

# Policy: briefing

## Delivering environmentally sustainable housing growth

A discussion about how to meet housing needs while protecting and sustaining the natural environment

### Summary

- Housing and the environment impact on each other in a number of significant ways, including in terms of carbon emissions, land take, water usage, sewerage and flooding.
- We cannot afford to choose between meeting housing needs and protecting and sustaining the environment: these goals must go hand in hand. It is also vital that measures to improve the environmental sustainability of our homes are beneficial to the poorest in society.
- Shelter supports the use of green belts to prevent urban sprawl, and measures to encourage the development of brownfield sites of low social and environmental value. However, the planning framework needs to be modernised to reflect better the actual environmental quality of land, and the green-belt model needs to be applied with more flexibility.
- We must act quickly to enable the large-scale delivery of new homes to substantially higher environmental standards than at present. Shelter supports the Government's target that by 2016 all new homes should be built to zero-carbon standards, and its proposals to improve carbon and water efficiency through the building regulations.
- It is essential that development is planned in a way that will enable new homes and communities to cope with the effects of future climate change.
- The environmental performance of existing homes must also be improved. In implementing this, the Government must take action to maximise the potential social benefits of increased energy efficiency for low-income households.
- Additional investment is needed in water, sewerage and flood-defence infrastructures to support housing growth and to respond to the pressures of environmental change.
- Influencing individual behaviour is key to addressing the impact of housing on the environment. Shelter supports measures to empower individuals to take greater responsibility for the environmental impact of their homes. However, stronger safeguards are needed to ensure that measures such as compulsory water metering do not have an adverse effect on low-income families.

## Introduction

Britain is suffering from a housing shortage. The rate at which homes are being built is insufficient to keep up with the growth in the number of households as the population expands<sup>1</sup> and more people live alone. As the gap between housing needs and the supply of homes has widened over the past decade, so housing has become less affordable and the number of people who are forced to live in temporary accommodation or overcrowded conditions has risen.

The Government has responded by setting a target to increase the number of new homes provided each year to 200,000 by 2016. Shelter supports this goal and calls on the Government to commit funding for these new homes to include an extra 20,000 social rented homes each year between 2008 and 2011.

However, alongside the need to increase housing supply, growing attention is being paid to the impact of our homes on the natural environment. The Stern Review<sup>2</sup> highlighted the contribution of domestic emissions to global warming, and the need for our homes and communities to be designed to adapt to the future effects of climate change. In addition, the Government has recently announced a series of initiatives to ensure that new housing development is environmentally sustainable, including the Code for Sustainable Homes<sup>3</sup> and the target for all new houses to be built to zero-carbon standards by 2016.

Shelter believes that the provision of more housing is essential to meeting the needs of the poorest in society, but we also recognise that if action is not taken to protect the environment, this same group will feel the consequences most severely.

This briefing sets out Shelter's vision for increasing housing supply while at the same time delivering environmental sustainability, and makes policy recommendations for how to achieve this. The discussion is structured around four key themes: delivering new development in an environmentally sustainable way; making our existing homes environmentally sustainable; investing in infrastructure; and promoting behavioural change.

While we recognise the environmental impact of other aspects of development, such as transport and energy supply, this briefing focuses specifically on the environmental implications of housing.

## Shelter's vision: socially and environmentally sustainable homes

There is now extensive evidence of the relationship between our housing and the environment, both in terms of the housing stock itself and the ways in which choices about housing location and design affect our patterns of consumption. Housing and the environment impact on each other in a number of important areas, including carbon emissions from the home; the use of land for development; water supply and demand; sewerage; and flood risk.<sup>4</sup>

It is essential that housing policy reflects the importance of sustaining and protecting the natural environment by recognising the environmental impact of how we meet housing needs. At the same time we need to take into account how changes in the natural environment could have implications for the new homes being built.

Shelter believes that it is possible to reconcile the goal of environmental sustainability with an increase in the supply of new homes. Furthermore, it is vital that measures to improve the environmental sustainability of our homes have a beneficial impact on the poorest in society, who are most likely to suffer from bad housing and homelessness.

