Energy efficiency planning guidance for **conservation areas**

Camden

Contents

1. Introduction

1.1 Who is this guidance for?

This document provides guidance to residents who are considering making energy efficiency improvements to residential properties in conservation areas. To find out if your home is in a conservation area please visit our conservation area web pages.

The guidance relates only to unlisted buildings. To find out if your building is listed visit Camden's listed building web pages.

1.2 Why do we need this guidance?

You want to improve energy efficiency in your historic home, but don't know where to start. Should you install solar panels or insulate the loft first? Which is most effective? What needs planning permission and what doesn't?[1] And what if I live in a conservation area?

We recognise that saving energy in historic homes can be daunting, and that planning can sometimes seem complicated – but we are here to help.

Working with residents, we have developed detailed guidance to help those who want to improve the energy efficiency of their home while protecting the historic character and appearance of their conservation area.

[1] Section 3 gives an indication of what needs planning permission in a conservation area, but as the permitted development planning regulations can seem complicated, we have also recently updated our Retrofitting Planning Guidance (RPG). The RPG has easy-to-use tables indicating what needs planning permission, and what conditions need to be met in each case. The RPG should be read alongside this guidance.

This document will help you:

- Decide on the most effective things you can do to save energy;
- prioritise the work you undertake;
- consider the costs and other implications;
- appreciate the character of your conservation area; and
- understand how to introduce energy saving measures which preserve the character and appearance of your conservation area.

1.3 Why do we need a specialist approach in Camden?

Camden is an attractive and historic borough – rich in architecture and heritage - from medieval streets, to Georgian squares, classical stucco and finely detailed red brick terraces to iconic Modernist buildings. As a result, some 75% of our developed areas are designated as 'conservation areas'. This means they have a special character and appearance, which we have a duty (under Section 72 of the Planning [Listed Building and Conservation Areas] Act 1990) to preserve and, where appropriate, enhance.

Improving the energy efficiency of historic homes is also important - not only to provide warm, dry homes which are comfortable and healthy for inhabitants and to reduce energy bills, but also to contribute to global and local action to reduce greenhouse gas emissions (such as carbon dioxide) that cause climate change.

In Camden, over 25% of borough carbon dioxide (CO_2) emissions result from heating and powering homes. To achieve our 40% borough wide CO_2 reduction target by 2020 and contribute to national action under the Climate Change Act, 2008, we estimate that over 30,000 of the 58,000 solid wall homes typical of those found in conservation areas require significant energy efficiency improvement (approximately a 60% CO_2 saving on average per home).

However our response to the pressing need to reduce energy use must be sensitive in order to preserve the heritage significance of the borough.

Historic homes in Camden's conservation areas can be made more energy efficient, often through relatively minor and easy interventions which enable them to retain their special character and appearance, and the features – like historic doors and windows - that make them special. Where major energy efficiency measures are proposed, it is important to consider how and where these are likely to be acceptable. This guidance will help you plan the most effective way to do this.

1.4 Does national planning policy give greater weight to heritage or energy conservation?

The short answer is neither – they are both important.

The National Planning Policy Framework (NPPF) (March 2012) contains twelve core principles, with two relating directly to heritage conservation and environmental sustainability.

On heritage – any development should:

> 'conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations'

And on energy conservation – any development should:

> 'support the transition to a low carbon future….encourage the re-use of existing resources, including conversion of existing buildings and encourage the use of renewable resources'.

The NPPF does not seek to arbitrate between these two principles but instead provides a framework for assessing heritage significance and weighing the degree of harm to it against the public benefit of reducing energy consumption.

This means that the scale, type and location of work to improve energy efficiency should be appropriate to the heritage significance of the building in question.

2. Improving the energy efficiency of your home

Unless you are planning major renovation work, improving your home's energy performance is likely to be a gradual process punctuated by minor interventions such as replacing a window, or medium scale interventions such as updating heating controls when replacing an old boiler.

Regardless of the scale of intervention you are planning, it makes sense to establish an energy efficiency retrofit plan for your home.

2.1 What are the benefits of making an energy efficiency retrofit plan?

Thinking about all the potential energy efficiency measures available to you, weighing up their effectiveness, likely disruption, cost, and the planning implications can be a complicated business. Making a plan helps you to:

- Consider a wide range of factors that will influence whether a measure will be effective, appropriate and acceptable in planning terms;
- decide which of these measures you want to introduce and in what order;
- develop a 'shopping list' of measures that are appropriate to install in your home; and
- identify the interdependencies as well as the long term opportunities presented by home improvements.

More information about making a plan can be found in the Institute for Sustainability's Low carbon domestic retrofit guides.

2.2 Your step by step energy efficiency retrofit plan

Step 1. Understand the Building

Assess and evaluate your home.

- Assess the condition of your home's fabric and services (www.english-heritage.org.uk/your-property). For example, what needs replacing or repairing now?
- Consider its heritage value and significance. How old is your building? What architectural style is it? What are the features that contribute to its character and charm? The Conservation Area Statement or Appraisal and Article 4 Design Guide (Belsize, Hampstead, Primrose Hill and South Hampstead conservation areas only) will help you to understand which elements of your home contribute to the character of the area and where change is or is not likely to be acceptable.
- Assess the energy performance of the building envelope and its services (heating, lighting and appliances). For example, are parts of your home colder than others? How old is your central heating system?
- Think about the behaviour of the building fabric in response to heat and moisture. For example, do parts of your home suffer from condensation, mould or dampness?
- Consider the users' occupational requirements? For instance, how are different parts of the house used and at what times of day?

