

BuildingFutures

Sustainable Design Toolkit



New Dwellings



ENERGY & CLIMATE CHANGE
DESIGN & SAFETY | WATER | AIR
NOISE | LANDSCAPE & BIODIVERSITY
MATERIALS & WASTE



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> Introduction

The Building Futures Partnership

Building Futures is an initiative run in partnership by Hertfordshire's eleven Local Planning Authorities with support from industry groups and stakeholders. Its purpose is to promote sustainable and high quality development through the planning system in Hertfordshire. It currently does this in three ways:

- | Web based guidance for planners, designers, consultants and clients on sustainable design.

- | Hertfordshire Building Futures Awards which promotes and rewards high quality and innovative development in the county.
- | Hertfordshire Design Review Panel which provides independent and expert design review services for new development in Hertfordshire.

The Sustainable Design Toolkit

Development at all scales brings change to the environment we interact with and rely upon. This change has the capacity to make a sustainable and positive contribution, both today and over the lifetime of the development.

The Sustainable Design Toolkit has been developed by the Building Futures Partnership to improve the communication and understanding of sustainable design so that new development in Hertfordshire achieves sustainable and positive change.

The Sustainable Design Toolkit achieves this by providing a framework of questions and guidance to provoke thought at the early concept stage of development schemes, can structure design and pre-application discussions between stakeholders, and informs design decisions.

The Sustainable Design Toolkit has been shaped by dialogue with built environment professionals and stakeholders in Hertfordshire and the UK, including:

- | Hertfordshire's eleven Local Planning Authorities
- | Hertfordshire's Local Authority Building Control Group
- | BRE Global
- | Town and County Planning Association
- | Herts & Beds Constructing Excellence Network
- | University of Hertfordshire
- | Hertfordshire Design Review Panel

The Sustainable Design Toolkit has also been widely consulted on to gain feedback from statutory consultees, the development industry, industry agencies and organisations, local civic and community groups, and other stakeholders.

Richard Thake, Executive Member Environment and Community Safety:

"The toolkit is an exciting addition to the Building Futures initiative and offers a simple framework of questions and engaging advice that places sustainable design and construction at the heart of new development in Hertfordshire. I would strongly advise those involved in bringing forward development in the county to use this valuable toolkit."



> Introduction

How to use the Sustainable Design Toolkit

The Sustainable Design Toolkit can be used at all stages of the design and planning process, as explained below. The Sustainable Design Toolkit should always be read and used alongside relevant national and local planning policy, and in conjunction with any relevant provisions, standards, targets or other requirements set out in policy and legislation.

Concept and pre-planning application stage:

Considering the whole range of sustainable design issues at the early stages of a development proposal, through an iterative and integrated design process, typically helps you achieve lasting sustainable development at similar cost.

The Sustainable Design Toolkit supports this by providing a simple yet methodical framework, together with objective and up-to-date design guidance that clients, applicants and the Local Planning Authority can refer to and use when preparing and discussing design solutions.

Planning application stage:

A clear and consistent method for demonstrating and assessing the sustainable design merits of development proposals is looked-for by both applicants and Local Planning Authorities.

The Sustainable Design Toolkit supports this by providing a simple PDF template that applicants can use to prepare a Sustainable Design Statement that covers all of the necessary design issues in a methodical and integrated fashion. The Sustainable Design Statement can then form part of a planning application (or brief at the early concept/pre-app stage), providing an explanation of the rationale behind the proposed design response.

A Sustainable Design Statement produced using the Sustainable Design Toolkit gives the Local Planning Authority confidence that the applicant has been made



aware of the breadth of sustainable design issues upfront and a level of confidence that relevant sustainable design issues have been considered. The Local Planning Authority can then review the Sustainable Design Statement alongside the guidance contained in the Sustainable Design Toolkit to determine whether those design issues have been adequately addressed, whether the applicant's design rationale is sound, and whether the proposed design solution is appropriate when considered alongside all relevant policies and other material considerations.

Construction stage:

The Sustainable Design Toolkit also contains guidance that project managers and contractors can use to ensure detrimental impacts are avoided or mitigated during the construction and post-completion phases of developments, for example on protecting and maintaining important habitats during and after construction.



> Design Aims & Outcomes





> Your Development Proposal

Project details

Please work through and complete all the relevant boxes and questions. Once you have completed all sections and relevant questions, click on the button to the right or the buttons on page 25 to save or print your Sustainable Design Statement for use at pre-application or to submit with your planning application. You can save this PDF at any time and return to it later.