In accordance with this vision, we believe that policy on housing and the environment should be underpinned by the key principles below.

- Policies must be appropriate for the large-scale delivery of new housing supply.
- Policies must take account of the constraints faced by those on low incomes. Help should be made available to assist low-income households with the cost of improving the environmental performance of their homes, and mechanisms should be introduced to ensure that new environmental measures leave such households better off or, at the very least, no worse off than before.
- The most cost-effective measures must be implemented first. This is essential given the likely limitations on available funding, both in terms of public subsidy and private expenditure.

1 For example, in 2005–06, 163,000 new homes were built in England, compared to an estimated annual rise in the number of households of 223,000; Communities and Local Government (CLG), Live tables on housebuilding, Table 204: permanent dwellings started and completed, by tenure, England, 2007; CLG, New projections of households for England and the regions to 2029, CLG statistical release 2007/0045, March 2007.

2 Stern, N, *Stern review: the economics of climate change*, HM Treasury, October 2006.

3 CLG, *Code for Sustainable Homes: a step-change in sustainable home building practice*, December 2006.

4 For a detailed discussion of how housing and the environment impact on each other, see Shelter's discussion paper *Housing versus the environment – can there be only one winner?*, October 2006.

## Delivering environmentally sustainable new development

With the right design and delivery of new housing, it will be possible to achieve the increase in housing supply that we need, while ensuring that the new housing is environmentally sustainable. To achieve this, new homes must be:

- located in the right places
- constructed to high environmental standards
- designed to cope with the effects of climate change.

### Building new homes in the right places

Constructing the extra homes required to meet housing need does not have to mean building over large areas of the countryside. By 2005, nearly three-quarters of new homes were being built on previously developed land<sup>5</sup>, a figure that far exceeds the Government's target of 60 per cent brownfield development by 2008. According to independent research commissioned by the Government, even to build 200,000 new homes every year between 2001 and 2016 would require less than one per cent of the total land in England, and less than 0.5 per cent of greenfield land.<sup>6</sup>

However, one of the deficiencies of the current planning framework is its failure to recognise properly the varying environmental quality and social benefit of both greenfield and brownfield land. For example, some brownfield sites in urban areas may in fact be green open space, sustaining wildlife and providing a facility for local people, while, on the other hand, some 'greenfield' agricultural land may be of low environmental value. In many greenbelt areas, farming activity is in decline and at the margins of economic viability<sup>7</sup>, and up to 11 per cent of previously developed, 'brownfield' land in the UK is actually within the green belt.<sup>8</sup>

In response to the above, Shelter believes that the planning framework needs to be modernised to reflect more accurately the actual environmental quality of land, and to take better account of the range of social and economic factors that need to be considered when making planning decisions. This should take place in accordance with the following principles.

- There is no justification for failing to develop derelict brownfield sites that are of no current social or environmental benefit; such sites should continue to be prioritised for development. Shelter welcomes the proposals contained in the 2007 Budget for extending land remediation relief to long-term derelict sites in order to enable them to be brought forward for development.<sup>9</sup> However, we are concerned that there is a risk of undervaluing the environmental quality of some brownfield land, for example in terms of the valuable green space and biodiversity it can contribute to urban areas.
- Shelter supports the objective of green-belt policy to prevent urban sprawl. However, we do not agree that this should necessarily be achieved through the traditional green-belt model of a concentric circle of protected land around an urban centre. We believe there is merit in the model of green space provision through the designation of green wedges or corridors, integrating green space into the urban environment.<sup>10</sup> We would urge planning authorities to consider this alternative to the green-belt model.
- Shelter supports the recommendation of the Barker Review of Land Use Planning that the quality of green-belt land should be enhanced by taking a more positive approach to planning applications that demonstrate a contribution to the delivery of green-belt objectives.<sup>11</sup> For example, this could be through the creation of open woodland or public parks in place of low-grade agricultural land.