Step 2. Identify opportunities and interdependencies with other planned works

Refurbishment, repair and extension are times of disruption and expense. Using these occasions to also carry out energy efficiency or renewable energy measures is likely to save you money, time and disruption.

For instance:

- When replacing kitchen or bathroom fittings consider adding internal solid wall insulation or installing mechanical ventilation with heat recovery;
- when laying new flooring consider adding floor insulation; and
- when re-roofing, renew insulation and consider the installation of solar photovoltaic or solar water heating technology.

Step 3. Evaluate effectiveness and risks

Thinking about effectiveness

The **carbon cost-effectiveness** of a measure is the capital cost of the measure, less the lifetime fuel cost savings, divided by the lifetime carbon dioxide emissions savings.

Understanding the carbon cost effectiveness of measures will help you decide which measures to install to achieve the maximum carbon emissions reduction for your money

The table below provides a rough guide to the approximate carbon cost effectiveness of a range of measures. The changing costs of energy efficiency technologies and domestic fuel costs means that the conclusions will vary over time.

Table 1: Carbon Cost-Effectiveness

Technology	Capital cost	Carbon Dioxide Emissions Reduction benefit	Subsidy available	Carbon cost effectiveness with subsidy
Solar PV panels	£££££	★★★★★	Feed in Tariff	Medium
Solar thermal panels	£££££	★★★★★	Renewable Heat incentive	Medium
Air source heat pumps	£££££	★★★★★	Renewable Heat Incentive – in some cases	Low
Biomass heating (stoves and boilers)	£££££	★★★★★	Renewable Heat Incentive – in some cases	Low - Medium
Wind turbine	£££££	★★★★★	Feed in Tariff	Low
Domestic Combined Heat and Power (CHP)	£££££	★★★★★	Feed in Tariff - limited	Low
Solid Wall insulation (Internal/External)	£££££	★★★★★	Energy company obligation (ECO)	Medium
Double glazing	£££££	★★★★★	Green Deal	Low – medium
Secondary glazing	£££££	★★★★★	No	Low - medium
Loft insulation	£££££	★★★★★	Energy Company Obligation	High
Floor insulation	£££££	★★★★★	Green Deal	Medium - high
Condensing boiler	£££££	★★★★★	Green Deal	Medium
Draught-proofing	£££££	★★★★★	Green Deal	High
Other minor measures	£££££	★★★★★	Varies	Medium-High

Energy Hierarchy

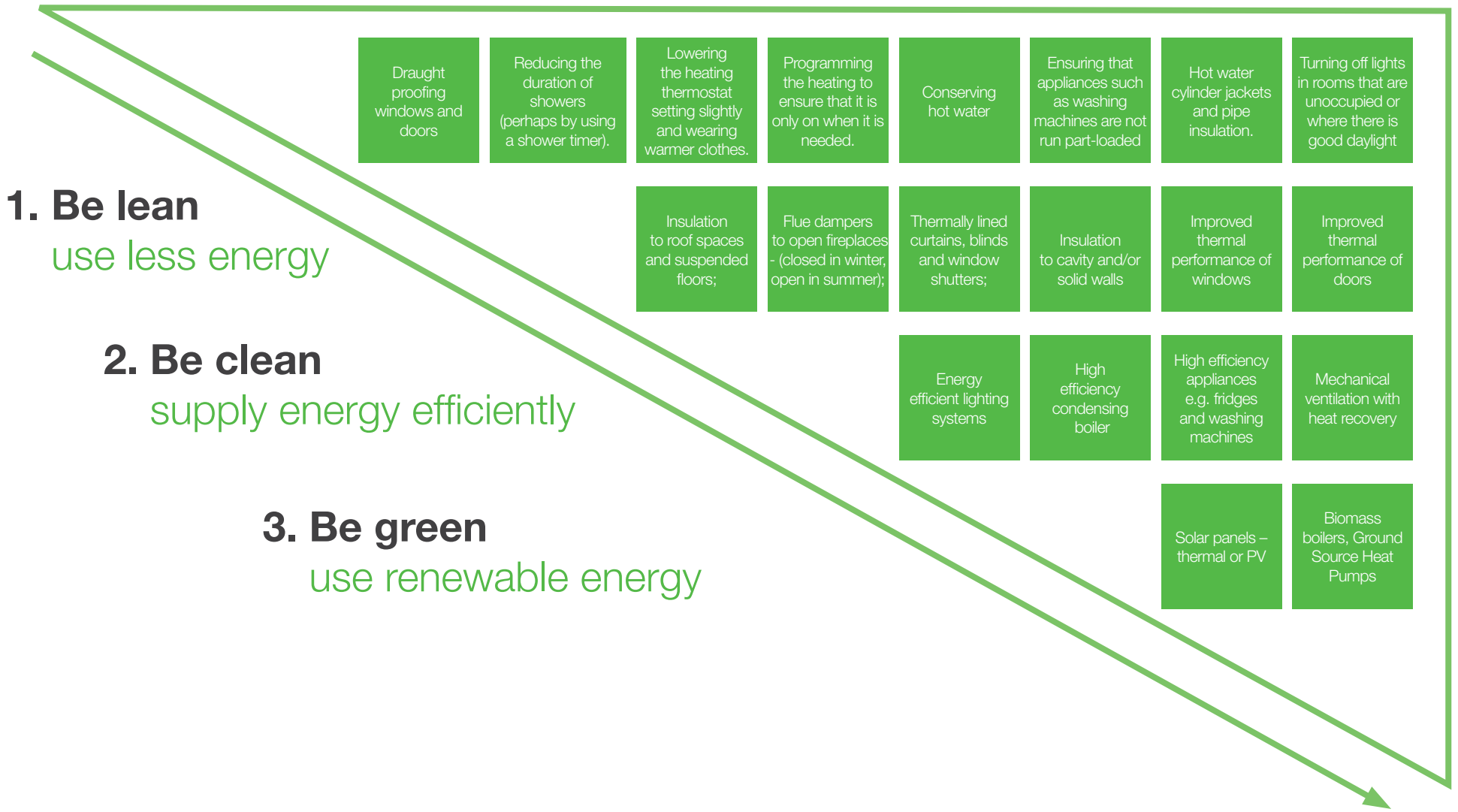
An important feature of any plan should be the application of the 'energy hierarchy' principle. Broadly speaking, this advocates the prioritisation of energy demand reduction, and 'passive' energy efficiency measures, such as draught-proofing and insulation, over higher-cost 'active' systems such as condensing boilers and renewable energy technologies.

