

# **Milton Keynes Council Supplementary Planning Document**

## **Sustainable Construction Guide**

### **Adopted April 2007**

#### **Introduction**

The purpose of this document is to supplement policy D4 of the recently adopted Milton Keynes Local Plan. The policy deals with various aspects of sustainable construction and is quoted in full at the end of this guide. Other policies of the Local Plan deal with other aspects of sustainability, ensuring that development in Milton Keynes is as sustainable as possible. This guide aims to provide detailed advice on how the planning authority will be applying policy D4 when dealing with planning applications and to help applicants provide the information needed to satisfy the policy

#### **How to Use the Guide**

The rest of the guide consists of:

- a sustainability statement checklist
- explanatory notes to help complete the statement
- links for further information
- the full text of policy D4

A **sustainability statement** should be used to provide information to accompany all full or reserved matters planning applications for more than 5 dwellings or 1000 sq m floorspace in the case of non-housing or mixed developments (either new build, conversion, renovation or extension). In the case of outline applications, a condition will be attached requiring a sustainability statement at reserved matters stage and a S106 agreement will be likely to provide for the carbon offset payment.

The sustainability statement should follow the structure outlined in the checklist below and provide clear answers to the all the questions. The statement should include sufficient details and calculations to verify the answers provided. The statement can be part of a larger document e.g. design and access statement or environmental statement. Each development will usually be required to achieve at least Pass standard in all relevant criteria to comply with Policy D4. There is potential flexibility in that achievement of a Good or Excellent standard for one criterion may lead to acceptance of a below Pass standard in another. Such proposals will be considered individually on their merits. Where possible, additional details of proposed sustainability measures should be submitted and where an issue is not being addressed, the reasons why not.

It is recommended that discussion of these issues takes place with planning officers before a planning application is submitted as they are best addressed early in the design process. Parallel building regulations applications are encouraged, to improve assessment of energy issues.

#### **Housing or Non-Housing Development**

There are unavoidable differences in how policy D4 is applied to housing and non-housing schemes. Therefore, separate checklists are provided for each type and the explanatory section includes text boxes where the guidance for non-housing uses differs from the main text.

## **BREEAM & EcoHomes**

All schemes using these assessment methods should also submit copies of the Pre-Assessment Estimator form. If the scheme intends to achieve an “Excellent” rating<sup>1</sup>, the checklist can be ignored and they will be assumed to meet the minimum “Pass” standard with the exception of the carbon offset payment which will always apply. Evidence to verify the achievement of any rating will be required by a condition attached to the planning consent. Achievement of the Code for Sustainable Homes level 4 will be recognized as equivalent to Ecohomes Excellent.

## **Technical and Economic viability**

Economic viability depends on such factors as the site and other policy demands; technical viability will depend on the site location and characteristics. Developers will be expected to adapt the building form and construction to make installation of sustainability measures viable. If full policy compliance cannot be provided:

- Developers will need to show planners why not
- Developers will be expected to install the proportion that is viable
- Developers must show they have explored all options.

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<sup>1</sup> Only developments using the most recently published version of these methods at the time of planning application submission will be accepted as satisfying policy D4.

## Sustainability Checklist (Housing Developments)

Question	Performance Standards		
	Pass	Good	Excellent
<b>1. Energy efficiency.</b> A: What is the expected NHER (National Home Energy Rating) and will the scheme meet the Energy Efficiency Best Practice in Housing I.e. predicted CO2 emissions (Dwelling Emission Rate, DER) 25% less than Target Emission Rate (TER)?	NHER 11 & CO2 25% less than TER	NHER >11 & CO2 44% less than TER	CO2 60% less than TER, EST Advanced Practice
B: What efficiency measures are proposed e.g. CHP, passive solar design?			
C: What proportion of proposed dwellings will be compact or grouped forms?	60%	80%	100%
D: Does landscape/planting provide wind shelter and avoid overshadowing?	Adequate design submitted with application or to be subject to planning condition	High quality design submitted with application	
<b>2. Renewable energy.</b>			
A: What percentage CO2 reduction will be provided from on-site renewable energy sources?	10%	20%	50%
B: How will this be achieved e.g. solar, wind, biomass, (include the power output from each)?			
<b>3. Carbon.</b> A: What are the total CO2 emissions of the scheme (tonnes/yr)?			
B: Will the CO <sub>2</sub> emissions be offset by payment to the MK carbon offset fund?	Yes	N/A	N/A

