agency and Severn Trent Water. The objectives of the study were to undertake a review of existing processes and capacity and recommend the most appropriate infrastructure option to accommodate growth and any necessary flood risk mitigation of environmental management measures necessary to avoid adverse impacts.

The approach adopted for the WCS was mapped against Environment Agency guidance on undertaking such studies that highlights a three stage process; scoping, outline and detailed. This report is an outline WCS; it has been decided as part of the study that a detailed WCS is not required in this instance.

The study identified a number of shortfalls in water resource capacity affecting the ability of Severn Trent Water to meet target levels for the Severn Water Resource Zone, in which Rugby is located.

3. **SUSTAINABLE DESIGN**

3.1 **Introduction**

This chapter contains guidance as to how the policy requirements of Core Strategy policy CS16 Sustainable Design can be met. The policy requirements of CS16 are outlined in the box below and a number of tools and methods are recommended to achieve compliance. Further to this, information about how the Council intends to implement policy CS16 is also provided.

3.2 **High Quality Design**

The opening paragraphs of Policy CS16 require high quality design and the safeguarding of amenity. This should also include the amenity of future occupiers of the development.

CS16 extract

All development will demonstrate high quality, inclusive and sustainable design and will only be allowed where proposals are of a scale, density and design that would not cause any material harm to the qualities, character and amenity of the areas in which they are situated.

Development will ensure that the amenities of existing and future neighbouring occupiers are safeguarded.

New development should seek to complement, enhance and utilise where possible, the historic environment and must not have a significant impact on existing designated and non-designated heritage assets and their settings.

The following are sources of information that can assist applicants with the design of their proposal to ensure these policy requirements are met. Use of the various sources of information with regard the historic environment will ensure that any development proposal will not have a detrimental impact on heritage assets. The Residential Design Guide will assist applicants with the design of small scale domestic development such as extensions.

- **Historic Environment**

Where relevant development should complement or enhance the historic environment. This should be determined by utilising relevant documents such as Conservation Area Appraisals; Historic Landscape Characterisation and also the provisions contained within Planning Policy Statement 5: The Historic Environment. The listed buildings within the entire Borough can be found at http://www.rugby.gov.uk/site/scripts/download_info.php?downloadID=1110 alongside a list of Locally Listed Buildings within Rugby town centre which the Council maintains. In addition English Heritage maintains a page on its website where a search for heritage assets can be made. The webpage is www.englishheritage.org.uk/heritageprotection.

- **Residential Design Guide**

The Residential Design Guide offers advice for householders and professionals on the main principles of extending a dwelling, without unduly affecting neighbours and respecting the character of the area and existing property. The advice outlines the main considerations taken into account by the Council when assessing applications for extensions and whether they are in compliance with Core Strategy Policy CS16.

The Residential Design Guide can be found in Appendix B of this SPD.

3.3 West Midlands Sustainability Checklist and Design and Access Statements

The submission of a completed West Midlands Sustainability Checklist as part of a planning application is recommended within Chapter 7 of the Core Strategy. Since the adoption of the Core Strategy, funding for the Checklist from Advantage West Midlands has ended following the closure of all Regional Development Agencies. As such the West Midlands Sustainability Checklist is no longer supported. No new accounts or projects can be registered.

The West Midlands Sustainability Checklist was prepared by the West Midlands Regional Assembly and Advantage West Midlands with the help of the Building Research Establishment, and the support of the Department of Local Communities and Local Government, World Wildlife Fund, West Midlands Building Technology Cluster, West Midlands Regional Planning Officers Group, and Sustainability West Midlands. The checklist identified a range of different economic, social and environmental sustainability issues covered in National Guidance and enabled users to assess to what extent a development site proposal will deliver on the different aspects of sustainability.

Despite the effective withdrawal of the West Midlands Sustainability Checklist, Rugby Borough Council considers that there is still a significant role in the submission of a Checklist to demonstrate compliance with CS16 and CS17 that is not achieved elsewhere. However, the existing West Midlands Sustainability Checklist is an extensive document and not all is specifically relevant to demonstrate compliance to Core Strategy policy. As such, a bespoke Rugby Borough Sustainability Checklist (SC) has been produced to achieve just that. This is available to download at www.rugby.gov.uk alongside an electronic copy of this SPD.

CS16 extract

Sustainable drainage systems (SuDS) should be proportionately incorporated in all new scales of developments. Infiltration SuDS should be promoted where it is practical. Where infiltration SuDS are not applicable surface water should be discharged to a watercourse in agreement with the Environment Agency.

Considerations in reducing the use of non renewable resources and taking into account the impacts of climate change include:

Urban heat islands and cooling;

Promoting sustainable methods of transport;

Conserving and enhancing the built and natural environment.

The SC is a valuable tool in the negotiation process between developers and planning officers and developers should submit a completed Checklist to demonstrate how proposals will minimise energy consumption and adapt to the future impacts of Climate Change. More guidance is provided in Chapter 5 of this SPD.

Sustainable Drainage Systems

In 2010, the Flood and Water Management Act gained royal ascent. This Act transferred the responsibility of approving the appropriateness of a Sustainable Drainage System for a development from the Environment Agency to local authorities. This is to be achieved through the creation of SUDS Approval Board (SAB). Under the Flood and Water Management Act, the Lead Local Flood Authority (LLFA), in this case, Warwickshire County Council are in the process of creating a SuDS Approval Board (SAB) which is currently anticipated to be implemented late in 2012. All developments including housing when there is more than one dwelling included in the application will need SuDS approval. Once in place further guidance will be made available as necessary.

3.4 Water Efficiency

The penultimate paragraph of Policy CS16 (below) contains water efficiency requirement for domestic and non domestic buildings.

CS16 Extract

All new residential development should meet the water conservation standards in Level 4 of the Code for Sustainable Homes. Non-residential development shall demonstrate water efficiency of the relevant BREEAM very good standard.

The Warwickshire Water Cycle Study (WCS) explains that there are a number of shortfalls in water resource capacity affecting the ability of Severn Trent Water to meet target levels for the Severn Water Resource Zone, in which Rugby is located. As a result, the WCS recommends new development achieves the water standards of CfSH level 3 or 4 as a minimum and this recommendation is reflected within Policy CS16.

The Code for Sustainable Homes contains an increasing minimum standard for water efficiency for each Code level:

Maximum water consumption (litres/person/day)	Mandatory Levels
120	Levels 1 and 2
105	Levels 3 and 4
80	Levels 5 and 6

Part G of Building Regulations was updated in April 2010 to include a water efficiency requirement that is equivalent to Code Level 1 or 2. The requirement in Policy CS16 therefore exceeds current building regulations.