Following this 'hierarchy' enables you to specify active and renewable systems that are appropriately scaled to the energy demands of your insulated and energy efficient home. Were you to take the opposite approach and install the active and renewable systems first, those systems would be unnecessarily large and expensive.

As a general rule, lower cost 'demand reduction' and 'passive' energy efficiency measures at the top of the energy hierarchy tend to also have the best carbon cost-effectiveness. However in some instances, available subsidies and grants (such as the Government's Feed-in Tariff for solar electricity panels or Renewable Heat Incentive) alter this order by strengthening the financial case for traditionally higher cost active systems.

1. **Be lean**
   use less energy
2. **Be clean**
   supply energy efficiently
3. **Be green**
   use renewable energy

Table 2: The Energy Hierarchy



Considering risks

A common concern when adapting historic buildings is the maintenance of adequate ventilation so that condensation and damp problems are avoided. This is particularly important to bear in mind when draught-proofing and insulation are introduced. Older buildings rely on natural ventilation (through windows, chimney and floor voids) to dissipate air borne moisture, and when these routes are blocked moisture generated by day to day household activity is likely to condense on the coldest surface and cause damp and mould. To avoid this, improved and potentially mechanically assisted ventilation may need to be installed.

Step 4. Assess impact of measures on heritage value and significance

Section 3 of this Guidance gives detailed advice on balancing the conservation of historic character with the introduction of energy saving measures. Once you have considered this section alongside your conservation area statement or appraisal, you will be better able to assess which measures are likely to improve your home's energy efficiency while conserving the special character and appearance of the local area.

In most conservation areas it will be essential to maintain a uniformity of appearance and retain historic architectural detailing. In these cases internal measures or those that are not visible from the public realm will be more likely to be acceptable.

Step 5. Implementation

After completing Step 4, a set of appropriate energy efficiency measures will emerge.

Don't forget - the performance of any measure and its impact on energy efficiency in your property will depend both on the quality of the installation and occupant behaviour.

Finally, as with any building project, we recommend that independent professional advice is sought before any works begin. Sources of help on finding an appropriate professional, accreditation schemes and technical information can be found at the sources listed in Appendices A.

2.3 Example energy efficiency retrofit plan

My Address: 3 Friendly Street, NW5
My Conservation Area: Kentish Town
Date: Christmas 2013

Step 1. Understand the Building

Read CA Statement – house makes a 'positive contribution' - dates from mid C19 - 1860? No Article 4 Directions here. Made of red brick w slate roof. Sliding sash windows (not double glazed). Flowery plaster type decoration to windows and front door. Decorative tiles to outside porch floor, slightly worn. Cold spots – hallway, bathroom, kitchen door (dog flap). Users – all out during the day; high occupancy at night (2 x adults, 1 x child, 1 x dog).

Step 2. Other planned works

New boiler needed in 5 years . Roof tiles have slipped need minor attention. Gutters need a clear out (leak - flat roof of bathroom). Poss. new flooring to kitchen next Spring. M would like new bathroom. B would like attic converted to playroom – no funds now.

Step 3. Evaluate effectiveness and risks

Effectiveness:
Remember Energy Hierarchy – lower demand / passive measures have best carbon reduction.

