Guidance Note: Energy and Water Efficiency for Alterations and Extensions to Buildings

2015

Supporting the Crawley Borough Local Plan 2015-2030

Including:

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Borough Council

Introduction

This document provides guidance about how you can achieve greater sustainability and energy efficiency when carrying out alterations or extensions to buildings in Crawley. By following this guidance you can reduce the cost of the energy used by your development while also helping to reduce Crawley's carbon dioxide (CO_2) emissions and protect the borough from the effects of climate change.

The council has prepared this document to support the planning process. It is aimed particularly at those seeking planning permission for the following kinds of projects, where these do not affect more than 100 square metres of internal floorspace:

- The extension or refurbishment of a dwelling (e.g. a house or flat), or other works affecting the land belonging to a dwelling;
- The extension or refurbishment of a non-residential building;
- Changes of use which do not involve the creation of any dwellings.

Crawley's new Local Plan includes a requirement that those undertaking these kinds of projects consider how they can help to limit the extent of climate change and reduce its effects (see Local Plan Policy ENV6). The guidance provided here is intended to help you do this.

This guidance is not mandatory, but seeks to encourage environmentally sustainable measures which are relevant, feasible, and affordable. Investing in green improvements can also pay back in the long term through lower energy bills. You do not need to tell the council about your approach to environmental sustainability and energy efficiency when seeking planning permission for works of this nature. We would, however, request that you inform us of any relevant measures you intend to carry out as this will assist us in monitoring the implementation of the council's sustainability policies. A checklist which you can use to provide this information is included at the end of this document.

The document is divided into short sections dealing with particular objectives. Most of these are concerned with reducing energy and carbon emissions, and are set out according to the order of priority established in the following 'energy hierarchy':

- Be clean: use less energy
- Be lean: supply energy more efficiently
- Be green: use energy from renewable or low carbon sources

The final section addresses the issue of consumer protection, which is a government priority in the arena of retrofitting and alteration of existing buildings for higher environmental performance.

Planning applications involving the creation of new dwellings, new non-residential buildings, or the creation, refurbishment or change of use of more than 100 square metres of internal floor space will also be required to meet specific requirements in relation to climate change mitigation and adaptation. These are outlined in the Local Plan, and further guidance on meeting them is provided in the SPD.

Reducing the need for energy in your development

This section focuses on maximising the energy efficiency of renovations or new extensions planned as part of your proposal.

The available approaches to reducing the energy needs of new parts of buildings can be divided into 'passive' and 'active' measures.

- 'Passive' measures are usually to do with the nature and positioning of walls, floors, windows, roofs and so on. They are 'passive' because they do not need energy to work, making them especially sustainable.
- 'Active' measures are about improving the efficiency of building services, such as heating, lighting, ventilation and air conditioning. Because they still involve the consumption of at least some energy they should only be considered after the potential to use 'passive' measures has been fully explored.

The following passive measures can be used to maximise the energy efficiency of new additions to buildings:

- Ensuring that new extensions, individual fabric elements and fittings exceed the minimum energy thermal efficiency requirements of Building Regulations
- Ensuring that the amount and location of new windows achieves a good balance between the requirements of adequate daylighting and adequate insulation (the Building Regulations suggest that the area of glazing in extensions to dwellings should generally be equal to around 20-25% of the corresponding floor area);
- Avoiding unnecessary gaps or parts of the building fabric which are significantly less effective at containing heat than the surrounding parts.

Active measures which are likely to be applicable include the following:

- Installing energy-efficient cooling technologies (e.g. mechanical ventilation using fans and/or evaporative cooling) and lighting technologies (e.g. LED lighting).
- Including heat recovery capacity in any mechanical ventilation services.
- Installing 'smart' energy metering, including displays showing the amount and cost of energy consumed (the UK government plans to make these standard in homes by 2020).
- Ensuring that building service controls such as lighting and gas boiler controls,

Energy Saving Trust Endorsed
EU Ecolabel (electronic equipment, heat pumps, water-based heaters)

- Ensure that building and equipment users know how to use them in an energy-efficient way and understand the importance of sustainable practices. Instructions or user guides can help with this, as can fit-out guides in non-residential buildings.