Calculating Water Efficiency

The Department for Communities and Local Government has published a national calculation methodology for assessing water efficiency in new dwellings: The Water Efficiency Calculator for New Dwellings. The methodology calculates the whole

house potable water consumption in new dwellings and can be used to assess compliance against the water performance targets in Buildings Regulations and the Code for Sustainable Homes. It can therefore be used by applicants to calculate the water efficiency of their proposed development and to demonstrate compliance with Core Strategy Policy CS16. Planning officers may also use the calculator to demonstrate compliance.

The methodology document and calculator tool is available on the DCLG website at: <http://www.communities.gov.uk/publications/planningandbuilding/watercalculator>

More guidance on when the water efficiency standard achieved should be submitted to the Council and example planning conditions relating to water efficiency are included within this SPD in Chapter 5.

For further information about increasing the water efficiency of new buildings please contact the Building Control department: 01788 533 533.

4 SUSTAINABLE BUILDINGS

Introduction

This chapter contains guidance as to how the policy requirements of CS17 of the Core Strategy can be met. The requirements of CS17 are outlined and a number of tools and methods are recommended to achieve compliance. Further to this, information about how the Council intends to implement policy CS17 is also provided.

4.1 Carbon and Energy Efficiency

National planning policy outlines a steady increase in the energy efficiency standards to be required by Building Regulations up to 2016 when all new dwellings will be required by Building Regulations to be zero carbon:

Table 1: Proposed carbon improvements over time:

Date	2010	2013	2016
Carbon improvement as compared to Part L (BRs 2006)	25%	44%	Zero carbon
Equivalent energy/carbon standard in the Code.	Code Level 3	Code Level 4	Code Level 6

Source: Building a Greener Future: Policy Statement. Department for Communities and Local Government

Core Strategy Policy CS17 contains some locally specific requirements for development in the Borough that it is hoped will result, where possible, in larger carbon savings than those set out in the table above.

Information about the renewable and low carbon energy technologies available can be found on the Council's web pages, www.rugby.gov.uk. The Enplanner Toolkit, referred to below, also contains similar information. This is available to view at www.enplanner.com.

4.2 Calculating 10% Carbon Reduction

Policy CS17 requires all new development to achieve a 10% reduction in carbon dioxide emissions to be achieved through the incorporation of decentralised, renewable and low carbon energy technologies.

CS17 Extract

As a minimum, all new development of 10 dwellings or 1000sqm of non-residential floor space or more shall incorporate decentralised and renewable or low carbon energy equipment to reduce predicted carbon dioxide emissions by at least 10%.

This Policy wording is defined within the PPS1 Practice Guidance. It should be noted that the phrase "reduce predicted carbon dioxide emissions" refers to the total site CO2 emissions for all end uses, not just those regulated by Building Regulations.

As recommended in the Practice Guidance to the Supplement to PPS1 the carbon dioxide baseline will be calculated through estimating the emissions that would arise from the building if it were designed to comply with Building Regulations and an allowance for unregulated emissions. Any reductions in emissions that would result from planned efficiency improvements are deducted to arrive at a baseline emission rate that the percentage contribution from decentralised and renewable and low carbon sources can be measured against. Rugby Borough Council recommend that applicants use the Enplanner Toolkit to aid them in achieving carbon saving targets (see para 4.5).

The Practice Guidance to the Supplement to PPS1 is available on the Homes and Communities Agency website for further information, www.homesandcommunities.co.uk/ourwork/sustainable-development

4.3 Carbon efficiency within the Sustainable Urban Extensions

The Council believes major development proposals, including those relating to Strategic Urban Extensions provide a valuable opportunity to maximise the potential for reducing carbon emissions through improved energy efficiency in both construction and design. For this reason, Policy CS17 requires development of this nature to achieve the highest technically feasible and financially viable carbon efficiency standards of the Code for Sustainable Homes, even when these standards are higher than those required at the national level.

CS17 Extract

Development of the Sustainable Urban Extensions will achieve the highest technically feasible and financially viable carbon efficiency standards of the Code for Sustainable Homes possible, even when these standards are higher than those expected at the national level.

The carbon efficiency standard to be achieved should be agreed with Planning Officers as part of the application process, and set through condition of a planning permission. Information relating to technical feasibility and financial viability will be considered during this negotiation process (see Chapter 5). The Council will encourage the design of large scale developments that are likely to be phased, to meet the standards that will be required when proposals begin to be implemented as outlined in table 1. Planning Officers may use the Enplanner Toolkit to assess the carbon efficiency of proposed developments, where applicable.

4.4 The Enplanner Toolkit

The Enplanner is an online toolkit that is designed to make it easier for applicants to meet local planning requirements for onsite renewable energy generation as part of their development proposal and allow planning officers to check these requirements have been met. Rugby Borough Council was involved in the commissioning and development of the Enplanner alongside Encraft, the Carbon Trust and other CSWAPO* authorities.

The Enplanner is a multi-functional piece of software that operates at three levels of complexity. The toolkit enables users to:

- calculate the annual energy consumption and carbon emissions of a proposed development;

* CSWAPO – Coventry, Solihull and Warwickshire Area Planning Officers

- find out about location specific renewable resource information and indicative renewable technology specifications and the contribution that could be made to meeting carbon saving targets;
- view the total annual energy consumption and carbon emissions before and after adding renewable technologies and the extent to which these technologies will meet planning requirements; and
- generate an energy statement, summarising the likely degree of compliance to planning policies using the renewable technologies selected. This can be submitted as part of a planning application.

Rugby Borough Council Planning Officers will use the Enplanner where relevant to check that planning proposals are achieving the related carbon saving targets of CS17. It is recommended therefore that an Enplanner Sustainability Statement is submitted with applications, further guidance on this is provided in table 2 in Chapter 5 in addition to example planning conditions relating to carbon efficiency.

5 JUSTIFYING THE PROPOSED APPROACH

Introduction

This chapter will outline a summary of policy requirements as referred to in previous chapters and provides advice as to the information that should be submitted alongside a planning application to justify the proposed approach towards Sustainable Design and Construction. The likely content of negotiations regarding Sustainable Design and Construction are then outlined, providing information about the Council's expectations so that applicants can prepare accordingly.

5.1 Summary of requirements

The below table provides a summary guidance on how applicants are expected to demonstrate compliance with the relevant policy requirements of CS16 and CS17. It differentiates between the requirements from domestic; minor and major development. It is however acknowledged that an applicant may not be in possession of all of the information required at an outline stage for provision of the below requirements. In such cases, if an outline planning approval is granted, it will be accompanied by a condition which requires demonstration of compliance of the relevant policy requirements at the detailed stage. Furthermore in the case of other requirements such as the water efficiency requirements, it is highly likely that this will be demonstrated through compliance with a condition. Sample conditions are in section 5.3.

If there is any uncertainty it is recommended that the applicant speaks to the Council's Development and Enforcement Team.