Question	Performance Standards		
	Pass	Good	Excellent
<b>4. Water.</b> A: What is the expected water use (litres/person/day)?	105	90	80
B: What water collection or recycling measures will be used?	100% provision of water butts	Rainwater harvesting systems	Grey water recycling & rainwater harvesting
C: What SUDS (sustainable urban drainage system) measures are proposed?			
D: How much of the hard surfaces and conveyance systems will be permeable (e.g. streams, swales and filter drains)?	50%	75%	100%
<b>5. Building materials.</b> A: What are the main materials to be used for the following building elements and their Code for Sustainable Homes score? Roof: External wall: Internal wall: Ground floor: Upper floor: Windows: External hard surfacing:	CSH score 9	12	15
B: How much of the total materials are derived from recycled or reused content, by value?	10%	15%	20%
<b>6. Waste.</b> A: How will construction waste be reduced or recycled? Provide a copy of your waste management plan.	Site waste management plan includes procedures and commitments to minimise waste and to sort, reuse and recycle waste, either on site or through a licensed contractor.		
B: What facilities and storage space (sq m) will be provided for domestic waste/recyclables?	1sq m store and sacks, blue box, compost bin, & workshop.	Pass standard plus dedicated kitchen storage bins for recyclables.	N/A

## Sustainability Checklist (Non Housing Developments)

Question	Performance Standards		
	Pass	Good	Excellent
<b>1. Energy efficiency.</b> A: Will the predicted CO <sub>2</sub> emissions (Building Emission Rate, BER) be less than Target Emission Rate (TER)?	25% less than TER	44% less than TER	60% less than TER
B: What efficiency measures are proposed e.g. CHP, passive solar design?			
C: What proportion of proposed buildings will be compact or grouped forms?	60%	80%	100%
D: Does landscape/planting provide significant benefits to building thermal performance?	Adequate design submitted with application or to be subject to planning condition	High quality design submitted with application	
<b>2. Renewable energy.</b>			
A: What percentage CO <sub>2</sub> reduction will be provided from on-site renewable energy sources?	10%	20%	50%
B: How will this be achieved e.g. solar, wind, biomass, (include the power output from each)?			
<b>3. Carbon.</b> A: What are the total CO <sub>2</sub> emissions of the scheme (tonnes/yr)?			
B: Will the CO <sub>2</sub> emissions be offset by payment to the MK carbon offset fund?	Yes	N/A	N/A

Question	Performance Standards		
	Pass	Good	Excellent
<b>4. Water.</b> A: What is the expected water use reduction (%) and what conservation measures are proposed?	25%	50%	75%
B: What water collection or recycling measures will be used?	Water butts	Rainwater harvesting systems	Grey water recycling & rainwater harvesting
C: What SUDS (sustainable urban drainage system) measures are proposed?			
D: How much of the hard surfaces and conveyance systems will be permeable (e.g. streams, swales and filter drains)?	50%	75%	100%
<b>5. Building materials.</b> A: What are the main materials to be used for the following building elements and their Green Guide rating? Roof: External wall: Internal wall: Ground floor: Upper floor: Windows: External hard surfacing:	5 should be A rated in the BRE Green Guide	6 should be A rated in the BRE Green Guide	All should be A rated in the BRE Green Guide
B: How much of the total materials are derived from recycled or reused content, by value?	10%	15%	20%
<b>6. Waste.</b> A: How will construction waste be reduced or recycled? Provide a copy of your waste management plan.	Site waste management plan includes procedures and commitments to minimise waste and to sort, reuse and recycle waste, either on site or through a licensed contractor.		
B: What facilities and storage space (sq m) will be provided for occupant's waste/recyclables?	Acceptable waste plan	N/A	N/A

## Explanatory Notes

### Energy Assessment

Applicants should provide an energy demand assessment to demonstrate the likely heating, cooling and electricity demand. The purpose of this is to help identify the technical feasibility of energy efficient and renewable energy technologies, and to identify where an applicant can make the most effective energy and carbon emissions savings in a scheme. Part L of the building regulations is the baseline standard that all new buildings must meet. Policy D4 does not duplicate these regulations but seeks to exceed them. Energy statements should therefore set out the measures specific to the scheme, demonstrate the extent to which they exceed building regulations and show how energy efficiency is fundamental to the design. This means that in most cases, the work required to satisfy Part L will need to be carried out at planning stage not afterwards, as has traditionally been the case.