Cheapest & most effective:
– loft insulation (do we have it???)
- Floor insulation – could do kitchen and back of house?
- Secondary glazing is cheaper than double glazing (could local carpenter make secondary windows / shutters?).
- front door – can we insulate it? Curtain & drapers rod – google it

Pro-active things
Solar panels – expensive, but Government grants/subsidy might be available and could work with new boiler
Solid wall insulation - effective but expensive. Remember **RISK** problems with sealing old house – trapped moisture = mould

Fitting it in with planned works
Condensing / Biomass boiler in 5 years – could link with solar water heating?
Kitchen – floor insulation, new double glazed kitchen door. Insulate dog flap!
New vents to combat moisture?
Bathroom – internal wall insulation / new vents again – perhaps try mechanical ventilation with heat recovery?

Step 4. Assess measures against heritage value / significance

Conservation area statement says front of house is important to conservation area – esp. stucco detailing and ground floor window, but rear elevation 'lacks uniformity'. Rules out external insulation to the front…. but could consider it for the cold rear extension? Need to think about window reveals and how it would work with existing flat roof.

M wants to keep existing windows "lovely and old" (are they original to house? 150 years old! (M says new wood not of same quality as old). CA statement notes their importance.

How can we make them more energy efficient without replacing them? Draughtproofing to plug gaps. Do shutters needs planning permission in a conservation area? (checked Camden's 'Retrofitting Planning Guidance' - No)

Step 5. Implementation

Now:

Insulate loft! Fix roof tiles.

New kitchen door & insulate dog flap (check vents)

Ask carpenter about shutters

Google a ‘drapers rod’ for front door. M wants thermal velvet curtain

Unblock gutters to stop leaky bathroom roof. Repaint for now.

Next Spring:

New flooring to kitchen & poss utility / back passage w insulation

Future (when we have the funds...):

Condensing boiler, possibly with solar thermal

Bathroom - internal insulation (external might be possible given the CA statement and would pose less condensation risk); new mechanical ventilation with heat recovery

Attic convert to bedroom – floor and roof insulation.

3. Preserving the character of your conservation area

3.1 Understanding character and appearance

Understanding how your proposed works will impact on the character and appearance of your property, and the wider conservation area, is an important part of planning your energy efficiency retrofit. Energy efficiency works need to maximise their impact and savings – as well as ensuring they don't detract from what is special about the conservation area as a whole.

…in a conservation area it's often the uniform look of the fronts of the houses that is the most attractive element…

Remember, whilst historic buildings are celebrated for their unique and interesting character, in a conservation area it is often the uniform look of the front of the houses that is the most attractive element; the use of the same material, same design of windows, doors and porches, uninterrupted roofscapes, parapets and chimneys all work together to give the area its architectural charm and character - it feels nice to be there. Thinking about this when planning your energy efficiency retrofit plan will help you understand the special qualities of your conservation area, and what you can do to make sure this is retained.

All conservation areas in Camden have a conservation area appraisal or statement which identifies the valued character and appearance of the area. 'Character and appearance' can be formed by buildings, spaces, views and, in some cases, uses, as well as materials, form and the detailed design of individual properties.

The appraisal explains what is important about the area, and gives guidance as to how its special character and appearance should be preserved or enhanced, so it's a good place to start.

3.2 Measuring the impact: what do I need to think about?

The impact of energy efficiency measures on the heritage significance of your building and the wider conservation area can be visual and /or physical.

Visual Impact

The extent of visual impact depends on how far from the existing palette of materials and detailing the proposal goes, and the extent to which it is visible. It is important therefore to consider the design, materials and siting of measures carefully so as to minimise this impact.

Special Measures in Belsize, Hampstead, Primrose Hill and South Hampstead

Four of Camden's conservation areas - Belsize, Hampstead, Primrose Hill and South Hampstead - have 'Article 4 Directions' over the majority of buildings, which restrict the removal of historic doors, windows, boundary walls, railings, changes to roofs and chimneys and other features (this means you have to make a planning application if you wish to change them).

For more information about these – including Design Guides explaining which features will need to be conserved as part of any proposed works – visit the Article 4 Directions pages on Camden's website.

Physical Impact

The physical impact depends on the work undertaken and how it is installed. Some measures may require the removal of historic fabric (e.g. historic joinery, roof slates, lime plaster) or may have an unintended detrimental impact on fabric if not installed with due care. For example internal insulation should be designed to allow the passage of air and moisture through the building to prevent condensation and rot of timbers.

These impacts may be possible to reverse at some point in the future (e.g. the removal of solar panels from roofs at the end of their lifespan) or semi-permanent (such as the application of solid wall insulation). Reversible measures may have significant visual impact in the short to medium term, but they leave open the opportunity to amend this in the event of future technological or design advances. Permanent measures cause irreversible change to the fabric and/or appearance of the building so it is essential that these are very carefully designed and installed.

3.3 Energy efficiency measures in detail

This section looks in more detail at energy efficiency measures which require planning permission in some circumstances, and advises on how they are likely to be considered during the planning process.

i) External solid wall insulation (ESWI) can dramatically change the appearance of an area by covering up traditional brickwork and obscuring decorative details in the architecture.