Table 2: Rugby Borough Council's Sustainable Design and Sustainable Buildings requirements and recommended methods of demonstrating compliance:

Development type	Policy Requirement	Recommended method of demonstrating compliance
Domestic development: Residential extensions and alterations.	High quality inclusive and sustainable design... that does not cause any material harm to character and amenity	Demonstrate compliance with the Residential Design Guide.
Minor Development: up to 10 dwellings up to 1000 sqm floor space	High quality, inclusive and sustainable design... (CS16) SUDS should be proportionately incorporated (CS16).	Submitted SC report.
	Water efficiency standard of CfSH L3/4 (Policy CS16)	Water Efficiency Calculator
Major Development: More than 10 dwellings more than 1000 sqm floor space	SUDS should be proportionately incorporated (CS16).	Submitted SC report
	Water efficiency of CfSH L3/4 (Policy CS16)	Water Efficiency Calculator
	10% reduction in carbon emissions through the incorporation of low carbon energy equipment (Policy CS17).	Use of the Enplanner and submission of a Sustainability Statement is recommended.

Strategic Urban Extensions: i.e. Gateway Rugby, Rugby Radio Station or Long Term Growth Direction.	High quality, inclusive and sustainable design...(CS16)	Submitted SC report
	SUDS should be proportionately incorporated (CS16).	Submitted SC report
	Water efficiency of CfSH L3/4 (Policy CS16)	Water Efficiency Calculator
	Highest viable and feasible carbon efficiency standard of CfSH. Minima 10% saving through the incorporation of low carbon energy equipment. (Policy CS17)	Use of the Enplanner and submission of a Sustainability Statement is recommended.

5.2 Justifying the Proposed Approach

Policies CS16 and CS17 both state:

Actual provision will be determined through negotiation, taking account of individual site characteristics and issues relating to the viability of development.

The negotiation process can begin at the pre-application stage. In the event that the policy requirements of CS16 and CS17 are not technically feasible or financially viable, applicants must demonstrate why this is the case and negotiate the standards that will be achieved on site. The following represent the areas negotiation is likely to focus upon and the Council's expectations for each.

- **Technical feasibility:** the Council will require information regarding the physical characteristics of the proposed development site and the available renewable energy resource. The Enplanner Toolkit can provide valuable information as to the technical feasibility of renewable energy technologies on development sites. The compatibility or lack of, of these physical characteristics and the proposed development type and the resulting impact upon the feasibility of sustainability standards can then be discussed with the Council upon production of the assessment. Detailed compatibility issues can include information relating to space availability, integration with building energy systems and impact on the townscape.
- **Financial viability:** In some cases, the cost of achieving the required sustainability standards may make a development proposal unviable financially. If this is the case the Council will expect to see information about the capital cost of installing renewable energies alongside information relating the whole life cost over development lifetime, taking into account market mechanisms such as feed in tariffs. The impact of this upon the viability of a development site should be demonstrated using a viability assessment model such as the Homes and Communities Agency Economic Viability model.

Financial viability evidence that is submitted by a developer to demonstrate that they cannot meet the policy requirements of CS16 and CS17 will be considered to be commercially confidential if the applicant requests it to be. The applicant will need to justify upon submission why the information should be treated as such. However, as the Council is a public body it can be subject to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004. As such there can be no guarantees that if a request for information is made, that the Council will not be required to disclose some or all of the information.

The Council will consult with the applicant if a request for information under the Freedom of Information Act or Environmental Information Regulations is received, before deciding whether to release the information. If on submission of financial viability information, the applicant does not request for it to be treated as confidential, then the Council will place this information on the planning application public file.

- **Deliverability:** including the requirements for delivery and any available opportunities for example, securing delivery of infrastructure through Energy Service Companies.

5.3 Sample planning conditions

The below are examples of how a condition can be written for the implementation of the requirements of CS16 and CS17. They are structured in a way to allow for amendment for specific schemes and therefore are unlikely to be suitable for direct insertion.

Water Efficiency

Example Condition:

Prior to the first occupation of XXXX, details of water efficiency measures to be incorporated into the design of buildings to meet the standards below shall be submitted to and approved in writing by the Local Planning Authority. These approved measures shall then be incorporated into the design of each building prior to their first occupation and then retained in working order in perpetuity. Unless otherwise agreed in writing with the Local Planning Authority, the minimum standards shall be:

- i) Dwellings – equivalent to Code Level 4 of the Code for Sustainable Homes, ie 105 litres;
- ii) Non-residential development – equivalent to BREEAM very good standard.

REASON:

In order to ensure water efficiency through sustainable design and construction.

Carbon Efficiency

Where a development incorporates a 10% carbon reduction as part of the scheme the following condition may be relevant in terms of the installation and the retention of such scheme to ensure that the carbon reduction is maintained in perpetuity.

Example condition:

Prior to the first occupation of XXXX, details of the XXX technology to be incorporated into the design of the buildings to achieve the carbon reduction shall be submitted to and include the submission of an Energy Performance Certificate to the Local Planning Authority. Unless otherwise agreed in writing with the Local Planning Authority, the minimum standards shall be:

- i) 10% carbon emissions reduction efficiency.

The approved efficiency measures shall be implemented in accordance with this approval and shall be retained in working order in perpetuity.

REASON:

To ensure energy efficiency through sustainable design and construction is achieved in accordance with CS16 and CS17.

APPENDIX A - IMPLEMENTATION AND MONITORING

Planning and Climate Change, Supplement to Planning Policy 1, states effective monitoring and review is essential in securing responsive action to tackle climate change.

Appendix 1 of the Rugby Borough Core Strategy identifies how the policies within the Council's Local Development Framework will be monitored and managed to order to ensure their success in meeting the spatial objectives of the Core Strategy. Overleaf is an extract from the appendices which outlines how policies CS16, CS17 and this SPD will be monitored.

Regular review of the SPD will be undertaken in order to reflect the findings of the monitoring process.

Policy	Target	Indicator / Monitoring Arrangement	Related to Core Strategy Objective	Monitoring Responsibility	Resources Implications	Commentary
CS16: Sustainable Design and Construction	<p>High quality inclusive and sustainable design in all developments.</p> <p>Water conservation standards to level 4 of the Code for Sustainable Homes in all new residential development.</p> <p>Very good or excellent BREEAM standard water efficiency.</p>	<p>Core Output Indicator H6</p> <p>% of dwellings achieving Code for Sustainable Homes Level 4 or higher.</p> <p>% of non residential development achieving BREEAM very good or excellent.</p> <p>Monitoring of additions / losses to the non-statutory historic and archaeological environment.</p>	Environmental - 9	<p>Rugby Borough Council.</p> <p>Private Sector/ Developers</p>	<p>None, existing monitoring indicators are already in place.</p> <p>Resource implications may arise from the need to be knowledgeable of both the Code for Sustainable Homes and BREEAM standards</p>	
CS17: Reducing Carbon Emissions	<p>All major development to reduce predicted carbon dioxide emissions by at least 10%.</p>	<p>Core Output Indicator E3</p>	Environmental - 9	<p>Rugby Borough Council.</p> <p>Private Sector/ Developers.</p>	<p>None, existing monitoring indicators are already in place.</p>	

Table 3: Extract from the Implementation and Monitoring Framework, Appendix 1 of the Rugby Borough Core Strategy.