It is also crucial that the planning system takes proper account of flood risk when considering where to locate new homes, and encourages patterns of development that will minimise carbon emissions and provide easily accessible transport links and local services. As well as helping to protect the environment, such policies are likely to be especially beneficial to low-income groups. These groups are less likely to travel by car and, as highlighted by the Stern Review<sup>12</sup>, are more likely to live in areas with high flood risk. Shelter therefore welcomes the Government's recent initiatives to ensure that the planning framework pays more attention to such issues.

5 Department for Communities and Local Government (DCLG) and Department for Environment Food and Rural Affairs (Defra), e-Digest of environmental statistics, 2007.

6 Defra, *Study into the environmental impacts of increasing the supply of housing in the UK: final report*, April 2004, Appendix F.

7 Barker, K, *Barker review of land use planning – final report*, HM Treasury, 2006, page 64.

8 Barker, K, *Review of housing supply – Delivering stability: securing our future housing needs*, HM Treasury, 2004, page 44.

9 HM Treasury, *Tax incentives for development of brownfield land: a consultation*, March 2007.

10 Barker, K, *Barker review of land use planning – final report*, HM Treasury, 2006, pages 65–66.

11 Ibid, page 67.

12 Stern, N, *Stern review: the economics of climate change*, HM Treasury, October 2006, page 131.

- Shelter welcomes the Government's update of Planning Policy Statement 25 on development and flood risk<sup>13</sup>, which sets out policies to prevent inappropriate development in areas at high risk of flooding. We also welcome the fact that the Environment Agency is now a statutory consultee for planning applications in areas of flood risk. However, Shelter would like to see flood-risk assessment integrated into the planning system at the strategic level through Regional Spatial Strategies and Local Development Frameworks. The current site-by-site approach fails to consider the impact of a housing development on the flood risk in the surrounding area.
- We support the Government's draft Planning Policy Statement on planning and climate change.<sup>14</sup> The Statement encourages new development to be located in such a way as to optimise its carbon performance and to make the most of existing and planned opportunities for decentralised, renewable and low-carbon energy supplies.

### Constructing new homes to high environmental standards

While the environmental performance of new-build housing has improved over the past decade, there remains considerable scope for further progress. The housebuilding industry, the Government and housing consumers all have an important role to play to help ensure that action is taken quickly to improve the environmental standard of new homes being built. In particular, Shelter calls on the housebuilding industry to commit to developing the necessary capacity and skills to enable the large-scale delivery of homes to substantially higher environmental standards than at present. In addition, we believe that new social and affordable housing should set an example in terms of environmental performance, and urge registered social landlords (RSLs), the Housing Corporation and the Government to continue to raise standards in this regard, building on existing requirements for publicly subsidised housing.<sup>15</sup>

Shelter supports the introduction of the Code for Sustainable Homes, which measures the environmental sustainability of new homes against six levels of achievement.<sup>16</sup> We believe that this will act as a stimulus for the design and construction

of sustainable homes by providing a single national framework against which homes can be assessed. We especially welcome the fact that the requirements for compliance with Level 1 of the Code have been set above current building regulation standards, and the inclusion within the Code of criteria concerning health and well-being, such as daylight, outdoor space and compliance with the Lifetime Homes Standards.<sup>17</sup> We also support the use of tax exemptions as an incentive for the delivery of homes to higher environmental standards, as exemplified by the Government's announcement in the 2007 Budget that no stamp duty will be chargeable on new homes valued below £500,000 that meet the zero-carbon standard.<sup>18</sup> However, given that this measure will impact only on those homes for which stamp duty would otherwise be payable, we urge the Government to consider similar incentives for properties that fall below the stamp-duty threshold.