ESWI needs planning permission in a conservation area and:

- is unlikely to be acceptable on the front elevation of a building
- may be acceptable on the side elevation of a building if
  - it can be applied without the need to extend the roof eaves;
  - original detailing such as tiled sills and drips are reinstated;
  - the junction with the front elevation is a seamless finish; and
  - the insulation is given a finish which matches the material, colour and texture of the prevailing finish.
- may not be acceptable on highly exposed side elevations, for instance at road junctions, where these include windows, doors and decorative detailing whose appearance will be altered by the application of insulation.
- is likely to be acceptable to the principal rear elevation of properties and rear extensions if:
  - render finishes match the colour and texture of the prevailing render or painted finish;

– other finishes (for instance brick slip) match the material, colour and texture of the prevailing elevational finish, and can demonstrate adequate longevity and durability;
– junctions with adjoining properties are well detailed and do not result in a visually unattractive difference in appearance; and
– where there is an attractive and visually prominent run of unaltered rear elevations the installation respects the prevailing historic pattern and finish.

Care will be needed on semi-detached properties to ensure that external solid wall insulation does not disrupt the visual symmetry of the buildings.

ii) Windows

Retaining the features and appearance of the original window is very important to preserving a conservation area's special character and appearance. If your windows are original to the building (or match in appearance and are the same material as the original windows), they will contribute strongly to the character of the area and efforts should be concentrated on retaining them where possible.

Historic timber windows are typically made of high quality wood when compared with that of today – which is why so many traditional windows remain in Camden's conservation areas. These windows can have an indefinite lifespan, and if they are regularly maintained, and if deteriorated sections, often sills, are carefully cut out and replaced their longevity will increase.

How can I upgrade historic windows to increase energy efficiency?

The energy performance of historic windows can be improved by:

- Ensuring that they close tightly, with draught-proofing added where necessary.
- Introducing secondary glazing to the inside of the window frame.
- Adding thermal curtains, shutters and blinds.

Read more about draught proofing historic windows here.

It might be possible to add double glazed units to the existing timber frame of some windows – usually sliding sashes or casements with large panes of glass and not many glazing bars, however original glass in some of the oldest buildings in Camden is rare and therefore important – every effort should be made to conserve this where possible.

What if I want to replace existing windows with double glazed windows?

If you live in a flat or maisonette, planning permission is required for replacement windows - this helps ensure that the character and appearance of the building as a whole is not lost as a result of unsympathetic changes.

Replacing an existing window with a new double glazed window of a different material or appearance requires planning permission. Where timber is the original material and the use of alternative materials is proposed as part of a planning application, the application is unlikely to be acceptable. This is to ensure that new windows are in character with the traditional window type of the area – and that the area's character is preserved.

If you live in a flat or maisonette, planning permission is required for replacement windows, to ensure the character and appearance of the building as a whole is not lost as a result of unsympathetic changes. If you live in a single family dwelling house, and the materials and features of the replacement window match the original, planning permission is not required. However the appearance of the new window should match the features of the original – including the width of the glazing bars, the presence or absence of 'horns', the height of the meeting rail in the case of sliding sash windows, and the depth at which the window is located in the reveal.

To achieve appropriate glazing bar widths, slim-line double glazed units may need to be specified. Double glazed units are now manufactured to very slim proportions (up to 9mm depth) in order to replicate historic window types and details such as narrow glazing bars.

iii) Porch doors and front doors

The front entrance of a historic home, like its windows, is essential to its character – as well as being decoratively detailed, doors and porches are our connection with the street and the first thing visitors will notice.

As a result, enclosing front doors with porches can have a detrimental visual impact on the appearance of houses by obscuring attractive original detailing such as fine wooden mouldings and stained and leaded glass. This impact is particularly harmful to semi-detached properties where the visual symmetry of the pair may be affected.

Adding a new porch

Adding a new porch to the front of a single family dwelling house does not require planning permission (in a conservation area without an Article 4 Direction), however enclosing an existing open porch or canopy may require planning permission depending on the materials and design of the proposal, so you are advised to contact the planning department for confirmation if you wish to carry this out. If you live in a flat this work will need planning permission.

If you plan to enclose a porch or add a new one then a sensitive design that preserves the character of the building and its contribution to the conservation area will be important.

If you plan to enclose a porch or add a new one then a sensitive design that preserves the character of the building and its contribution to the conservation area will be important.

Take your design cues from the existing house – using traditional materials and forms.

The heat lost through external doors can also be reduced by thermally upgrading your existing external doors or replacing them with more efficient modern doors. These measures do not require planning permission, but replacement doors should be as similar as possible to your original historic doors or traditional doors on adjacent properties. This will ensure they help to preserve the character and appearance of the conservation area. Adding a draught lobby inside the front door does not require planning permission.

iv) Solar photovoltaic (electricity generation) and solar thermal (hot water)

Try to install solar pv and thermal installations where they will be least visible but provide maximum energy savings – for example two smaller elements sited unobtrusively may be less visually intrusive than one large panel on a front roofslope which detracts from the balance of the historic building frontage. Provided that solar pv or thermal installations meet a number of conditions relating to their siting and visibility they do not need planning permission. (see Camden's Retrofitting Planning Guidance for further info.)

When solar panels do need planning permission, the Council will require them to be located, as far as practicable, where they will not be highly visible, and to be flush with the plane of the roof, so as to preserve the character of prominent views of roofscapes.

In the case of single family dwelling houses (i.e. not flats) it may be 'permitted development' for you to locate a panel where it is highly visible if this is the only practicable location for the panel. If you are not sure whether your proposed installation needs planning permission, you are strongly advised to use Camden's duty planner and pre-application advice service and then apply for a Certificate of Lawful Development from the planning department.