Save Sustainable
Design Statement



Client name

Project name/reference

Agent name (if applicable)

Name of other agents/consultants (if applicable)

Address of project

Please provide a brief description of the development



> Your proposal

Sustainable Design Summary

Briefly summarise how your proposal will achieve the design aims and outcomes on page 4, outlining any key

constraints, and set out any alternative options that were discounted and the reasons why.



> Your proposal

Energy & Climate Change

Q1

How will energy demand for heating, lighting and cooling be avoided?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Energy & Climate Change solutions
www.hertslink.org/bfintranet/energy1/solutions

Climate Change Adaptation solutions
<http://www.hertslink.org/bfintranet/climateadapt/18652826/>

CASE STUDIES:

Energy & Climate Change case studies
www.hertslink.org/bfintranet/energy1/casestud

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908

STANDARDS AND POLICY:

Building Regulations Part L & F
www.planningportal.gov.uk

The UK Government have published national technical standards, and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

Passivhaus and EnerPHit Standard: Certification for refurbished buildings
www.passivhaus.org.uk

BREEAM: Construction Technical Standard
www.bream.com/technical-standards

OTHER RESOURCES:

Zero Carbon Hub - Fabric Energy Efficiency Standard
www.zerocarbonhub.org



> Your proposal

Energy & Climate Change

Q2

What energy efficiency solutions will be used to further reduce energy demand?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Energy & Climate Change solutions
www.hertslink.org/bfintranet/energy1/solutions

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/climateadapt/18652826

CASE STUDIES:

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www.hertslink.org/bfintranet/energy1/casestud

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908

STANDARDS AND POLICY:

Building Regulations Part L & F
www.planningportal.gov.uk

The UK Government have published national technical standards, and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

OTHER RESOURCES:

Energy Saving Trust
www.energysavingtrust.org.uk

Zero Carbon Hub
www.zerocarbonhub.org



> Your proposal

Energy & Climate Change

Q3

Where relevant, how have renewable and low carbon energy technologies been integrated into the design?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Energy & Climate Change solutions
www.hertslink.org/bfintranet/energy1/solutions

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/climateadapt/18652826

CASE STUDIES:

Energy & Climate Change case studies
www.hertslink.org/bfintranet/energy1/casestud

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908

STANDARDS AND POLICY:

National Planning Policy Framework
www.communities.gov.uk

Building Regulations
www.planningportal.gov.uk

The UK Government have published national technical standards, and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

The Microgeneration Certification Scheme
www.microgenerationcertification.org

OTHER RESOURCES:

Energy Saving Trust
www.energysavingtrust.org.uk

Zero Carbon Hub
www.zerocarbonhub.org

Renewable Energy Centre
www.therenewableenergycentre.co.uk

National Biofuel Supply Database
www.woodfueldirectory.org



> Your proposal

Energy & Climate Change

Q4

How will the new dwelling avoid overheating and contributing to the urban heat island effect?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Energy & Climate Change solutions
www.hertslink.org/bfintranet/energy1/solutions

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/climateadapt/18652826

Materials solutions
www.hertslink.org/bfintranet/materials1/solutions

CASE STUDIES:

Energy & Climate Change case studies
www.hertslink.org/bfintranet/energy1/casestud

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908

Materials case studies
www.hertslink.org/bfintranet/materials1/caseland

STANDARDS AND POLICY:

National Planning Policy Framework
www.communities.gov.uk

Building Regulations
www.planningportal.gov.uk

The UK Government have published national technical standards, and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

The Green Roof Code
www.greenroofcode.co.uk

Living Roofs
www.livingroofs.org



> Your proposal

Energy & Climate Change

Q5

How will the new dwelling be made resilient to severe storms?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/energy/climateadapt

CASE STUDIES:

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908

STANDARDS AND POLICY:

National Planning Policy Framework
www.communities.gov.uk

Building Regulations
www.planningportal.gov.uk

Flood Risk Assessments (FRA) are required when a planning application is submitted. This requirement is set out in the Government's policy on development and flood risk as stated in the National Planning Policy Framework (NPPF).

www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

Living Roofs
www.livingroofs.org



> Your proposal

Water

Q1

How will the consumption of water be reduced?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Water solutions
www.hertslink.org/bfintranet/water1/solutions

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/climateadapt

CASE STUDIES:

Water case studies
www.hertslink.org/bfintranet/water1/casestud

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908

STANDARDS AND POLICY:

The UK Government have published national technical standards, and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