Shelter strongly supports the Government's proposal for a specific target that by 2016 all new homes should be built to zero-carbon standards. We also agree that this should be underpinned by setting out a timetable for the progressive strengthening of the building regulations. This would provide certainty for the development industry and prevent developers from deliberately undercutting their competitors to gain a cost advantage. On the other hand, it is also important that the Government's 2016 target is achieved in a way that avoids any further upwards pressure on house prices, which could exacerbate current affordability problems. According to the Government's estimates, the cost of meeting the energy standard set out in Level 4 of the Code for Sustainable Homes is likely to range between four and seven per cent of construction costs; meeting the higher levels of the Code will cost even more. Costs are expected to fall over time, however, as innovation takes place and the market for new technologies expands.<sup>19</sup>

Shelter remains optimistic that a significant majority of these additional costs will be passed on to landowners in the form of lower land prices. The ability of housebuilders to pass extra costs on to consumers will always be limited by the house prices determined by the second-hand housing market. Nonetheless we urge the Government to keep this issue under careful review so that any potential

13 CLG, *Planning Policy Statement 25: Development and Flood Risk*, December 2006.

14 CLG, *Planning consultation – Planning Policy Statement: Planning and Climate Change*, December 2006.

15 All new homes built by RSLs or with Housing Corporation funding, together with homes developed by English Partnerships or with direct funding from CLG's housing growth programme, must comply with Level 3 of the Code for Sustainable Homes.

16 CLG, *Code for Sustainable Homes: a step-change in sustainable home building practice*, December 2006.

17 See [www.lifetimehomes.org.uk](http://www.lifetimehomes.org.uk) for details.

18 The exemption will run for five years from 1 October 2007 and will be reviewed thereafter. Homes worth £500,000 or more that meet the zero-carbon standard will receive a £15,000 reduction on their stamp duty.

19 CLG, *Building a greener future: towards zero carbon development*, December 2006, page 34.

impact on house prices can be picked up at an early stage and the options for remedial action assessed.

As well as using the building regulations to raise carbon-emissions standards, the Government has recently consulted on proposals to amend the regulations to introduce higher water efficiency standards for new homes.<sup>20</sup> Shelter supports these proposals, which we believe have the potential to reduce water consumption substantially at relatively low cost, for example through requiring the use of dual-flush toilets and spray taps. In addition, we support the work of Ofwat<sup>21</sup> in looking at the potential for providing developers with incentives to exceed the water efficiency standards set out in the building regulations. This could be done, for instance, by linking the charges that developers pay for the connection of new homes to the water infrastructure with the water efficiency of those homes.<sup>22</sup>

While the building regulations provide an important tool for raising the minimum environmental standards for new homes, the effectiveness of this approach is critically dependent on the existence of a proper process of assessment and enforcement. Unfortunately, however, this is not always in place. According to a recent study by the Building Research Establishment, 43 per cent of the new buildings that it tested for energy efficiency, all of which had been certified as complying with the regulations, should in fact have failed.<sup>23</sup> Shelter calls on local authorities and the Construction Industry Council to take measures to ensure that the assessment of new homes by building control officers and approved inspectors is sufficiently robust, and that enforcement action is taken where homes fail to meet the required standards.

## **Designing new homes to cope with environmental change**

Through careful planning, it will be possible to design new homes and communities to cope with the effects of future climate change and other environmental trends, such as increased flooding, drier summers and heavier rainfall.

One important means of achieving this is through the use of design and construction standards for new homes. For example, the Code for Sustainable

Homes contains criteria concerning the use of flood-resistant construction techniques in flood-risk areas, and the 2006 Building Regulations include a requirement to implement measures to limit the effects of solar exposure on indoor temperatures in summer. Over the longer term, if building continues to take place in areas of high flood risk, more ambitious design techniques may become necessary, such as building homes with an extra storey and using the ground floor for flood-compatible purposes.