Energy use is defined as **Delivered Energy** i.e. quantity of energy in kWh that is measured at the incoming electricity or gas meter (or equivalent for other fuels). Calculation must include all fuels used for space heating, hot water, lights, cooking and other appliances. Embodied energy and transport are not included. Methods should follow those used for the Building Regulations Part L (i.e. SAP), plus use of the BRE Domestic Energy Model (BREDEM) for the appliances element, which is not covered by Building Regulations. SAP plus BREDEM is the method used by the Energy Efficiency Best Practice and the NHER (National Home Energy Rating) systems. Suitable results can be obtained at an early stage by using a number of representative dwelling types from the developers standard specification or by using results already calculated for existing similar developments. **Target Emission Rate (TER)** is the level of CO<sub>2</sub> emissions per sq. m. necessary to meet Building Regulations Part L; **Dwelling Emission Rate (DER)** is the actual level achieved for houses and **Building Emissions Rate (BER)** for other buildings.

#### Non-Housing

The Building Regulations Part L method also applies, using standard software e.g. SBEM. Energy used for processes, appliances etc [referred to as “equipment” in the SBEM method] isn’t included in the BER figure but should be included in the overall energy assessment. All main energy uses should be specified and can be enforced when scheme is completed; Building Regulations will control future changes. For speculative “shell” developments where most energy services are not provided, efficiency measures will focus on the building fabric and energy estimates will be based on industry best practice benchmarks e.g. Energy Consumption Guide 18, reduced by a % in recognition of the improved Part L standard. All parts of mixed use schemes should be assessed i.e. housing guidance applied to residential uses and non-housing guidance applied to all other uses.

### Energy Efficiency

The minimum energy efficiency standard requires a reduction in carbon emissions of 25% compared to the building regulations. This is based on the Energy Efficiency Best Practice in Housing [2006]<sup>2</sup>. The statement must set out the proposed energy efficiency measures in the same format as the Best Practice specification to verify compliance. Energy Saving Trust (EST) has revised the Best Practice standard to take into account the new Building Regulations, which has also made necessary a similar change to the NHER requirement.

<sup>2</sup> Best Practice in New Housing – a practical guide, Energy Saving Trust, 2006 [or subsequent revisions].

The overall % reduction in carbon emissions should include that due to on-site renewable energy.

Examples of energy efficiency measures that will be needed to comply are:

- achievement of NHER (National Home Energy Rating) level 11
- passive solar design has a potential energy saving of 10% with no extra capital cost by maximizing sunlight for heat gain and daylight to reduce electric lighting e.g. orientation of main glazed elevation to within 45 degrees of south, more glazing and principal rooms facing south than facing north, avoiding overshadowing of south facing windows, dense materials to absorb solar gains
- grouped building forms (e.g. flats, semi-detached & terraced) and compact forms (e.g. not single storey) to reduce external wall area
- landscaping that provides a sheltered microclimate, avoids overshadowing where solar heat is needed or provides shade where over-heating is likely
- high levels of insulation (low U-values)
- heat recovery ventilation or passive stack ventilation systems to avoid mechanical air conditioning
- combined heat and power generation or combined heat, cooling and power (known as trigeneration)
- district heating
- better heating controls e.g. thermostatic radiator valves
- more efficient condensing boilers
- provision of low energy lighting and “A rated” domestic appliances
- more roof lights in commercial buildings to cut electrical lighting use
- installation of “smart meters”

Developers are strongly encouraged to consider higher energy efficiency levels such as the EST’s Advanced Practice, which is based on the new European Passive House (PassivHaus) standard:

- the worlds leading standard in energy efficient construction
- uses efficient components, whole house ventilation and minimal heating to achieve very low running costs
- energy saving of 90% compared to existing housing
- extra building cost only about 10%
- more than 4000 of these dwellings, with a wide variety of designs, have been built In Europe (see Further Information for details).