Building Regulations Part G
www.planningportal.gov.uk

Water Supply (Water Fittings) Regulations 1999 - minimum levels of water efficiency performance for water-using appliances
www.defra.gov.uk

OTHER RESOURCES:

Waterwise focuses on reducing water waste in the UK - tips on water efficiency and water efficient products
www.waterwise.org.uk

Bathroom Manufacturers Association's Water Efficient Product Labelling Scheme compares products that meet the standards of water efficiency
www.europeanwaterlabel.eu



> Your proposal

Water

Q2

How will surface water run-off from the dwelling be managed sustainably to reduce the risk of flooding and maintain water quality?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Water solutions
www.hertslink.org/bfintranet/water1/solutions

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/climateadapt/18652826

Landscape & Biodiversity solutions
<http://www.hertslink.org/bfintranet/landbio/18653222/>

CASE STUDIES:

Water case studies
www.hertslink.org/bfintranet/water1/casestud

Climate Change Adaptation case studies
www.hertslink.org/bfintranet/climateadapt/18652908/

STANDARDS AND POLICY:

Flood Risk Assessments (FRA) may be required in accordance with the UK Government's policy on development and flood risk as stated in the National Planning Policy Framework (NPPF).

The EU Water Framework Directive (WFD) takes an ecosystems approach to protecting and enhancing the quality of surface freshwater (lakes, rivers and streams), groundwater, coastal waters out to one mile. The Environment Agency is the lead authority for delivering the WFD in England and Wales.

www.gov.uk/government/organisations/environment-agency

The UK government have published national technical housing standards and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

OTHER RESOURCES:

The Green Roof Code
www.greenroofcode.co.uk

Living Roofs
www.livingroofs.org

UK Rain Garden Guide
www.raingardens.info



> Your proposal

Air

Q1

How will air pollutants, dust and other emissions arising from construction be minimised?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ [Refer to Advice & Guidance](#)

FURTHER INFORMATION

MORE ON SOLUTIONS:

Air solutions
www.hertslink.org/bfintranet/air1/solutions

CASE STUDIES:

Air case studies
www.hertslink.org/bfintranet/air1/casestud

STANDARDS AND POLICY:

The Considerate Constructors Scheme is the national initiative set up by the construction industry to improve its image. Sites and companies that register with the Scheme are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements

www.ccscheme.org.uk



> Your proposal

Air

Q2

How will good internal air quality be achieved?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Air solutions
www.hertslink.org/bfintranet/air1/solutions

CASE STUDIES:

Air case studies
www.hertslink.org/bfintranet/air1/casestud

STANDARDS AND POLICY:

Building Regulations Part F
www.planningportal.gov.uk

OTHER RESOURCES:

BRE Green Guide to Specification A+ rated materials

The guide provides a simple online guide to the environmental impacts of building material

www.bre.co.uk/greenguide



> Your proposal

Landscape & Biodiversity

Q1

What measures will be taken to protect and/or enhance existing landscape features and habitats?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Landscape & Biodiversity solutions
<http://www.hertslink.org/bfintranet/landbio/18653222/>

CASE STUDIES:

STANDARDS AND POLICY:

EU Habitats Directive

<http://jncc.defra.gov.uk/page-1374>

Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations). When dealing with cases where a European Protected Species may be affected, the planning authority has a statutory duty under the Habitats Regulations to have regard to the requirements of the Habitats Directive, and the three tests that it sets out:

- the activity or development must be for imperative reasons of overriding public interest or for public health and safety;
- there must be no satisfactory alternative;
- favourable conservation status of the species must be maintained.

Failure to protect hedgerows and trees can result in significant fines (up to £20,000 per tree). Trees can be legally protected by Tree Preservation Orders (TPO), Conservation Areas (CA), Planning Conditions or restrictive Covenants. Where it is proposed to carry out works to trees covered by a TPO or CA notice must be given to the Local Planning Authority

www.trees.org.uk/Help-Advice/Public-A-brief-guide-to-legislation-for-trees

National Planning Policy Framework
www.communities.gov.uk

GreenArc Strategic Green

Infrastructure Plan
www.hertsdirect.org/docs/pdf/s/SHiP.pdf

OTHER RESOURCES:

Hertfordshire Landscape Character Area Statements
www.hertfordshire.gov.uk/services/leisculture/heritage1/landscape/hlca/lcacoll

Hertfordshire Environmental Records Centre – information and records on designations
www.hercinfo.org.uk