Another key strategy is the use of Sustainable Urban Drainage Systems (SUDS). This is a new approach to drainage, well developed in Europe, that limits the amount of water flowing into the sewerage network by incorporating features that prevent or delay run-off, such as permeable surfaces, artificial wetlands and ponds. As a result, it can substantially reduce the risks of flash flooding during heavy rain, while also providing valuable natural resources for wildlife and the local community. Shelter believes that considerable scope exists for increasing the use of SUDS, which cost about the same as traditional drainage systems, and we welcome the promotion of SUDS in the Government's new Planning Policy Statement 25 on development and flood risk.<sup>24</sup>

Significant barriers to the wider implementation of SUDS continue to exist, however. These include a lack of clarity regarding where ownership and maintenance responsibilities for its different elements should lie, and the use by developers of section 106 of the Water Industry Act to insist that surface-water sewers should be provided in addition to SUDS. Shelter calls on the Government to act swiftly to modify the legislative framework to address these issues, and to bring forward reforms to ensure that SUDS is incorporated as the preferred option in all new urban drainage schemes, where this is cost effective and feasible.

## **Making our existing homes environmentally sustainable**

It is estimated that 70 per cent of the housing stock that will be in use in 2050 already exists<sup>25</sup>, yet a large majority of existing homes fail to meet modern-day thermal and other environmental standards. For example, although there are 17.5 million homes with cavity walls in the UK, only six million have cavity-wall

20 CLG/Defra, *Water efficiency in new buildings: a consultation document*, December 2006.

21 Ofwat is the economic regulator for the water and sewerage industry in England and Wales: [www.ofwat.gov.uk](http://www.ofwat.gov.uk)

22 Defra, 'Water supply in the long term – Water Saving Group outlines progress on action plan', Defra news, 20 June 2006: [www.defra.gov.uk/news/2006/060620c.htm](http://www.defra.gov.uk/news/2006/060620c.htm)

23 Grigg, P, *Assessment of energy efficiency impact of building regulations compliance – report for the Energy Savings Trusts and Energy Efficiency Partnership for Homes*, Building Research Establishment, November 2004.

24 CLG, *Planning Policy Statement 25: Development and Flood Risk*, December 2006.

25 Sustainable Development Commission, *Stock take: delivering improvement in existing housing*, July 2006, page 14.

insulation<sup>26</sup>, and in 2002 seven per cent of homes had no insulation of any kind.<sup>27</sup> To make sufficient progress in addressing the environmental impacts of housing, we must therefore seek to improve standards within the existing stock as well as new development. Addressing the energy performance of existing homes also represents an important opportunity to help those on low incomes, who may be experiencing the effects of fuel poverty, by helping to improve the energy efficiency of their homes.

Shelter believes that action to raise the environmental performance of our existing housing stock should seek to bring together the two goals of environmental sustainability and helping the most vulnerable in our society. Given the scale of the investment required, we also recommend that the Government should prioritise its spending on the most cost-effective measures in order to achieve the maximum benefit from the limited resources available.

The Government has already put in place a number of policies and initiatives to help improve the environmental performance of existing housing stock:

- the Decent Homes Standard, which includes a requirement that every home should provide a reasonable degree of thermal comfort
- the Landlord's Energy Saving Allowance, which provides a tax allowance of up to £1,500 for landlords who invest in energy-saving measures, and Warm Front Grants, which are available to vulnerable households in the owner-occupied and private rented sectors for the installation of heating and insulation measures
- the Energy Efficiency Commitment, which requires energy suppliers to meet energy-saving targets by funding energy efficiency improvements in the domestic sector. At least 50 per cent of these savings must be delivered to low-income households. The Government has said that, following the expiry of the second phase of the Energy Efficiency Commitment in 2008, there will be a third phase lasting until 2011, which is expected to deliver around double the efficiency savings of the current programme<sup>28</sup>
- support for microgeneration schemes by means of reduced VAT rates and grant support through the Low Carbon Building Programme. In addition, the Government has said that it will ensure that individuals can benefit fully from microgeneration

by selling any surplus energy they generate back to the National Grid. The sale of such surplus energy will also be exempt from income tax.<sup>29</sup>

While Shelter welcomes these measures, we do not believe that they alone are sufficient to deliver the scale of improvement to housing stock required. Accordingly, we believe that the Government needs to take further cost-effective action to improve the environmental performance of our existing homes. In particular, we call on the Government to:

- increase the level of public subsidy available for the Warm Front Programme
- work with local authorities and the financial services industry to support the development of equity release and equity loan schemes to allow homeowners to invest in energy-efficient measures
- work with landlord and tenant groups to develop effective means of requiring landlords to bring their properties up to reasonable standards of energy efficiency
- introduce a Water Efficiency Commitment along similar lines to the Energy Efficiency Commitment, placing an obligation on water companies to install water-efficiency measures.