APPENDIX B - RESIDENTIAL EXTENSION DESIGN GUIDE

Content of the Design Guide:

1. Introduction
2. The need for permission
3. General principles for all extensions
4. Protecting amenity
5. Design and appearance
6. Guidance for typical extensions
7. Ecological Considerations
8. Design against crime
9. Further advice

1. Introduction

This chapter supersedes the previously adopted Residential Design Guide SPD 2005.

These guidelines offer advice for householders and professionals on the main principles of extending a dwelling, without unduly affecting neighbours and respecting the character of the area and existing property. The advice outlines the main considerations taken into account by the Council when assessing applications for extensions. Due to the diversity of dwelling types and styles throughout the Borough, it is neither possible nor desirable to include every eventuality. However, general principles can be applied in the majority of cases.

Extract from CS16

All development will demonstrate high quality, inclusive and sustainable design and will only be allowed where proposals are of a scale, density and design that would not cause any material harm to the qualities, character and amenity the areas in which they are situated.

Development will ensure that the amenities of existing and future neighbouring occupiers are safeguarded.

This document outlines the Council's guidelines and is intended to provide guidance as to how the above policy requirements can be met. However, all cases will be considered on their own merit.

If this guidance is followed residential extensions are more likely to be granted planning permission and unnecessary delays will be avoided. The guide relates to all forms of residential extensions. All sections of the guide should be read in conjunction with each other.

The Planning Department recommend that all residential extension ideas are checked by the Development Control team at an early stage to ensure both that they are compliant with local planning policies and also to help speed up the process of applying for and receiving planning permission. There are a number of ways in which Planning Officers can be contacted for advice:

- Rugby Borough Council Planning Officers are available to answer queries at the Town Hall reception during Council opening hours;
- They can also be contacted by telephone: 01788 533832; or
- Email: rbc.planning@rugby.gov.uk.

If you have any queries about the content of this Design Guide and its implications for your extension please contact a Planning Officer.

Further to this, more detailed advice is available via the Planning Portal website: www.planningportal.gov.uk

2. The Need for Permission

An extension to a dwelling is development. The Borough Council controls such development under the provision of the Planning Acts and the Building Regulations. The permissions that may be required for extensions are Planning Permission, Conservation Area Consent, Listed Building Consent and Building Regulation Approval

Permitted Development

Some extensions can be carried out as “permitted development” without the need to formally apply for planning permission.

This will depend on the type of dwelling, its location, whether the building is a listed building or in a conservation area, and the size and position of the extension. More detailed advice is available via the Planning Portal website: www.planningportal.gov.uk or from the Council’s Development Team: 01788 533832.

In some cases, some or all permitted development rights may have been removed, particularly on modern developments and barn conversions, for example. **It is always advisable to check ideas with the Council’s Development Team at an early stage.**

Conservation Area Consent and Listed Building Consent

Different standards may apply and additional consents may be required for extensions to dwellings that are Listed Buildings, or are situated in the Borough’s Conservation Areas.

Particular emphasis is placed on retaining the identity, appearance and character of a Conservation Area or a Listed Building.

For advice, please contact a Planning Officer: 01788 533832

Building Regulations Approval

Extensions may need Building Regulation Approval, whether or not planning permission is required.

Building Regulation Approval is a separate application from planning permission and ensures the design and construction of the extension meets the requirements of the building regulations. They deal with the health, safety, welfare and convenience of people in and around the building.

Full details and advice are available from the Council’s Building Control Section: 01788 533533

3. General Principles for all Extensions

The Council, when assessing a planning application for an extension, will consider:

- The effect of an extension on the scale and character of the existing building and the surrounding area; and
- The impact on residential amenities enjoyed by the occupiers of surrounding properties

The guidance contained in this document explains in more detail how these aims can be achieved. There may be examples of extensions in the area that do not comply with these guidelines. Such examples should not be seen as a precedent and will not be accepted as a reason to allow a similar proposal.

4. Protecting Amenity

It is important to consider the effect an extension would have on the neighbouring properties and the surrounding area. In addition the amenity of the future occupiers needs consideration.

Prior to submitting an application it can be very helpful to discuss proposals first with any neighbours who could be affected. If planning permission is required, following receipt of the application, the Council will notify the neighbours and publicise the proposals where appropriate. The Council will take into account any representations received in determining the planning application.

Daylight and Sunlight

An extension should not cause any significant loss of light to habitable rooms in neighbouring properties, or restrict sunlight to that part of a neighbouring garden close to the rear of the property that is used for sitting in or recreation.

Daylight and sunlight to adjoining properties must be safeguarded. Extensions to dwellings that mask a single window to a habitable room, such as a bedroom, lounge or dining room, are unlikely to be acceptable. In addition, overbearing extensions could affect amenity in the garden. The relationship between the properties, including any change in ground levels and orientation must be taken into account when determining the residential impact of the development.

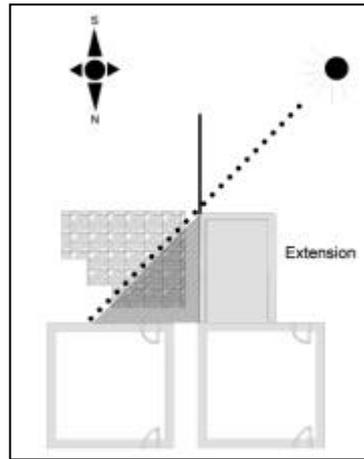
To maintain a reasonable relationship between an extension and any neighbouring properties, the Council will assess all extensions against the “45° Guideline”.

45° Guideline

The 45° Guideline provides a useful tool to prevent loss of daylight to neighbouring properties and their gardens.

To comply with this guideline, extensions should be designed so as not to cross the appropriate line drawn at an angle of 45° from an adjoining neighbour’s dwelling (see diagrams below). For single storey extensions, the 45° line is taken from the mid-point of a window, which is also the main light source for a habitable room (Line X), and for two-storey extensions 1 metre in from the edge of the neighbouring dwelling is used (Line Y); this prevents loss of daylight to neighbouring properties and overbearing extensions.

The 45° guideline needs to be interpreted carefully and flexibly. For example, if the extension has a much larger building behind it then the daylight from that direction may already be blocked.