TCPA's 'Planning for a healthy environment: good practice for green infrastructure and biodiversity'
www.tcpa.org.uk/data/files/TCPA_TWT_GI-Biodiversity-Guide.pdf

Planning for Biodiversity Toolkit
www.biodiversityplanningtoolkit.com/

National Character Areas
www.naturalengland.org.uk

Green Roof Code
www.greenroofcode.co.uk

Living Roofs
www.livingroofs.org

UK Rain Gardens Guide
www.raingardens.info



> Your proposal

Landscape & Biodiversity

Q2

Where there will be an impact on landscape and biodiversity, what mitigation measures will be put into place?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Landscape & Biodiversity solutions
www.hertslink.org/bfintranet/landbio/18653222

STANDARDS AND POLICY:

National Planning Policy Framework
www.communities.gov.uk

GreenArc Strategic Green Infrastructure Plan

www.hertsdirect.org/docs/pdf/s/SHiP.pdf

British Standard 5837:2012 Trees in relation to design, demolition and construction

<http://shop.bsigroup.com/en/ProductDetail/?pid=00000000030213642>

British Standard 3998: 2010 Recommendations for Tree Work – Best practice for arboricultural/tree surgery works.

<http://shop.bsigroup.com/en/ProductDetail/?pid=00000000030089960>

OTHER RESOURCES:

Hertfordshire Landscape Character Area Statements

www.hertfordshire.gov.uk/services/leisureculture/heritage1/landscape/hlca/lcacoll

Hertfordshire Environmental Records Centre – information and records on designations

www.hercinfo.org.uk

TCPA's 'Planning for a healthy environment: good practice for green infrastructure and biodiversity'

www.tcpa.org.uk/data/files/TCPA_TWT_GI-Biodiversity-Guide.pdf

Planning for Biodiversity Toolkit

www.biodiversityplanningtoolkit.com

National Character Areas

www.naturalengland.org.uk

Green Roof Code

www.greenroofcode.co.uk

Living Roofs

www.livingroofs.org

UK Rain Gardens Guide

www.raingardens.info



> Your proposal

Landscape & Biodiversity

Q3

How will the risks of instability due to soil shrink-swell and/or steeply sloping land be managed?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Climate Change Adaptation solutions
www.hertslink.org/bfintranet/climateadapt

CASE STUDIES:

Climate Change Adaptation
www.hertslink.org/bfintranet/climateadapt/18652908

STANDARDS AND POLICY:

Building Regulations
www.planningportal.gov.uk



> Your proposal

Materials & Waste

Q1

What sustainable materials will be used?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Waste solutions
<http://www.hertslink.org/bfintranet/waste1/solutionsland/>

Materials solutions
www.hertslink.org/bfintranet/materials1/solutions

CASE STUDIES:

Waste case studies
www.hertslink.org/bfintranet/waste1/casestud

Materials case studies
www.hertslink.org/bfintranet/materials1/caseland

STANDARDS AND POLICY:

The UK government have published national technical housing standards and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

OTHER RESOURCES:

BRE Green Guide to Specification: the guide provides a simple online guide to the environmental impacts of building materials
<http://www.bre.co.uk/greenguide/podpage.jsp?id=2126>

WRAP recycled content tool
<http://www.wrap.org.uk/category/subject/recycled-content>

The Forest Stewardship Council (FSC)
<http://www.fsc-uk.org/en-uk>

Programme for the Endorsement of Forest Certification schemes
www.pefc.org

RICS Methodology to calculate embodied carbon of materials
www.rics.org/uk/

Roads in Hertfordshire - Highway Design Guide
www.hertfordshire.gov.uk/docs/pdf/r/rhertssec5.pdf



> Your proposal

Materials & Waste

Q2

How will the waste hierarchy be embedded into the design and construction?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Waste solutions
www.hertslink.org/bfintranet/waste1/solutionsland

Materials solutions
www.hertslink.org/bfintranet/materials1/solutions

CASE STUDIES:

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Materials case studies
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Building Regulations Part M
www.planningportal.gov.uk

Lifetime Homes
www.lifetimehomes.org.uk

Code of Considerate Practice
www.ccscheme.org.uk

OTHER RESOURCES:

Waste and Resources Action Programme (WRAP) - Construction
www.wrap.org.uk/content/site-waste-management-plan-template-lite

Site Waste Management Plans
www.wrap.org.uk/content/site-waste-management-plans-1