## Investing in infrastructure

It is vital that adequate infrastructure is in place to supply homes with the water they need, to take away sewerage and waste water, and to protect against flood risk, both in relation to the existing stock and the delivery of future development. However, it is clear that existing sewerage, water and flood infrastructure frameworks are under strain, and that they will require additional investment to respond to increased housing supply and the pressures of environmental change.

- At present, nearly a quarter of water distributed is lost through leakage from the supply network, enough to supply around 10 million homes.<sup>30</sup>
- Much of the existing sewerage network has insufficient capacity to meet current levels of usage, resulting in discharges into the river system and internal sewer flooding. According to the Environment Agency, providing sewerage treatment for the new housing proposed under the South East Plan will cost an estimated £7.5 billion over the next 20 years.<sup>31</sup>

26 National Audit Office, *Climate change policy: options for scrutiny*, April 2006, page 20.

27 Sustainable Development Commission, *Stock take: delivering improvement in existing housing*, July 2006, page 104.

28 HM Treasury, *Budget 2007 – Building Britain's long term future: prosperity and fairness for families*, March 2007, page 182.

29 Ibid, page 177.

30 Environment Agency, 'New thinking needed on planning for water resources', Environment Agency news, 28 June 2006: [www.environment-agency.gov.uk/news](http://www.environment-agency.gov.uk/news)

31 Environment Agency, *A strategy for provision of environmental infrastructure to meet the needs of the South East Plan*, January 2007, part 2, page 32.

- Between £22 and 75 billion of new engineering will be required by the 2080s to reduce the risks of river and coastal flooding from the worst scenario of £20 billion of damage per year down to £2 billion.<sup>32</sup>

The Government must ensure that adequate investment is available to maintain and, where necessary, develop our existing sewerage and flood defence systems. Shelter welcomes recent announcements such as the Government's decision to go ahead with a sewerage overflow and storage tunnel under the Thames. However, there remains a significant gap between current investment plans and probable future infrastructure requirements. As part of the 2007 Comprehensive Spending Review, the Treasury is conducting a cross-cutting review of the infrastructure requirements needed to support housing growth. Shelter calls on the Government to ensure that this includes a detailed and accurate assessment of future flood defence and sewerage investment requirements. It must also set out clearly by whom and through what mechanisms it proposes that this should be financed.

Shelter also calls on the Government and Ofwat to take tougher action to penalise water companies that are failing to invest enough in the reduction of water leakage. Furthermore, we believe that the standard of acceptable leakage applied to the water companies should be modified so it does not, as at present, reflect only the economic cost of water loss through leakage, but also takes into account the environmental cost.

## Promoting behavioural change

Tackling the environmental impact of our housing cannot be achieved through the actions of the Government and the housebuilding industry alone; the behaviour of individuals can also make a massive difference. For example, in Britain we waste the equivalent of around two power stations' worth of electricity every year by leaving televisions and other appliances on standby.<sup>33</sup>

The Government has a key role to play in encouraging individuals to behave in a more environmentally sustainable way, both through the provision of information and through its role in creating incentives. In particular, it is important that measures are designed so as to ensure that it is made as easy as possible for those on low incomes to modify their behaviour, both in view of the environmental contribution that this can make, but also in view of the potential financial benefits to this group from lower energy bills.