Extension restricts sunlight to garden and window

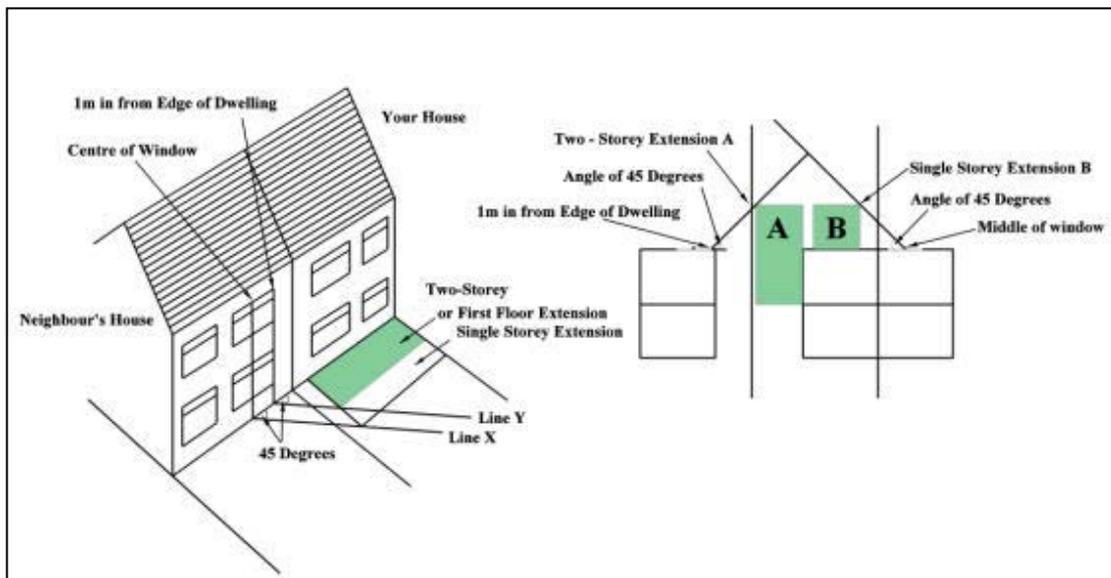
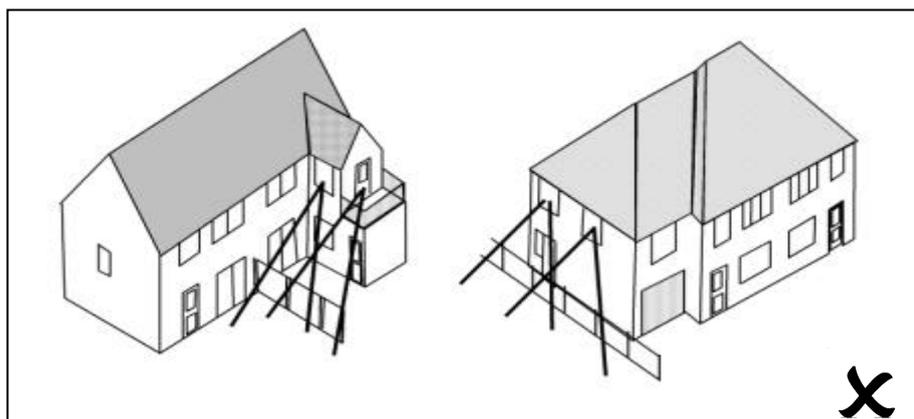


Diagram of 45° Guideline (not to scale)

Overlooking

An extension should not result in any significant loss of privacy to adjoining dwellings or gardens.

The main priority is privacy to habitable rooms and private gardens. Therefore, extensions should not be built with side facing windows near to boundaries that overlook a neighbour's property. In addition, changes in ground level may have an affect on privacy and should be taken into account e.g. raised patio areas.



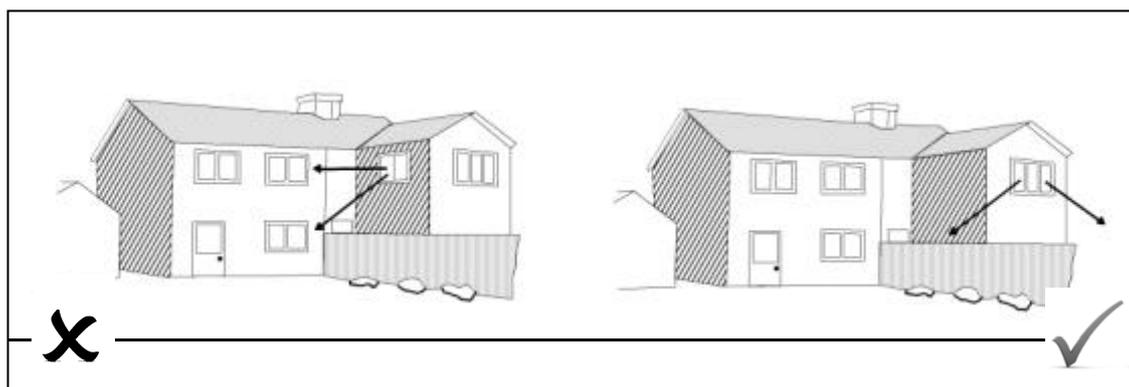
Extensions where adjacent properties are overlooked

Single-storey extensions:

Fences or walls could effectively screen windows in single-storey extensions. If it is not possible to screen or obscure glaze windows, they should be omitted or the application may be refused.

Two or more storey extensions:

Windows in extensions of two or more storeys generally have unrestricted views and may not be acceptable where excessive overlooking occurs. In certain circumstances, the use of opaque/frosted glazing may also be acceptable as a method of eliminating overlooking. Balconies and roof gardens can also adversely affect the privacy of neighbours and will generally be unacceptable.



The position of clear-glazed windows affects the privacy of neighbouring properties

Private Gardens

Extensions should leave an appropriate private outdoor amenity space for the property, and as a guide buildings should cover no more than 50 percent of the existing garden area.

5. Design and Appearance

Scale

The siting, size and design of an extension must not dominate the existing building, and should be sympathetic with and appear subservient to the original dwelling.

Extensions that are too large in relation to the existing dwelling, or are out of keeping with the streetscene can have a detrimental impact on the original character of the building and the surrounding area. Extensions should not have an overbearing appearance. Extensions that would dominate the existing building or be over-prominent in the streetscene will not be permitted.



An acceptable extension that does not dominate

In the countryside, particularly in the Green Belt, the Council will seek to limit the size of residential extensions to an appropriate size and scale for that building and locality. Within the Green Belt it is important to ensure that extensions do not result in disproportionate additions over and above the size of the “original” dwelling.

The design of an extension should be sympathetic to that of the existing building and be in character with the surrounding area.

When considering an extension, it is important that the extension should relate to the design of the original building. Every effort should be made to integrate the extension into the original design of the dwelling. This will usually require sensitive design and use of materials.