Different roof types offer different opportunities for the erection of solar pv or solar thermal panels and these differ in the extent to which they are visible from the public realm.

- Valley roofs that are set behind a front parapet wall - solar panels can be set within the roof valley without being visible from the street. Front to back valleys may result in high visibility from the rear.
- Flat roofs - can offer significant opportunities for siting solar panels that are not visible or minimally from the public realm, depending on the scale of the roof and the location of the panels.
- Mansards or pitched roofs incorporating areas of flat roof - the flat sections offer some opportunity for siting solar panels with minimal visibility from the public realm.
- Roofs with single pitches - suitability for solar panels and their visibility will vary greatly depending on the orientation of the roofs.
- Flat roofs of dormer windows - the flat sections offer some restricted opportunity for siting solar panels with minimal visibility from the public realm.

An alternative approach to solar photovoltaic panels are solar slates or tiles, which replace the existing roof slates or tiles and closely match their appearance, thereby lessening any visual impact on the appearance of the conservation area. Solar slates are currently significantly more expensive than standard solar panels. Planning permission is not required for solar slates or tiles.

v) Biomass heating systems and combined heat and power systems

Biomass heating systems (e.g. wood or pellet burning stoves that provide space and water heating) and combined heat and power (CHP) systems (micro generators which produce electricity and hot water) do not need planning permission provided the external elements (e.g. flues) meet certain conditions (see Retrofitting Planning Guidance for details).

New or altered flues and chimneys may be highly visible in the conservation area andwhere possible, existing chimneys should be used to flue biomass heating appliances. New flues should not be located on the principal or side elevations if they would be visible from the street, and they should be constructed and finished in materials that complement the existing construction.

For biomass heating systems, the appliance must be certified as an "exempt appliance" in compliance with legislation supporting the Clean Air Act. An air quality assessment is required for both CHP and biomass installations. The impacts on neighbouring amenity space may also need to be considered on environmental health grounds.

3.4 How will the Council consider the public benefit of energy saving works?

When the Council looks at planning applications for work to historic buildings in conservation areas, we weigh up the loss of heritage significance against the public benefit of the proposal. The process would involve looking at the visual and physical impact of the works, the age, design, form and detail of the house, and the character of the wider conservation area, and considering this against the public benefit of the proposal.

How do you measure public benefit?
Energy efficiency measures and renewable energy technologies can generally be said to benefit the wider public by virtue of the contribution they make to controlling domestic energy costs, reducing fuel poverty and/or limiting carbon dioxide emissions, which are considered to contribute to climate change.

Conservation Area Appraisals and Camden Planning Guidance

We use conservation area appraisals alongside our Camden Planning Guidance (CPG1: Design) to assess applications on a case by case basis. Find out more about conservation area appraisals and Camden Planning Guidance.

Climate change
An assessment of public benefit is difficult in the case of carbon dioxide emission reductions because although reductions from one-off home improvements are likely to be relatively insignificant when considered in the context of global climate change, this disregards the potential cumulative benefits of improvements.

On the basis that climate change is a reality and a risk to the public; and given that research suggests that local and national carbon reduction targets will be difficult to achieve without making significant energy efficiency improvements to existing homes, it would be reasonable to conclude that improving the energy efficiency of existing homes does provide a public benefit.

Fuel Poverty
Where particular homes within a conservation area are known to suffer from fuel poverty or wider deprivation, and the energy saving improvements can clearly demonstrate that they will reduce fuel bills and improve well-being, then the local public benefit is easier to determine. In such cases, a greater degree of change may be acceptable.

Summary
In line with Government policy, the potential public benefit of energy efficiency works needs to be balanced with preserving heritage significance – they are both important - and this is considered as part of the planning process on a case by case basis.

3.5 Where can I get more information?

This guidance is designed to help you understand your options and, where a planning application is required, give an initial indication of likely acceptability to help you consider the way forward. Each house will have different constraints and relationships with its neighbours, some external measures may be acceptable in one location but not in another - depending on the visibility, the nature of the building, its orientation and the design of the measure itself.

Camden's Retrofitting Planning Guidance (RPG) gives a detailed breakdown, in tabular format, of what needs planning permission and what doesn't, in a conservation area (with or without an Article 4 Direction). The RPG should be read alongside this guidance.

If your home is a listed building

This guidance relates only to unlisted buildings and so will not apply if your building is listed. If your home is listed all of the measures mentioned above (except freestanding solar panels) will also require listed building consent. To find out if your building is listed visit Camden's listed building web pages.

Appendix A gives a useful guide to the main sources of advice on sustainability and historic buildings as well as Camden's contact details.