## **Renewable Energy**

Renewable energy technologies suitable for developments in Milton Keynes:

- solar water heating panels
- photovoltaic panels for electricity
- biomass/wood fuel heating or biomass CHP
- wind turbines
- ground source heating & cooling.

The proportion of energy from renewable sources is determined after the reduction in demand due to efficiency measures has been calculated. The renewable element should produce a minimum 10% reduction of the total CO<sub>2</sub> emissions as calculated above in the energy assessment. The renewable element should be calculated as the delivered energy output after deduction of losses due to system efficiency.

The renewable energy equipment will for practical reasons usually need to be located on-

site but nearby off-site locations may be possible, including district heating or CHP. This means only technologies directly serving the application site, not via the national grid, ie a decentralised energy supply as defined in the supplement to PPS1. Reliance on green electricity tariffs is not acceptable as there is no control over future occupants switching to other tariffs. London Renewables Toolkit is recommended for further information on estimating energy needs, outputs and costs but system design and sizing is a specialist activity and expert guidance should be sought. Also see: “Meeting the 10% target for Renewable Energy”, EST guide CE190.

## Carbon

It is proposed that zero carbon growth be achieved by developments being carbon neutral or by making a financial contribution to the MK carbon offset fund. **Carbon neutral** means there is no net increase in carbon dioxide emissions resulting from the energy used in occupying the building(s), including space heating, hot water, cooking, lights and appliances. Although carbon neutrality is possible by just using on-site measures, it is recognized that at least for the foreseeable future, it is challenging and expensive and therefore carbon offset is proposed as an alternative more cost effective option. On-site measures will be encouraged where possible to reduce carbon dioxide emissions, which will of course reduce the carbon offset payment.

**Carbon offset** means the increased carbon dioxide emissions from a new development are balanced by savings in carbon dioxide elsewhere, by making payments into a carbon offset fund. Any net increase in carbon dioxide emissions from a development will be calculated as tonnes per year. A one-off contribution will be required to the carbon offset fund, at a rate of £200 (index-linked<sup>3</sup>) for each tonne carbon dioxide by means of a Section 106 agreement or unilateral undertaking. Coupled with existing best practice in energy efficiency, carbon offset could provide carbon neutrality for a few hundred pounds per house. The carbon offset fund will be managed by a The MK Energy Agency on behalf of and monitored by the Council & MK Partnership. The fund will be used elsewhere in MK to reduce carbon emissions by cutting energy use or producing renewable energy. The fund will be spent on carbon reduction measures with a lifespan of at least 20 yrs equivalent to the increased carbon output from new development.

Calculation method:

1. Take the energy use figure (KWh/m<sup>2</sup>/yr), including any reduction due to renewables, and subdivide into different fuel sources e.g. gas, electricity.
2. Multiply the resulting figure for each fuel by the relevant conversion factor<sup>4</sup> to give CO<sub>2</sub> emissions (Kg/ m<sup>2</sup>/yr).
3. Add each fuel figure to give combined CO<sub>2</sub> emissions (Kg/ m<sup>2</sup>/yr).
4. Multiply by total gross floor area to give total CO<sub>2</sub> emissions (tonnes/yr).
5. Multiply tonnes by £200 to calculate payment to the MK carbon offset fund.

<sup>3</sup> The £200 figure will be increased annually based on building cost inflation [BCIS index]

<sup>4</sup> Main conversion factors shown below:

Fuel Type	KgCO <sub>2</sub> /KWh
Grid Electricity	0.43
Natural Gas	0.19
Gas/ Diesel Oil	0.25
Petrol	0.24
Heavy Fuel Oil	0.26
Coal	0.30

## Water

The recommended method for water use calculation is that used by the Code for Sustainable Homes. The required standard is a maximum of 105 litres/person/day. Alternatively, the council will accept the inclusion of all the following measures:

- WCs should use max. 4 litres
- Showers max. 8 litres/min
- Washing machines max. 50 litres/wash
- Dishwashers max. 16 litres/wash
- Flow restricted taps

All properties with a garden should at least be provided with a water butt (minimum size of 220 litres, to include lid, stand, diverter, cost about £30) installed by the house builder. Where possible all roof areas should drain to a single down pipe per house, to ensure a good supply to the water butt. Water butts should also be provided for flats where any garden or landscape area may need watering or for car washing. Developers wishing to improve on the Pass standard should consider rainwater harvesting, which is a higher capacity system, usually underground, that can supply water for toilet flushing, clothes washing, bathing as well as garden use, or grey-water recycling, which takes water from showers, baths, etc, to use for toilet flushing and garden use.

### **Non-Housing:**

It isn't possible to set a water standard in terms of volume per sq. m. but use of the above reduction measures should provide acceptable savings. Waterless urinals are also recommended along with larger capacity rainwater harvesting tanks to provide water for toilet flushing.

**Sustainable urban drainage systems (SUDS)** include water conservation (e.g. rainwater collection, grey water recycling, low water use WC's and appliances) as well as surface water drainage (e.g. soakaways, porous hard surfaces, swales, streams and balancing ponds; minimal use of pipes and culverts). The design of surface water drainage should be considered at the earliest possible stages of the planning process so that the best management practices can be used. Ground conditions, in particular permeability, need to be considered, although many SUDS measures are feasible without good infiltration e.g. storage in an underground reservoir (such as a crushed stone layer) before soaking into the ground.

Circumstances where SUDS may not be reasonable include contaminated sites and brownfield sites with an existing drainage system. Wherever possible multiple benefits from SUDS should be sought, such as the provision of open space, wildlife improvements and water conservation. If SUDS cannot be provided on site, consideration should be given to making a contribution to off site measures.

## Building Materials

This aspect deals with the environmental impact of the main building materials. Examples of low impact materials are: timber, earth, straw, secondary aggregates, locally produced or recycled products; high impact materials include plastic, steel and aluminium. Repair is generally preferable to reuse, reuse to recycling and recycling to disposal/new materials. When using timber, preference should be given to products from well-managed, sustainable, certified sources, e.g. Forest Stewardship Council (FSC).

The assessment uses the environmental ratings published in the BRE Green Guide (see Further Information), which assesses commonly used materials according to 12

environmental factors, giving a summary rating. A-rated materials must make up at least 80% by area within a category in order to comply.

Applicants should also demonstrate achievement of 10% of the total value of materials derived from recycled or reused content wherever possible. This is a good practice level identified by WRAP (Waste & Resources Action Programme) and shown to be readily achievable with no increase in cost. Tools and guidance are freely available from WRAP. If the recycled content can't be demonstrated at time of planning application then it can be dealt with by a planning condition.

## **Waste<sup>5</sup>**

This aspect deals with systems to reduce waste on the construction site and to encourage waste recycling by the future occupants, in accordance with the adopted Waste Local Plan for Bucks and the draft Waste Development Plan Document for MK. Proposals should describe the measures to reduce, reuse or recycle construction waste, in the form of a waste management plan, including setting a target for waste reduction. Wasted materials on new build sites can be as high as 20%. Much can be done to reduce this, to help the environment and cut costs e.g.

- minimise amount of excavation
- waste arising on site is reused or recycled in the construction
- on-site facilities for sorting and storing waste for reuse elsewhere
- better handling and storage of new materials,
- not over-ordering materials.

If difficult to provide a waste management plan at planning application stage then it can be the subject of a planning condition requiring submission after planning consent [see DTI link below].

All properties should be provided with a roll of black sacks, pink sacks and a blue box before residents move in, together with supporting literature. These can be obtained from the Council at a cost of £7 per property. All properties with a garden should be provided with a compost bin (minimum size of 220 litres), together with supporting literature, and new residents should be able to attend a local home composting workshop in their first year of residence. A compost bin costs around £15+VAT, supporting literature 50p, and composting workshops £250.