Windows and Doors

The type, proportions, sub-divisions and materials of new windows and doors should be in keeping with those of the original dwelling.

In addition to respecting the general proportions of windows and doors, the detailed design is also an important consideration. The new windows should be arranged to line up vertically and horizontally with the existing windows on the original dwelling, in order to provide a semblance of balance and continuity.

Furthermore, avoid mixing different types of windows and doors on the front elevation, and ensure that dormer windows relate in shape, position, design and size to the existing windows. When dealing with older properties of character (including listed buildings) and buildings in Conservation Areas it is extremely important to ensure windows and doors are set back in their reveals and not flush with the brickwork.



An unacceptable extension where the new windows are not sympathetic with those of the original dwelling

Roof

An extension should have a roof that reflects the original dwelling in design, angle of pitch, shape and materials.

There are essentially two types of pitched roof shapes to dwellings, hipped and gabled. All extensions with two or more stories must have a roof pitch that is in keeping with the existing dwelling. Single-storey side extensions are encouraged to

have matching roofs. No extension should interrupt the roof profile where there is a clear, consistent roof form and line in a group of dwellings.



Extensions should have similar roof pitches

Materials

The materials used in extensions should match or be sympathetic with the existing dwelling in terms of type, colour and texture.

In Conservation Areas or for Listed Buildings, material samples will need to be submitted and approved prior to the commencement of the development.

It should be stressed that materials must be approved to the satisfaction of the Planning Officer dealing with the planning application, and not by the Building Control Officer.

Detailing

It is important in designing the details of the extension to reflect those of the existing dwelling.

Buildings often have distinctive architectural features that contribute to their character and these can be used to good effect to assist in reflecting the design of the extension with the original.



Unnecessary detailing

6. Guidance for Typical Extensions

Extensions should positively enhance the existing character of the area. The following sections provide advice on examples of typical extensions.

Front Extensions

The design and appearance of the fronts of dwellings and the distance between the buildings and the street are important aspects in defining the character of residential areas. Front extensions, which project beyond the front of the original dwelling, can completely change the form of the dwelling. Therefore, generally only modest extensions that reflect the character of the existing property will be allowed.



An unacceptable front extension

Porches and Canopies

Porches and canopies are generally covered by “permitted development rights” (Section 2.1 4.2), but some guidance is considered appropriate.

Porches should reflect the character of the original dwelling in terms of scale, details and materials used in construction. Canopies should be designed carefully so that they reflect existing features.



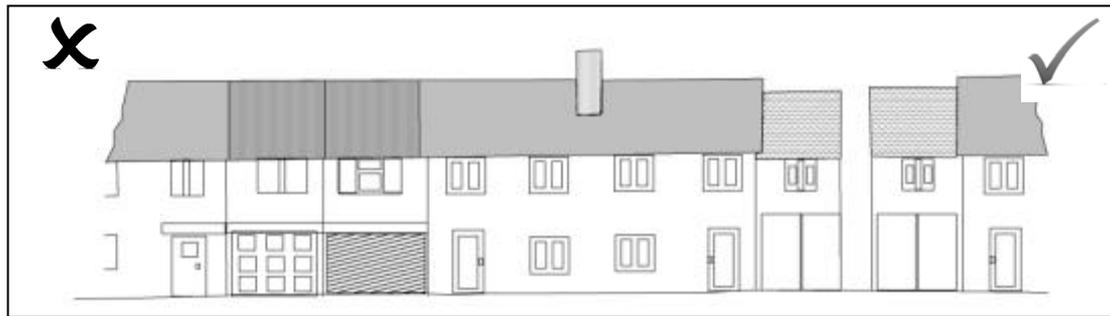
A porch that reflects the character of the original dwelling

Side and Rear Extensions

In traditional detached and semi-detached dwellings, extending at the side almost invariably involves developing up to the side boundary. The spaces between

buildings often make an important contribution to the character of an area. Extensions that reach a property boundary may contribute towards an inappropriate “terracing effect” that would adversely affect the character of the area. This is particularly noticeable where an extension continues the roofline of the original building and where a neighbouring property could also be extended in a similar manner.

To reduce the effect of terracing, it is desirable to maintain a minimum of a 1 metre gap between the dividing side-boundary at first-floor level or above, in order to provide a visual break between properties. This is especially relevant for extensions above a single-storey, such as two-storey and first-floor extensions.



“Terracing” effect

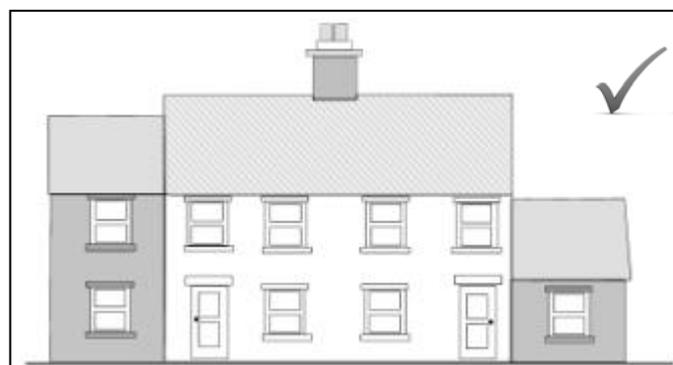
1 metre gap avoids “terracing”

Setting back the extension from the front wall of the dwelling will help the original building maintain its dominance, particularly if it extends as far as the boundary. Such a set back will be required unless:

- There is a stagger in the building line;
- There is a marked change in levels between properties.

Side and rear extensions to properties on corner plots will be required to take into account the visual impact upon the side road and not be unduly prominent nor out of character with the streetscene.

If building up to the boundary of a property is unavoidable, foundations, guttering and other construction should be kept within the boundary of the developing property. The use of a pitched roof is recommended on extensions. In order to reflect the character of the property a flat roof construction will not be acceptable if visible in the streetscene and the original dwelling has a pitched roof.