Shelter welcomes the adoption of the Code for Sustainable Homes, which provides consumers with a tool to assess the environmental sustainability of their homes. We also welcome the Government's proposal that, from April 2008, all new homes should be required to have a Code rating. We believe that these measures will enable consumers to understand better and compare the environmental impacts and running costs of their homes. We hope this will stimulate the housing market to increase the environmental sustainability of the design and construction of homes.

There is, however, scope to go further in promoting efficient energy use through the provision of better information. Shelter recommends that the Government should work together with Ofgem<sup>34</sup> and the energy companies to promote the take-up of 'smart meters' to make it easier for customers to track how much energy they are using, and to provide more accessible advice for consumers on the environmental impact of energy consumption and ways of reducing use.

Shelter strongly supports the view that the management of water demand is central to securing our future water supply, and we accept the principle of compulsory water metering in areas of water scarcity. However, we are concerned that adequate monitoring systems and safeguards have not yet been developed to ensure that compulsory metering does not have an adverse impact on vulnerable groups such as low-income families living in water-inefficient homes. We call on the Government and Ofwat to take urgent action to put in place such measures, before the introduction of compulsory water metering into new areas.

## Conclusion

Shelter believes that it is possible to meet the UK's housing needs while protecting and sustaining our environment. The Government has taken welcome steps towards this goal, but further action is required. The Government must ensure that there is sufficient investment into infrastructure and the upgrading of existing housing stock. It is also essential that the vision of more environmentally sustainable housing does not exclude the poorest people in our communities. More attention must be focused on how policies to address the environmental impact of housing can affect the poorest in society: it is vital that policies are beneficial to this group.

The recommendations overleaf set out the next steps towards achieving these goals.

<sup>32</sup> Foresight, *Future flooding – Executive summary*, Office of Science and Technology, 2004.

<sup>33</sup> Kinver, M, 'TV sleep button stands accused', BBC News, 22 January 2006.

<sup>34</sup> Ofgem is the regulator of gas and electricity providers in the UK.

# Recommendations

## Building new homes in the right places

- Derelict brownfield sites should continue to be prioritised for development; however, the environmental quality of some brownfield sites must be recognised and protected.
- Planning authorities should consider alternatives to the traditional green-belt model and take a more positive approach to applications that could enhance green-belt land.
- The planning system must take proper account of flood risk when considering where to locate new homes, and encourage patterns of development that will minimise carbon emissions and provide accessible transport and services.

## Constructing new homes to high environmental standards

- The housebuilding industry must develop capacity and skills to enable the large-scale delivery of homes to much higher environmental standards than at present.
- New social and affordable housing should set an example in terms of environmental performance.
- The Government should consider zero-carbon incentives for properties that fall below the stamp-duty threshold.
- The assessment of the environmental standards of new homes must be sufficiently robust and enforcement action taken where standards are not met.

## Designing new homes to cope with environmental change

- Sustainable Urban Drainage Systems (SUDS) should be used more extensively and the Government must modify the

legislative framework relating to the implementation of SUDS to clarify responsibilities for its different elements.

## Making existing housing stock environmentally sustainable

- The Government must work with landlord and tenant groups to develop means of requiring landlords to bring their properties up to reasonable standards of energy efficiency.
- The Government must introduce a Water Efficiency Commitment, placing an obligation on water companies to install water-efficiency measures.

## Investing in infrastructure

- The Treasury review of the infrastructure requirements to support housing growth must include a detailed and accurate assessment of flood defence and sewerage investment requirements.
- The Government and Ofwat need to impose tougher penalties on water companies for failing to invest sufficiently in the reduction of water leakage. The level of acceptable leakage should also be modified to take account of the environmental cost.

## Promoting behavioural change

- The Government, Ofgem and the energy companies need to work together to provide better advice for consumers on the environmental impact of energy consumption and ways of reducing use.
- The Government and Ofwat must take urgent action to put in place safeguards to ensure that measures such as compulsory water metering do not have an adverse impact on low-income households.

Shelter, the housing and homelessness charity  
Everyone should have a home

88 Old Street  
London EC1V 9HU

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# Shelter