Hertfordshire Materials Exchange
www.eastex.org.uk/herts/index.asp

Environmental Product Declarations provide a summary of the environmental impact (or lifecycle assessment) of construction materials and products.
www.bre.co.uk/page.jsp?id=1578

Hertfordshire Waste Aware – household waste recycling and waste collection info
www.wasteaware.org.uk



> Your proposal

Noise

Q1

How will construction noise be minimised?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Noise solutions
www.hertslink.org/bfintranet/noise1/solutionsland

CASE STUDIES:

Noise case studies
www.hertslink.org/bfintranet/noise1/cases

OTHER RESOURCES:

Code of Considerate Practice
www.ccscheme.org.uk



> Your proposal

Noise

Q2

What noise attenuation measures will be incorporated into the design?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Noise solutions
www.hertslink.org/bfintranet/noise1/solutionsland

CASE STUDIES:

Noise case studies
www.hertslink.org/bfintranet/noise1/cases

STANDARDS AND POLICY:

The UK government have published national technical housing standards and optional building regulations requirements
www.gov.uk/government/publications/2010-to-2015-government-policy-building-regulation/2010-to-2015-government-policy-building-regulation#appendix-5-technical-housing-standards-review

Building Regulations Part E
www.planningportal.gov.uk

Part E Robust Details scheme - an alternative to complying with Building Regulations Part E Requirement E1
www.robustdetails.com

OTHER RESOURCES:

Specialist noise advice from the Association of Noise Consultants
www.association-of-noise-consultants.co.uk

Roads in Hertfordshire - Highway Design Guide
www.hertfordshire.gov.uk/docs/pdf/r/rihertssec5.pdf

Green Roof Code
www.greenroofcode.co.uk

Living Roofs
www.livingroofs.org



> Your proposal

Design & Safety

Q1

How will the design promote place making?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Design solutions
www.hertslink.org/bfintranet/designs
Safety solutions
www.hertslink.org/bfintranet/safety1

CASE STUDIES:

Design case studies
<http://www.hertslink.org/bfintranet/designs/18652972/>
Safety case studies
www.hertslink.org/bfintranet/safety1/case

STANDARDS AND POLICY:

Building Regulations Part Q
www.planningportal.gov.uk

OTHER RESOURCES:

Secured by Design
www.securedbydesign.com
Roads in Hertfordshire - Highway Design Guide
www.hertfordshire.gov.uk/docs/pdf/r/rhertssec5.pdf



> Your proposal

Design & Safety

Q2

How will the different and changing needs of occupiers be accommodated?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

▶ Refer to Advice & Guidance

FURTHER INFORMATION

MORE ON SOLUTIONS:

Design solutions
www.hertslink.org/bfintranet/designs
Safety solutions
www.hertslink.org/bfintranet/safety1

CASE STUDIES:

Design case studies
www.hertslink.org/bfintranet/designs/18652972
Safety case studies
www.hertslink.org/bfintranet/safety1/case

STANDARDS AND POLICY:

Building Regulations Part M
www.planningportal.gov.uk
Lifetime Homes
www.lifetimehomes.org.uk
HAPPI Design Principles for Extra Care Housing
www.housinglin.org.uk

OTHER RESOURCES:

Secured by Design
www.securedbydesign.com
Roads in Hertfordshire - Highway Design Guide
www.hertfordshire.gov.uk/docs/pdf/r/rhertssec5.pdf



> Your proposal

Design & Safety

Q3

How will the design promote security and safety?

Describe your proposed design solution and explain the rationale for it. Please also outline any alternative solutions that have been considered but were discounted and the reasons why.

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> Next Steps

That's it! All done.

Thank you for considering and responding to the above questions.

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> Examples, Solutions & Advice

Energy & Climate Change

Q1

How will energy demand for heating, lighting and cooling be avoided?

◀ View your response to this question

Advice and Guidance

1. Insulate walls, floors, roofs, water tanks, pipes and ducts, service penetrations and external doors.
2. A high level of thermal mass can help maintain a stable and comfortable internal temperature during periods of very hot and cold weather where other design approaches, such as Passivhaus, are not suitable or feasible.
3. Locate the facade of rooms which require heating and lighting within 30 degrees of South to maximise use of passive solar gain and natural lighting, taking care not to cut out daylight to neighbouring properties, maintain privacy and deliver place making objectives, such as passive surveillance. An open floor plan will also allow light to reach through to deeper parts of the building.
4. Minimise windows on northern elevations or make them smaller - keeps out colder northerly winds and reduces potential heat loss.
5. Use double (as required by building regulations) or triple glazed windows which offer excellent thermal performance.
6. Make use of skylights, sun catchers and sun pipes on southern elevations to bring natural daylight into darker areas of the house.
7. Design for an airtight building envelope with an appropriate ventilation strategy. Natural or passive ventilation which requires little or no energy is preferable, for example cross ventilation or stack ventilation. Mechanical ventilation with heat recovery (MVHR) is often a sustainable alternative

Q2

What energy efficiency solutions will be used to further reduce energy demand?