Acceptable side extensions

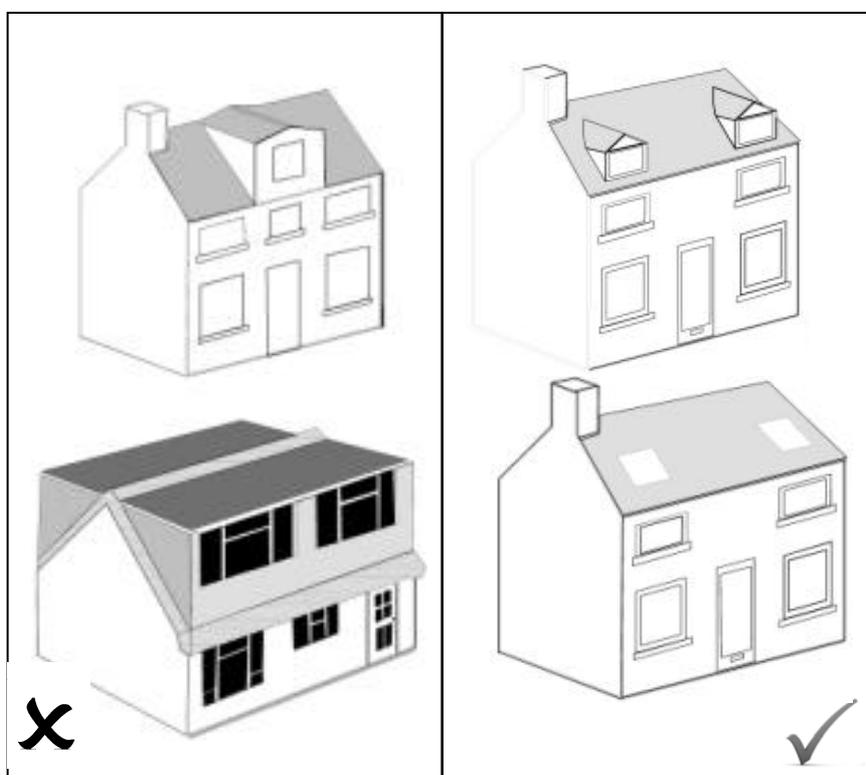
Roof and Dormer Extensions

In certain circumstances roof and dormer extensions can be developed under “permitted development rights”, but they will always need Building Regulation Approval. Please refer to the Planning Portal website or seek the advice of a planning officer.

Roof extensions and dormers should not dominate the roof by being overly large, bulky or higher than the ridgeline of the original roof.

Care should be taken to retain characteristic features such as chimneys and ridge tiles. The roof and sides of dormers should be covered in materials to match or compliment the main roof. Dormer windows should also complement the existing dwelling in terms of its proportions, size and positioning.

Rooflights and solar panels fitted to an existing roof should wherever possible face away from the street. Roof alterations that form a gable end to an otherwise hipped roof designed property and large side facing dormers often appear out of character with the design of the existing building and streetscene and will not be permitted.



Dormer windows should complement the existing dwelling

Garages and Outbuildings

Garages and outbuildings should be sympathetically related to the main dwelling, whether they are adjoined or freestanding. A garage to the side of a dwelling shall be assessed under the guidance for side extensions.

Detached garages and ancillary buildings may not be acceptable in prominent locations, such as corner properties or in front of the building line. Detached garages and ancillary buildings maybe covered by “permitted development rights”, further explanation is available in Section 2 of this Appendix.

The development of a residential extension should not reduce existing parking, servicing and turning facilities that would result in on-street parking or affect highway safety. In order that vehicles can be parked in front of garages without overhanging the pavement, the following distance between the garage doors and the footpath should be observed:

The normal distance to garage doors from the footpath should be at least 5.5 metres. However, other dimensions may be appropriate depending upon the type of garage door. Guidance on parking standards is provided in Appendix 2 of the Planning Obligations SPD, available to view on the Council website.

Walls and Fences

Walls, fences or any other means of enclosure to the front or side of dwellings can significantly change the appearance of an area therefore before such structures are introduced the character and appearance of the area should be considered. Conservation Areas, open plan estates and areas with natural vegetated boundaries would look to be protected from means of enclosure and loss of existing hedgerows. It is important to note that planning permission is often required for the enclosure of landscape strips to the side of a dwelling whether it is included within the curtilage of the dwelling or not.

New fences and walls should not reduce the visibility of drivers when entering and exiting their driveway. In order that sufficient visibility is provided the height and design of fences or walls to the back of the pavement would be observed. Fences and walls maybe covered by permitted development rights, however, it is important to note that planning permission is often required for the enclosure of landscape strips to the side of a dwelling whether it is included within the curtilage of the dwelling or not. For further explanation please contact a Planning Officer on 01788 533832 or visit the Planning Portal online.

Hardstanding

The replacement in whole or in part of a surface (hardstanding) may require planning permission depending on its size, type of surfacing and drainage. Please contact a Planning Officer on 01788 533832 or visit the Planning Portal online.

7. Ecological Considerations

It is an **offence** to kill, injure, disturb or destroy European Protected Species and National Protected Species and their places of shelter or protection - whether or not planning permission is granted. This includes bats, great crested newts, otters and dormice. Nesting birds and other species including slow worms, snakes, common lizards, water voles also have protection in law as do their habitats, nests and roosting areas.

Almost all types of development will have the potential to cause harm to Protected Species. For example, any applications which include works to the roof of a dwelling, extensions and alterations to a building within the countryside, works within 500m of a body of water (including a pond) or proposals that would involve works to/ felling of an established broadleaved tree (dead or alive) are likely to require an Ecological Appraisal to ensure that the proposal will not cause harm to any protected species. The survey should form part of a planning application as it is unlikely that any application will receive a favourable recommendation if it is considered that the potential implications for Protected Species have not been adequately assessed.

A trigger list offering guidance on the likelihood of a proposed development requiring a pre-determinative ecological survey is available on the Local Development Framework page of the Council's website - www.rugby.gov.uk/ldf alongside an electronic version of this SPD.

Not all applications highlighted on the trigger list will require a full ecological survey and may only need an assessment for one particular species. Where the trigger list indicates that a survey is required, or that advice should be sought, the Warwickshire County Council Ecological Service should be contacted for specialist site specific guidance. Once the Ecology Service has been supplied with the relevant information it may conclude that no survey is required.

Warwickshire County Council Ecological Service

Warwickshire Historic and Natural Environment

Ecological Services

The Butts

WARWICK

CV34 4SS

Telephone: 01926 418060

Fax: 01926 412974

<http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/5D8D7BC43BDAD4558025738D00375EB0>

If **Protected Species** are found during the course of any development, even if it has been established that no survey was necessary or that the development did not require planning permission, works must **stop immediately** and Natural England contacted because Protected Species legislation still applies. Natural England can be contacted on the following:

Telephone (local rate) - 0845 600 3078

Email - enquiries@naturalengland.org.uk

Natural England's standing advice for protected species pages on their website:

<http://www.naturalengland.org.uk/ourwork/planningtransportlocalgov/spatialplanning/standingadvice/default.aspx>

8. Design against Crime

When undertaking any building work on a property, it is important to consider how it will affect security.

For further advice about designs and standards to prevent crime, please visit the website: www.securedbydesign.com

9. Further Advice

The granting of planning permission or building regulation approval by the Council does not convey any consent required under legal covenants by other legislation, or by the owners of adjoining land. In these situations it is recommended that legal advice be sought.