Appendix A

Sources of advice and information

English Heritage has set up a website exclusively focussing on the potential impacts of climate change on the historic environment, and ways to save energy if you own or manage an older home. The 'saving energy' section of the website includes research on the thermal performance of traditional sash windows and detailed advice notes on specific energy efficiency measures. See **www.climatechangeandyourhome.org**

They have also produced guidance on mediating between the requirements of Part L (Energy Efficiency) of the Building Regulations entitled 'Energy Efficiency and Historic Buildings- Application of Part L of the Building Regulations to historic and traditionally constructed buildings'. This can be downloaded from **www.english-heritage.org.uk/partL**

The Energy Saving Trust (EST) is a government and industry sponsored organisation which provides advice on energy saving methods in the home and beyond. The website has a grants and discounts database, a home energy checker, and gives links to community activities around the UK, courses for professionals and much more. EST also runs an Energy Efficiency Hotline tel: 0800 512 012. See **www.energysavingtrust.org.uk**

The Sustainable Energy Academy is the charity which runs SuperHomes, an expanding network of over 100 energy-aware households open to the public between May and September. All have refurbished their old homes to high standards of energy efficiency achieving at least 60% reduction in CO2 emissions. The network provides advice and information to would-be retrofitters and an opportunity to view completed projects.
See **www.superhomes.org.uk**

The Building Conservation Directory is an online directory of companies and organisations, products and services 'covering every aspect of the conservation, restoration and repair of the historic built environment', as well as articles, publications and details of seminars and training events.
See **www.buildingconservation.com**

The Institute for Sustainability
RICKABY P A, WEDLAKE N and MELLOR A (editors, 2011) Building Opportunities for Business: Low Carbon Domestic Retrofit, a series of twelve guides published by the Institute for Sustainability, London.
See **http://instituteforsustainability.co.uk/retrofitguides**

Construction Products Association (2010) A Guide to Low Carbon Housing Refurbishment, Construction Products Association, London.
See **www.constructionproducts.org.uk**

The Microgeneration Accreditation Scheme has a website which allows you search for information on products and certificated installation companies for a range of microrenewable technologies.
www.microgenerationcertification.org

The Royal Institute of British Architects website has advice on how to choose an architect, and has a directory of practices, chartered members and also a register of accredited conservation architects. Their 'sustainability hub' has news and articles about climate change and retrofitting.
See **www.architecture.com**

The Victorian Terrace Energy Reduction Initiatives a social enterprise based in North London dedicated to providing advice and assessments for reducing energy bills and cutting CO2 emissions for Victorian and Edwardian houses. It is developing a list of local tradespeople, with recommendations by those who have used them. VICTERI also carries out draughtproofing work to windows and promotes solar renewables. See **www.VICTERI.co.uk**

The Department of Energy and Climate Change (DECC) website has information on climate change and the Green Deal. See **www.decc.gov.uk**

Contact Camden

Camden Council – **www.camden.gov.uk**
For Council policy, guidance, advice and information on Planning, Building Control and sustainability matters:

Contact the **Duty Planner** on 020 7974 4444
or e-mail **planning@camden.gov.uk**

Contact the **Green Camden Helpline** on 0800 801738

See also information provided for **Council tenants and leaseholders** on energy efficiency on the Housing pages of the Council's website.

Advice for Private Sector landlords and tenants

A number of grant schemes are available to private sector landlords to cover works to improve energy efficiency. Details of the eligibility criteria and works that they cover are available from **Green Camden Helpline** (0800 801738), or on the Council's website **www.camden.gov.uk/green**

Appendix B

Glossary

Air tightness: The resistance of building fabric to adventitious or uncontrolled air leakage.

Building fabric: The external envelope of a building - floors, walls, roof, windows, doors, rooflights etc.

Carbon neutrality: net zero carbon dioxide emission achieved by balancing emissions associated with mains energy use with an equivalent amount of zero emission energy (e.g. electricity generated locally by PV) supplied to the national grid.

Cavity Insulation Guarantee Agency (CIGA): An organisation that provides independent twenty-five year guarantees for cavity wall insulation fitted by registered installers in the UK and Channel Islands.

Climate change adaptation: Adapting buildings to anticipated climate change by means of measures such as solar shading (to mitigate overheating) and sustainable drainage (to improve flood resilience).

Code of Practice for Energy Advice: A Code of Practice (CoP) for all organisations/individuals that provide domestic energy efficiency advice that is specific to individuals and their circumstances. The CoP was created by the Energy Efficiency Partnership for Homes (EEPH) and is managed by the Energy Saving Trust (EST). The CoP consists of a set of core standards related to the quality of advice and information provided, the training and development of advisers, customer access, quality assurance and service improvements.

Department of Energy and Climate Change (DECC): Government department established to take the lead in tackling the challenge of climate change and moving the UK towards a low carbon economy.

Energy Company Obligation (ECO): An obligation to be placed by the Government on fuel companies to invest in the energy efficiency of buildings; from autumn 2012 (ECO will replace CERT and CESP, and complement the Green Deal).

Energy Performance Certificate (EPC): A certificate issued following an energy assessment of a building by an accredited assessor (OCDEA for new dwellings, DEA for existing dwellings, CEA or LCEA for non-domestic buildings). The EPC evaluates the energy performance of the dwelling in terms of an Energy Rating on an A to G scale, and identifies potential improvement measures.

Feed in Tariff (FiT): a funding scheme that provides payments for electricity that is generated from small scale zero-carbon sources such as solar photovoltaic (PV) systems and wind turbines. The FiT is funded by a levy on all fuel bills.