◀ View your response to this question

Advice and Guidance

1. Low energy lighting and lighting controls should be used both internally and externally.
2. If using gas to heat the home and hot water, ensure the boiler is a high efficiency condensing/combi boiler.
3. Ensure any new white goods being installed are AA or A+++ rated.
4. Ensure you have internal and/or external space for air drying clothes throughout the year.
5. Provide new owners and occupiers with information on how to properly use any technologies installed, and to explain any particular aspects of the building's design which contribute toward energy efficiency.



> Examples, Solutions & Advice

Energy & Climate Change

Q3

Where relevant, how have renewable and low carbon energy technologies been integrated into the design?

◀ View your response to this question

Advice and Guidance

1. Solar Thermal Panels: Freestanding or integrated, ideally SE to SW facing at 30-45 degrees. They are more suitable where there is high usage of hot water, but a back-up supply is also needed. Evacuated tube panels are generally more costly but more efficient.
2. Solar Photovoltaic Panels: Freestanding or integrated into SE to SW facing roofs 30-45 degrees. Various sizes and forms are available, and can be designed to colour match the appearance of conventional slate tiles within Conservation Areas.
3. Ground Source Heat Pump: Converts low grade thermal energy from the ground for use in space heating and hot water. GSHP are best suited to underfloor heating systems or where only low temperatures are needed. They can provide cooling during the summer although they require sites with enough land.
4. Air Source Heat Pump: Converts low grade thermal energy from the outside air for use in space heating.
5. Biomass Boilers/Burners: Wood pellets or chips, as well as logs are used instead of gas or oil. Considered to be carbon neutral but this depends upon where and how biomass material is sourced. Significant storage space and suitable access for deliveries is required. A good alternative in rural areas where gas mains are not available.

Q4

How will the new dwelling avoid overheating and contributing to the urban heat island effect?

◀ View your response to this question

Advice and Guidance

1. Use robust external finishes on the façade that can reflect or reduce the absorption of solar energy (e.g. white render and light paint colours).
2. Shading and solar control measures, such as overlarge eaves and canopies, brise soleil, external blinds and shutters, solar control glazing, and deciduous trees and bushes on south, south-east, or south west facing elevations should be incorporated.
3. Green roofs or walls can reduce the cooling load of a building and create a cooler outdoor micro climate for occupiers.
4. Use planting and landscaping around the new dwelling and within the curtilage to provide shading and create a cooler micro climate during summer days.
5. Create water features such as ponds that provide passive cooling during the summer.
6. An appropriate ventilation strategy should be integrated into the design of the house taking into account neighbouring land uses (e.g. busy road) and the need to maintain security of the home.
7. Design in a high level of thermal mass to help maintain a stable and comfortable internal temperature during periods of very hot and cold weather.



> Examples, Solutions & Advice

Energy & Climate Change

Q5

How will the new dwelling be made resilient to severe storms?

[◀ View your response to this question](#)

Advice and Guidance

1. Overlarge eaves and overhangs will provide a level of protection to fascias, façades and windows.
2. Use landscaping and planting to provide shelter from high winds and heavy precipitation.
3. Use water and flood resilient materials.
4. Green roofs can help to attenuate storm water runoff as part of a wider SUDS system.

Water

Q1

How will the consumption of water be reduced?

[◀ View your response to this question](#)

Advice and Guidance

1. Use water-efficient aerated showerheads that can produce water flows that feel far higher than they actually are.
2. Fit low flow taps to sinks and baths, and dual / low volume flush toilets.
3. Incorporate rainwater harvesting to supply free water for flushing, washing and watering the garden. A simple water butt helps provide water for irrigation during the summer.
4. Greywater recycling systems which capture and treat waste water from washing machines and dishwashers can also be used to provide recycled water for flushing and watering gardens.
5. Design landscaped areas using drought tolerant plants.
6. Ensure new white goods are water efficient - washing machines should use less than 55 litres per cycle. Look for water efficient appliances with the new Water Efficient Product Label - the Waterwise Marque.