Consent would be required from neighbours if access were affected to their property during the construction phase, or for any future maintenance. If any part of the development overhangs the boundary, the applicant will be required to complete the appropriate certificate to be submitted with the application and serve notice on the neighbour.

In the event that the erection of an extension will include works to the foundations, guttering and other construction materials, e.g. scaffolding that would cross or abut the boundary of the property to be extended, information from The Party Wall etc. Act 1996 should be sought. An explanatory booklet can be found at on the planning publications section of the Department for Communities and Local Government website entitled: The Party Wall Act 1996: explanatory booklet.

Building an extension to a dwelling without obtaining the necessary planning permission and/or building regulation approval could cause legal problems if the property is sold. The Council may take action in certain circumstances to enforce the removal of an unauthorised extension, at the owner's expense.

It is advisable to have extensions designed by an experienced architect or other professional draughtsman.

If you have any queries concerning the guidance contained within this document or need further information on for example building design, car parking standards, listed buildings and conservation areas, you are advised to consult with the Development Team.

Advice on applying for planning permission is available from the Planning Department or on the Planning Portal website. Please note that you can also apply for planning permission online at www.planningportal.gov.uk

REMEMBER, IF YOU ARE IN ANY DOUBT CHECK YOUR IDEAS WITH THE PLANNING DEPARTMENT AT AN EARLY STAGE.

The Planning Department recommend that all residential extension ideas are checked by the Development Control team at an early stage to ensure both that they are compliant with local planning policies and also to help speed up the process of applying for and receiving planning permission. There are a number of ways in which Planning Officers can be contacted for advice:

- **Rugby Borough Council Planning Officers are available to answer queries at the Town Hall reception during Council opening hours;**
- **They can also be contacted by telephone: 01788 533832; or**
- **Email: rbc.planning@rugby.gov.uk.**

If you have any queries about the content of this Design Guide and its implications for your extension please contact a Planning Officer.

Further to this, more detailed advice is available via the Planning Portal website: www.planningportal.gov.uk

Glossary

Air Source Heat Pump: Air source heat pumps are units that are located / mounted outside of a property to absorb heat from the outside air. The heat can then be used to warm water for radiators or underfloor heating systems, or to warm the air in your home.

Allowable solutions: Allowable solutions –A range of measures available for achieving zero carbon beyond the minimum carbon compliance requirements. The Government has not yet defined what the range of allowable solutions will be. However, they are likely to include the exports of low carbon or renewable heat from the development to other developments, and investment in low and zero carbon community heat infrastructure.

Biomass: A fuel derived from plant material or natural residues. A wide range of biomass can be used to generate electricity and/or heat and to produce transport fuel.

BREEAM standard: The Building Research Establishment's Environmental Assessment Method, which is used to assess the environmental performance of new and existing non-residential and mixed use buildings. It is regarded by the UK's construction and property sectors as the measure of best practice in environmental design and management.

Carbon dioxide (CO₂): A significant contributor to global warming and climate change. A gas resulting from the combustion of fossil fuels including gas, oil and coal.

Carbon footprint: The total greenhouse gas emissions caused by an individual or organisation, event or product.

Carbon neutral: A development that achieves no net carbon emissions from all types (regulated and unregulated) of energy use on an annual basis. It is usual for a development to have emitted some greenhouse gas emissions, so it is necessary to use carbon offsets to achieve neutrality.

Carbon sinks: Carbon dioxide is captured and stored in living (trees and other green vegetation) or non-living reservoirs (soil, geological formations, oceans, wood products)

Climate Change: The variation in the Earth's global climate or in regional temperatures. It describes changes in the variability or state of the atmosphere and weather.

Code for Sustainable Homes (CSH): A national environmental standard for sustainable design and construction for certifying and rating new homes, to ensure new homes deliver improvements in key areas such as carbon dioxide and water use reduction.

Combined Heat and Power (CHP): CHP is the simultaneous generation of usable heat and power in a single process, therefore producing less waste. CHP's overall fuel efficiency is around 70-90% of fuel input compared to 40%-50% efficiency in conventional generation.

Decentralised energy supply: Energy supply from low carbon sources on a small or community scale and including electricity generation that is connected to a local distribution network rather than directly to the national grid.

Design and Access Statement: A document which must accompany most types of planning applications explaining the design process for a development and providing details on how it can be accessed by everyone, including elderly or disabled people.

Ecological Footprint: An ecological footprint is a measure of human demand on an ecosystem, and compares human demand with the ecological capacity to regenerate it.

Emissions: Gases released into the atmosphere

Greenhouse gases: There are six greenhouse gases regulated by the Kyoto Protocol, which are emitted in significant quantities into the atmosphere through human activity. The six regulated gases are Carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexafluoride (SF₆).

Ground source heat pumps: Transfer the heat from the earth to a building by means of a heat exchanger. The heat can then be used for space heating and hot water. They can also be used to remove heat from a building and deposit it in the ground to cool the building in hot weather.

Kilowatt hour (kWh): A once kilowatt power generating unit running for one hour produced one kilowatt-hour of electrical energy.

Low or zero carbon technologies: Technologies that produce energy with low or zero carbon emissions.

Mitigation: Taking action to reduce the impact of human activity on the climate system, primarily through reducing greenhouse gas emissions.

Passive solar gain: Refers to the siting, form, fabric and internal layout of buildings so that natural light and solar heat gains are harnessed and controlled reducing the need for artificial lighting, space heating and mechanical ventilation and cooling.

Photovoltaics (PV): Thin silicone wafers that convert any light, not only sunlight, directly into electricity. They can be fitted to buildings including panels and roof tiles.

Regulated emissions: Those emission included within the SAP methodology and arising from space heating, water heating, fixed lighting and ventilation.

Renewable energy: Those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass.

Standard Assessment Procedure (SAP): The Government's Standard Assessment Procedure for Energy Rating of Dwellings. SAP is adopted by government as part of the UK national methodology for calculation of the energy performance of buildings. It is used to demonstrate compliance with building regulations for dwellings - Part L (England and Wales) and to provide energy ratings for dwellings.

Standard carbon factor: When calculating emissions from energy use it is important to know what quantity of energy was used. Standard carbon factors enable a conversion to be made from the input measure of energy to the amount of carbon dioxide emissions that will result. Defra publish the UK conversion factors for energy to CO₂.

Supplementary Planning Document (SPD): A Local Development Document that adds further detail to policies and proposals in a 'parent' Development Plan

Document. Unlike Development Plan Documents, SPDs do not form part of the Statutory Development Plan.

Unregulated emissions: Those emissions arising from electrical appliances, cooking and non-fixed lighting.

Wind turbine: A machine for converting the kinetic energy in wind into electricity by using its natural power to drive a generator. Can be free standing or mounted on a building and comes in a variety of sizes.

Zero carbon: A development that achieves no emissions of carbon from energy use on site, on an annual basis.