Improving the sustainability of existing buildings when making improvements

Alterations and extensions to existing buildings should be viewed as an opportunity to remedy areas of poor energy efficiency in existing parts of the building. New fabric elements such as walls, windows and doors will be required to meet minimum Tc 0 Tw 9.25 0 Tff 8.8(and under)-6(s)8.9(t)-69.2(ui)20 Tc 0 T1h[(m)-(m)-6(por)4.9(t)4.2(anc)-2

are particularly likely to be possible in areas where there is a dense concentration of demand for heat, and where this is distributed relatively evenly over the average day.

Alterations and extensions to buildings may provide an opportunity to connect to a DEN where one is in place nearby, where connection is technically feasible, and where the planned changes can accommodate the necessary works to the building services.

A 'Guide for Developers' document about District Energy Networks in Crawley is being prepared by the council and will be updated as new proposals and details emerge.

Using renewable/low carbon energy sources

After any available opportunities have been taken to reduce the energy demand of your development and to increase the efficiency of the energy supply, CO_2 emissions and energy bills can be further reduced through the use of on-site renewable and low-carbon technologies. Those detailed below are likely to be feasible on a smaller scale in Crawley. For further information see the Planning & Climate Change SPD.

Solar Panels

These can take two main forms:

- Solar Photovoltaic (PV) panels convert energy in sunlight into electricity. They are currently the main small-scale renewable energy source used in Crawley.
- Solar thermal panels use heat from the sun to provide water heating

Biomass Fuel

Biomass fuel is most commonly encountered in the UK in the form of wood chips and

Coping with future temperature extremes

In future decades, climate change is expected to bring more extreme temperatures, including more frequent and more intense heat waves. The potential negative impact on health and the economy can be reduced by limiting the risk of summer overheating within buildings and in the wider urban environment. This can be done in the following ways when undertaking alterations to buildings:

- Limiting the penetration of heat into buildings through high standards of insulation and air-tightness, and the use of windows with low 'g-values', which are more resistant to the transfer of solar energy, and therefore limit solar heat gain;
- Using landscape features (e.g. trees) or artificial means to shade surfaces which are exposed to the high summer sun;
- Using more reflective materials for roofs and hardstanding;
- Including features which can help cool the environment, such as trees, hedges, 'green' roofs and walls, and water bodies (including surface water drainage features).

Consumer protection

When incorporating energy efficiency measures as part of work on an existing building it is important that consumers can be confident that the installations carried out will deliver the advertised level of improvement, and that protections are in place in the event that this does not occur. This is especially important in relation to domestic premises, as the environmental performance of homes has a big impact on householders.

The Energy Ombudsman has a number of powers in relation to this area, and can consider unresolved complaints from domestic consumers and small businesses in relation to the following:

- problems with energy bills;
- problems resulting from an energy company's sales activity;
- problems resulting from switching gas or electricity supplier;
- physical problems relating to the supply of energy to a home or small business, such as power cuts and connections;
- micro generation and feed-in tariffs (FITs); and
- problems relating to the provision of services under the Green Deal.

Improving consumer confidence and protection in the energy efficiency and renewable energy sector is a government priority, and has led to the establishment of the Bonfield review, which is due to provide recommendations in the following areas:[1]

- Consumer advice and protection
- Standards Framework
- Monitoring and Enforcement

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Note: The guidance in this document is for information only. Crawley Borough Council

Environmental sustainability and energy efficiency measures checklist for alterations to buildings

Please complete as fully as possible and send to the council . You can

Improving the sustainability of existing buildings when making improvements:

Upgrades to existing heating, cooling, ventilation an d lighting systems	☐
Further comments:	
Upgrades to insulating quality of exist ing walls, roofs , wi ndows etc	☐
Further comments:	
Measures identified in Recommendation Report accompanying the building's Energy Performance Certificate (EPC)	☐
Further comments:	

Minimising carbon emissions during the development prhe develop ra cd1.04 95.64 554.28 Tm ( )Tj22he d

Use of renewable/low carbon energy sources

Solar PV installation	☐
Further comments:	
Solar thermal installation	☐
Further comments:	
Use of biomass fuel	☐
Further comments:	
Combined Heat and Power (CHP)	☐
Further comments:	
Air/ground/water source heat pumps	☐
Further comments:	
Other technologies	☐
Further comments:	