> Examples, Solutions & Advice

Water

Q2

How will surface water run-off from the dwelling be managed sustainably to reduce the risk of flooding and maintain water quality?

◀ View your response to this question

Advice and Guidance

1. Rainwater harvesting such as an underground tank, together with overhangs will reduce the amount of water flowing into drains and the risk of surface water flooding on site and in surrounding areas.
2. Green roofs and walls will help attenuate storm water run-off in flatted or site constrained developments, and protect and enhance water quality.
3. Create Rain Gardens or other appropriate landscaping and planting to provide natural drainage, amenity and biodiversity value, and improve water quality.

Air

Q1

How will air pollutants, dust and other emissions arising from construction be minimised?

◀ View your response to this question

Advice and Guidance

1. Wheel washing all vehicles, and dampening and sweeping roadways.
2. Covering vehicles and skips when loaded with material.
3. Dampening stock piles, and locating them to take account of the prevailing wind and sensitive receptors.
4. Sealing and replanting completed earthworks as early as practicable to reduce dust.
5. Using low emission vehicles and plant equipment (particularly on site generators)



> Examples, Solutions & Advice

Air

Q2

How will good internal air quality be achieved?

◀ [View your response to this question](#)

Advice and Guidance

1. Use low emitting products to reduce VOC concentrations indoors, for example, water or vegetable oil based paints and stains, and furnishings made from solid wood.
2. Use furnishings made from solid wood instead of pressed or reconstituted wood, which is often bound with chemicals such as formaldehyde. Alternatively, seal pressed wood with formaldehyde sealing coatings.
3. An appropriate ventilation strategy, whether passive (e.g. cross or stack ventilation) or mechanical, should be integrated into the design of the house taking into account neighbouring land uses such as industrial parks or busy roads.



> Examples, Solutions & Advice

Landscape & Biodiversity

Q1

What measures will be taken to protect and/or enhance existing landscape features and habitats?

◀ [View your response to this question](#)

Advice and Guidance

1. Ecological surveys should be undertaken to inform the design, phasing and construction management of the development. Surveys will identify the ecological characteristics and what mitigation and enhancement solutions will be required to maintain or improve the ecological value of the site and surrounding area. Surveys must be carried out by a qualified professional who is a member of the Institute of Ecology and Environmental Management (IEEM) or have equivalent qualifications.
2. During construction, arrange site access to avoid loss or detrimental impact on key landscape features or habitats.
3. During construction, provide appropriate screening or temporary landscaping to minimise noise, air and light pollution and physical impacts on the surrounding landscape and habitats.
4. Phase and carry out works around seasonal patterns such as nesting, mating, foraging and hibernation which would be identified through the ecological survey.
5. If the site is home to protected species, such as Great Crested Newts, then special measures and requirements may need to be fulfilled. Contact your local planning department for advice.
6. Retain and store topsoil removed from the site, then reuse where possible to ensure habitat continuity for local species.
7. Plant small areas of green space or green roofs with native grasses and wildflower species.
8. Create new habitats, for example, for bats and birds, such as bird boxes and places for roosting/hibernating bats. (Remediation).
9. Where possible, create ponds for wildlife and amenity benefits for residents. They can also form part of the SUDS strategy for the new home.



> Examples, Solutions & Advice

Landscape & Biodiversity

Q2

Where there will be an impact on landscape and biodiversity, what mitigation measures will be put into place?

◀ [View your response to this question](#)

Advice and Guidance

1. A standard hierarchy of mitigating impacts should be followed. Mitigation measures are more effective if they are designed as an integral part of the scheme. Not all impacts can be mitigated and mitigation in itself can lead to problems with a development. Monitoring of a development is essential to overcome and identify unanticipated problems as they arise.
2. Create new landforms to protect visual amenity and help integrate the development into the wider landscape.
3. Retain and re-plant native plant species.
4. Use buffer zones, screening, fencing and boundary treatments that are in keeping with the surrounding area to protect visual amenity, reduce the impact on habitats and to provide attractive boundaries or 'edges'.
5. Retain and improve existing landscape features such as hedgerows.
6. Ensure on-site identification and appropriate protection of trees and habitats within the site, or temporary relocation of habitats such as wild flower rich grassland, is carried out prior to construction works.

Q3

How will the risks of instability due to soil shrink-swell and/or steeply sloping land be managed?

◀ [View your response to this question](#)

Advice and Guidance

1. Provide heavier foundations that are strong and extend deep enough below the zone in which seasonal variations in moisture content can be withstood.
2. Reinforcing slopes or building retaining walls to prevent or reduce landslip.
3. Appropriate vegetation can help to prevent soil erosion through their root network, helping to stabilise ground conditions for buildings.