Bin storage for household recycling needs to be provided at least sufficient for the pink sacks (full) and blue box, in addition to normal waste storage (see Social Infrastructure SPG, appendix 11, for further details). The typical 3 bed house will require a floor area of 1 sq m. General guidance on waste storage is given in "Waste Management in Buildings Code of Practice" [BS 5906 2005] but the Council should be consulted in complex cases. Developers wishing to improve on the Pass standard should consider, in addition to the above, providing 3 dedicated kitchen storage bins for separating recyclables.

## **Enforcement**

To ensure the houses as built comply with the above statements, a condition will be attached to the planning permission requiring the agreed sustainability measures to be implemented prior to occupation of the development and documentary evidence of the relevant features and measures to be submitted to the LPA. Site inspections will also be carried out.

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<sup>5</sup> This waste guidance is being revised and may appear in the Waste Development Plan Document. If so it will supersede this version.

## Further Information

The issues of sustainability in buildings can become complex. It is not the intention of this document to be a complete learning resource, but to facilitate assessment of development proposals. A selected list of further sources is included which will help those requiring more information, especially on the various technologies currently available.

Organisation	Services Offered
<b>Code for Sustainable Homes:</b> see DCLG website <a href="http://www.communities.gov.uk">www.communities.gov.uk</a> for details.	
<b>Energy &amp; Carbon</b>	
Greater London Authority – London Renewables T: 020 7983 4000 W: <a href="http://www.london.gov.uk/mayor/environment/energy/london_renew.jsp">www.london.gov.uk/mayor/environment/energy/london_renew.jsp</a>	Provide information on London Renewables materials, including the London Renewables: Toolkit for planners, developers and consultants, summary documents and the training modules and presentations
DTI T: 0870 190 6349 E: <a href="mailto:nre-enquiries@aeat.co.uk">nre-enquiries@aeat.co.uk</a> W: <a href="http://www.dti.gov.uk/energy/renewables">www.dti.gov.uk/energy/renewables</a>	Broad advice service on renewable energy that can direct to detailed renewable energy publications online. This free advice service concentrates on the technical aspects of development of new technologies and how they work.
Sustainable Homes (based at Hastoe Housing Association) T: 020 8973 0429 W: <a href="http://www.sustainablehomes.co.uk">www.sustainablehomes.co.uk</a>	Funded by an Innovation and Good Practice Grant from the Housing Corporation until 2005. It promotes awareness of sustainable development issues and good practice as well as encouraging housing associations to adopt sustainable policies and practices
Energy Saving Trust T: 0845 120 7799 W: <a href="http://www.est.org.uk/bestpractice">www.est.org.uk/bestpractice</a>	Energy Efficiency Best Practice in Housing, this is the Government's principal energy efficiency information, advice and research programme for professional organisations involved in all aspects of housing. Substantial grants of between 40 and 50 per cent are available towards the installation of solar electricity equipment for householders, businesses or social housing groups.
Building Research Establishment T: 01923 664000 W: <a href="http://products.bre.co.uk/breeam/">http://products.bre.co.uk/breeam/</a>	BREEAM is a methodology that assesses environmental performance of new and existing buildings and applies a credit rating and certification to buildings based on their environmental performance. The version for housing is called Ecohomes.
NHER T: 01908 672787 E: <a href="mailto:enquiry@nesltd.co.uk">enquiry@nesltd.co.uk</a> W: <a href="http://www.nher.co.uk/e.shtml">www.nher.co.uk/e.shtml</a>	The National Home Energy Rating (NHER) is an energy rating scheme. Using a range of software, the NHER provides solutions to a number of aspects of home energy saving.
National Energy Foundation T: 01908 665555 W: <a href="http://www.nef.org.uk/">http://www.nef.org.uk/</a>	NEF is an independent educational charity based at Milton Keynes. It encourages the development of renewable energy and energy efficiency, through specific education and information programmes, the development of energy policy, establishing infrastructure for the UK's sustainable energy sector and by providing training and consultancy services.
Milton Keynes Energy Agency T: 01809 665566 W: <a href="http://www.mkea.org.uk/">http://www.mkea.org.uk/</a>	MKEA works with householders, Local Authorities, schools, community groups and local businesses to help save energy, money and the environment. Operates as an Energy Efficiency Advice Centre and offers staff training in energy efficiency and energy reviews for local businesses.
PassivhausUK W: <a href="http://www.passivhaus.org.uk/">http://www.passivhaus.org.uk/</a>	Web based service from BRE providing advice regarding the Passive House concept.