Fuel poverty: the condition of a household that must spend more than 10% of its income on fuel in order to obtain an acceptable standard of space heating and hot water. Fuel Poverty is the opposite of Affordable Warmth. (Definition currently under review by Government)

Green Deal: The Government's principal incentive scheme for promoting improvement of the energy efficiency of existing buildings, funded by commercial investment which is subsequently recovered by charges levied on the fuel bills associated with the buildings that are improved.

Greenhouse Gas: the gases whose increased concentration in the atmosphere promotes warming and consequent climate change; the principal Green House Gas is carbon dioxide, others include methane, and oxides of nitrogen.

Interstitial Condensation: Condensation that forms when warm, moist air from within the building penetrates into the building fabric (walls, roof or floor) and meets a cold surface, potentially leading to damage or rotting of the building fabric or structure.

Life cycle assessment (LCA): An assessment of the environmental impacts associated with all the stages of a product's life from raw material extraction, materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling (i.e. 'from cradle to grave'). Sometimes also known as Whole Life Assessment.

Low carbon retrofit: Refurbishment of an existing building with a view to significant reduction in the carbon dioxide emissions associated with energy use.

Mechanical ventilation with heat recovery (MVHR): a mechanical ventilation extraction system which transfers the heat from warm stale air into incoming fresh air.

Microgeneration Certification Scheme (MCS): A product and installer certification scheme that certifies microgeneration technologies that are used to produce electricity and heat from renewable sources (photovoltaics, solar thermal, micro wind turbines, heat pumps – ground and air source, biomass, CHP and micro hydro).

Pay-back time: The time taken for the capital cost of low carbon retrofit work to pay for itself through fuel cost savings.

Permitted Development: Certain types of minor changes to your house which do not need planning permission. They derive from a general planning permission granted not by the local authority but by Parliament. Permitted development rights which apply to many common projects for houses do not apply to flats, maisonettes or other buildings.

Renewable Heat Incentive (RHI): a funding scheme that provides payments for heat that is generated from small scale low or zero carbon sources such as solar panels, biofuel boilers, geothermal energy and some types of heat pumps. The RHI is funded by a levy on all fuel bills.

Renewable Heat Incentive Premium Payment: A direct payment from the Government to subsidise heat that is generated from small scale low or zero carbon sources such as solar panels, biofuel boilers, geothermal energy and some types of heat pumps, in return for feedback on system performance; this is an interim subsidy that will apply only until the RHI is implemented for domestic buildings in autumn 2012.

Seasonal efficiency: the seasonal efficiency of a heating boiler is the average efficiency with which energy in the fuel is converted to heat in the building, over the whole heating season; it is usually less than the manufacturer's claimed efficiency because the boiler is less efficient under partial load (e.g. during warmer weather in spring and autumn).

Simple pay-back: a method of assessing the cost effectiveness of a low carbon retrofit measure by evaluating the time taken for the capital cost of low carbon retrofit work to pay for itself through fuel cost savings.

Solid wall insulation (SWI): Insulation that is installed internally (IWI) or externally (EWI) to solid external walls in order to improve their thermal performance.

Solid Wall Insulation Guarantee Agency (SWIGA): An organisation established to develop an independent guarantee and associated industry quality and standards infrastructure for solid wall insulation (EWI and IWI).

Thermal bridge: an area of building fabric that is less well insulated than surrounding areas, and therefore allows a greater rate of heat loss, as a result of the construction of the building; thermal bridges typically occur where structural members penetrate through insulation layers, at corners and junctions between elements (i.e. between floors, walls and roofs) and around openings such as windows and external doors.

Thermal comfort: perceived comfort in relation to environmental variables including air temperature and the radiant temperatures of surrounding surfaces, as well as personal factors including insulation by clothing, and metabolic heat generation.

Thermal transmittance (also known as U value): the capacity of a construction to transmit heat, measured in Watts per square metre of the construction per unit temperature difference across the construction (W/m2K); the lower the U value the better.

Trickle ventilator: a device for admitting a continuous trickle of fresh air into a home, to balance the stale air extracted by intermittent extract ventilation fans, passive stack ventilation or mechanical extract ventilation; trickle ventilators are usually fitted in window frames but can also be fitted through walls and have humidity-sensitive inlets.

U value: see Thermal transmittance.

Vapour balanced construction: a form of construction that allows water vapour to pass through the building fabric from inside to outside, but inhibits its passage in the opposite direction, while maintaining air-tightness; sometimes erroneously called ‘breathing’ or ‘breathable’ construction.

Vapour Barrier: a water-resistant membrane inserted into the construction of an exposed, insulated floor, wall or roof (always on the warm side of the insulation) to prevent the passage of moisture through the construction.

Whole life assessment (WLA): An assessment of the environmental impacts associated with all the stages of a product’s life from raw material extraction, materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling (i.e. ‘from cradle to grave’). Sometimes also known as Life Cycle Assessment.

Whole life costing (WLC): An assessment of the total cost of a product through all the stages of a its life, including costs associated with raw material extraction, materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling (i.e. ‘from cradle to grave’).

Appendix C

My energy efficiency retrofit plan

My Address:

My Conservation Area:

Date:

1. Understand the Building

2. Other planned works

3. Evaluate effectiveness and risks

Effectiveness:

Risks:

4. Assess measures against heritage value / significance

5. Implementation