> Examples, Solutions & Advice

Materials & Waste

Q1

What sustainable materials will be used?

◀ View your response to this question

Advice and Guidance

1. Use reclaimed/reused (e.g. brick/ slate tiles), recycled materials (e.g. plasterboard) which should be viable on any project, whatever its scale, location or functional specification.
2. Use local traditional materials where possible, or source materials locally to reduce 'road miles' and the building's carbon footprint. Source timber that is Forest Stewardship Council (FSC) certified, or an equivalent certification standard.
3. Use natural materials that are 'carbon neutral', for examples locally produced wood, wool and straw/reed. Water and vegetable oil based paints should be used due to their low VOC content.
4. Longevity and robustness of materials should at least equate to the expected functional lifetime of the building, and should age well with the building.

Q2

How will the waste hierarchy be embedded into the design and construction?

◀ View your response to this question

Advice and Guidance

1. Embed the waste hierarchy into all design and construction decisions - Avoid, Reduce, Reuse, then Sustainable Disposal.
2. Reuse demolition waste in the construction of the new dwelling or recover demolition waste such as broken bricks and concrete for on site levelling and the creation of any new landforms.
3. Offsite manufactured components and other innovative timber construction methods can reduce construction time and waste on site.
4. Design the new building with flexible internal space to allow the home to be adaptable to changing needs without major demolition work.
5. Provide waste sorting and storage facilities on-site for recycling or future reuse. Return packaging and unused materials to suppliers.
6. Provide appropriate internal and external space for occupiers to sort and store their waste and which promotes higher rates of recycling of dry waste and food waste, for example a compost and food growing area could be integrated into the design.



> Examples, Solutions & Advice

Noise

Q1

How will construction noise be minimised?

◀ View your response to this question

Advice and Guidance

1. Avoid site drilling wherever possible.
2. Keep site grinding, cutting and similar noisy activities to a minimum, and at appropriate times of the day.
3. Avoid vibro-compaction of the ground as much as possible.
4. Use off-site manufacturing where possible, such as the cutting of non standard concrete blocks off site under controlled conditions.

Q2

What noise attenuation measures will be incorporated into the design?

◀ View your response to this question

Advice and Guidance

1. Use sound resistant flooring and walling systems.
2. Thicker, heavier doors and double/triple glazed windows will provide greater noise insulation.
3. Position rooms which are less sensitive to noise to act as screens or baffles between noise sensitive rooms and internal or external noise sources.
4. Green roofs can act as sound barriers by absorbing, reflecting and deflecting sound waves.



> Examples, Solutions & Advice

Design & Safety

Q1

How will the design promote place making?

◀ View your response to this question

Advice and Guidance

1. Choose an appropriate architectural response that relates well to both the character of the surrounding area and the building's function.
2. Create a positive relationship with neighbouring buildings, the streetscene and the public realm through appropriate use of scale, massing and aspect, siting within the plot, separation to adjacent buildings, and continuity of building line and active frontages.
3. Use high quality durable materials, external finishes, and hard and soft landscaping to help create a sense of place and worth.

Q2

How will the different and changing needs of occupiers be accommodated?

◀ View your response to this question

Advice and Guidance

1. Develop a design brief which outlines how the dwelling may grow or adapt over time, to ensure it is fit for purpose now and in the future.
2. Open plan or flexible floor plates or lightweight, demountable internal construction.
3. Foundations to attached garages designed to accommodate first floor extensions.
4. Provide garage space that can easily be converted into living space.
5. Roof structures and pitch designed to facilitate dormer/loft extensions.
6. On hillside sites, dwellings could be built with basements which can be converted to living, storage or parking space.
7. Doorways, floor levels and circulation space within the home and garden areas should be designed for easy access by all abilities and avoid creating trip hazards.



> Examples, Solutions & Advice

Design & Safety

Q3

How will the design promote security and safety?

◀ [View your response to this question](#)

Advice and Guidance

1. Continuing active frontages and principal entrances fronting onto the street.
2. Create visually attractive defensible space between the new dwelling and the public realm, such as a front garden or landscaped strip.
3. Provide screening for private outdoor spaces, with a clear demarcation between public and private space.
4. Provide screening and secure enclosures for storage areas, for example cycle or bin storage.
5. Provide lockable gates, physical boundary features and robust lockable doors and windows.