<b>Water</b>	
Environment Agency T: 08708 506 506 W: <a href="http://www.environment-agency.gov.uk/savewater">http://www.environment-agency.gov.uk/savewater</a>	Provides information and advice on water conservation
CIRIA T: 020 7549 3300 W: <a href="http://www.ciria.org.uk/">http://www.ciria.org.uk/</a>	A leading provider of performance improvement products and services to the construction industry; provides information, advice and training in fields including sustainable drainage systems and waste.
<b>Materials</b>	
WRAP W: <a href="http://www.wrap.org.uk">http://www.wrap.org.uk</a>	Guidance documents and a web based tool for assessing recycled content.
See BRE above	Produce the Green Guide to Housing Specification and the Green Guide to Specification, for non-housing schemes.
<b>Waste</b>	
DTI W: <a href="http://www.dti.gov.uk/construction/sustain">http://www.dti.gov.uk/construction/sustain</a>	Link to DTI Voluntary Code Of Practice, Site Waste Management Plan Checklist and Datasheet.
See CIRIA above	Information & research on reducing construction waste.
See BRE above	BRE SMARTWaste waste management tool
Milton Keynes Council	Social Infrastructure SPG, appendix 11 gives further details of domestic waste needs
WRAP W: <a href="http://www.wrap.org.uk">http://www.wrap.org.uk</a>	Guidance on construction waste

For further information about this guide contact:

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## **Sustainable Construction Policy D4**

All new development exceeding 5 dwellings (in the case of residential development) or incorporating gross floorspace in excess of 1000 sq m (in the case of other development) will be required to include the following:

- i). Energy efficiency by siting, design, layout and buildings' orientation to maximise sunlighting and daylighting, avoidance of overshadowing, passive ventilation;
- ii). Grouped building forms in order to minimise external wall surface extent and exposure;
- iii). Landscape or planting design to optimise screening and individual building's thermal performance;
- iv). Renewable energy production e.g. external solar collectors, wind turbines or photovoltaic devices;
- v). Sustainable urban drainage systems, including rainwater and waste water collection and recycling;
- vi). Significant use of building materials that are renewable or recycled;
- vii). Waste reduction and recycling measures;
- viii). Carbon neutrality or financial contributions to a carbon offset fund to enable carbon emissions to be offset elsewhere.

### **Supporting Text:**

It is intended to produce a supplementary guidance note to help applicants comply with Policy D4 and explain what information the Council requires to accompany planning applications. Below are examples of measures that would satisfy the policy requirements:

- Energy efficiency: NHER rating 10, passive solar design, sheltered microclimate, high levels of insulation, heat recovery, passive ventilation, combined heat and power, better heating controls, condensing boilers, less wasteful street lighting and illuminated signs
- Renewable energy: solar water heating or photovoltaic panels, biomass fuel heating, wind turbines, ground source heating; the renewable element should be at least 10% of building energy use
- Water conservation: rainwater collection, grey water recycling, low water use WC's and appliances
- Drainage: soakaways, porous hard surfaces, swales, streams and balancing ponds; minimal use of pipes and culverts
- Building materials: timber, earth, straw, secondary aggregates, locally produced or recycled products; minimal use of plastic, steel and aluminium
- Waste: systems to reduce waste on site and / or to maximise reuse or recycling.

There is potential flexibility in complying with this policy whereby a strong emphasis on one element e.g. renewable energy, may result in relaxing another, e.g. only needing an NHER rating of 9. The Building Research Establishment administers two environmental rating schemes; EcoHomes for residential and BREEAM for non-residential developments. Compliance with these schemes, at a rating level to be defined in the forthcoming supplementary guidance note, will satisfy all the policy requirements, except for carbon neutrality. This element aims to achieve development in MK with zero carbon growth: preferably by reducing emissions from the development making use of renewable energy or, as an interim measure, by making payments into a carbon offset fund. This will be used elsewhere in MK to reduce carbon emissions by cutting energy use, producing renewable energy or tree planting.