

London Borough of Camden

# Retrofitting Planning Guidance

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## **Introduction**

This guidance has been developed to help residents understand the planning process required to install low carbon technologies in homes.

Approximately 25% of the UK's CO<sub>2</sub> emissions derive from housing and the overwhelming majority of housing related emissions are produced by homes built before the 1980s. Retrofitting Camden's and the UK's homes is therefore a key step in the local and national drive to reduce carbon emissions.

To support this transition, the Government has launched the Green Deal to help finance domestic retrofitting. Under Green Deal, homeowners are offered energy efficiency works by Green Deal Providers at no upfront cost, with repayments linked to the resulting domestic fuel bill savings. For more information on the Green Deal please contact Green Camden on 0800 801738.

Whether you are planning to retrofit your property now, or want to understand the planning process for the future, this guidance is designed to help.



## How to use the guidance

The first part of the guidance provides case studies to help you identify the types of measures you could include in your home to reduce your energy use. The case studies are categorised by the four main planning designations in Camden:

1. A home with no designations
2. A home in a conservation area
3. A home in a conservation area with article 4 direction
4. A Grade II listed building

Part 1 also sets out the permission process required given the designation that affects your property. These permissions include planning permission, listed building consent and consent under the Building Regulations.

Part 2 is grouped by low carbon technology to help you identify the permissions likely to be required given the retrofitting you propose.

Further planning guidance and advice on retrofitting measures to existing buildings can be found in the Camden Planning Guidance Chapter 3 – Sustainability. This document can be found on our website at [www.camden.gov.uk/spg](http://www.camden.gov.uk/spg)

Please note that this document is only guidance. If you would like to discuss your proposals in detail, please contact the Advice and Consultation Team on 0207 974 4444.



# **Part 1: Case Studies based on Planning Designations**

## Case Study 1: No Planning or Listed Building Designations

### UNLISTED BUILDING, NOT IN A CONSERVATION AREA, FLAT

- 40% reduction in carbon dioxide emissions

#### Historic terraced top floor maisonette

#### Works carried out

##### Internal works

- Loft insulation (270mm)
- Draught proofing
- Low energy lighting
- New boiler
- Heating controls

##### External works

- Double glazed windows with tight seals to frame

##### Renewable energy

- Solar thermal – 4m<sup>2</sup>
- Solar PV – 4m<sup>2</sup>

#### Permissions required

##### Planning Process

- Planning permission is required for the new windows as the property is a flat and the windows are not the same, in appearance as the existing windows
- Planning permission is not required for solar panels on the front roofslope as this is 'permitted development' for flats, subject to the General Permitted Development Order and conditions

##### Building Control Process

- Building Control consent may be required for solar panels on the roof due to their weight
- Building Control consent may be required for insulation depending on the overall amount and impact on the building's structure
- Building Control consent not required if installer is registered under the Competent Persons Scheme
- Building Control consent is not required for boilers and heating controls installed by CORGI registered installer

##### Points to consider

- Approval of the freeholder may be required.





## What works require planning permission?

**NO PLANNING DESIGNATIONS**  
**UNLISTED BUILDING**  
**NOT IN A CONSERVATION AREA**  
**FLAT**

### No Designation

(Full permitted development rights apply)

<p>Solar panels PV &amp; hot water</p> <p>Attached to a residential building (main or one in curtilage, for example on a garden shed)</p>	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- Protrude no more than 200mm from the roofslope or wall</li> <li>- No higher than the roof line (excluding any chimney)</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Must be sited so as to minimise its effect on the external appearance of the building</li> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
<p>Solar panels PV &amp; hot water</p> <p>Free standing (for example in a garden)</p>	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- No more than one panel/array</li> <li>- No higher than 4m above ground level</li> <li>- Not within 5m of the property boundary</li> <li>- Area of the panels not to exceed 9m<sup>2</sup></li> <li>- Any single dimension of an array is not to exceed 3m</li> </ul> <p>Conditions :</p> <ul style="list-style-type: none"> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>

## No Designation

(Full permitted development rights apply)

<p>Air source heat pumps (ASHP)</p>	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- Only the first installation is permitted;</li> <li>- The volume of the unit must not exceed 0.6 cubic metres</li> <li>- 1m in from the property boundary</li> <li>- Installed on a flat roof and 1m from the external edge of the roof</li> <li>- A wind turbine is not already installed on the property</li> <li>- Not on a wall if fronts a highway and any part of that wall is above the level of the ground storey.</li> <li>- The equipment is solely used for heating purposes</li> <li>- It is sited to minimise the effect on the external appearance of the building and the amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
<p>Ground source heat pumps (vertical and horizontal)</p>	<p><b>Permitted</b></p>
<p>Biomass heating system, including wood-burning stoves Combined heat and power system</p>	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- Flue not to exceed highest part of the roof by more than 1m</li> <li>- boiler/stove is to be an 'exempt' appliance or authorised fuels are to be burnt, as required by the Clean Air Act</li> </ul> <p>(a list of 'exempt' appliance and authorised fuels can be found on the smoke control section on the DEFRA web-site)</p>

## No Designation

(Full permitted development rights apply)

Wind turbine	<p><b>Permitted on the building if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine (including blades) would not exceed 3m above the highest part of the roof (excluding chimney) or would not exceed 15m in height (from ground level)</li> <li>- The blades are higher than 5m from the ground</li> <li>- The swept area of any blade would not exceed 3.8m<sup>2</sup></li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul> <p><b>Permitted as stand alone turbine if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine would not exceed 11.1m in height (from ground level)</li> <li>- The blades are higher than 5m from the ground</li> <li>- It is located in a position which is less than a distance equivalent to the overall height (including blades) of the stand alone wind turbine plus 10% of its height when measured from any point along the boundary of the curtilage</li> <li>- The swept area of any blade would exceed 3.8m<sup>2</sup></li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul>
Solid Wall Insulation (internal)	<b>Permitted</b>
Solid Wall Insulation (external)	<p><b>Permitted ('dwellinghouses' only)</b></p> <ul style="list-style-type: none"> <li>- the materials used should be of similar visual appearance to those of the existing ones.</li> </ul> <p><b>Planning permission required (flats)</b></p>

**No Designation**

(Full permitted development rights apply)

Double Glazing	<p><b>Permitted</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- <b>Dwellinghouse</b> - materials used to be of similar appearance to the existing ones</li> <li>- <b>Flats</b> - appearance of windows to be the same as existing windows</li> </ul>
Window repair/ draught proofing 'like for like' window upgrades	<b>Permitted</b>
Mechanical heat vent recovery	<b>Permitted</b>
Loft Insulation	<b>Permitted</b>
Cavity Wall	<b>Permitted</b>
Floor (ground) insulation	<b>Permitted</b>
Gas Central Heating More efficient gas boiler	<b>Permitted</b>

## Case Study 2: Conservation Area [without Article 4 Direction]

### UNLISTED BUILDING

### IN A CONSERVATION AREA WITHOUT ARTICLE 4 DIRECTION

- 78% reduction in carbon dioxide emissions

Historic semi detached dwellinghouse

### Works carried out

#### Internal works

- Solid wall insulation (100mm)
- Floor insulation to basement (50mm)
- Draught proofing
- Chimney sealed
- Low energy lighting
- New boiler
- Heating controls
- Heat recovery in bathroom

#### External works

- Windows - draught sealed, double vacuum glazing
- New doors to front and rear
- Roof of single storey rear extension re-roofed incorporating insulation (150mm)

#### Renewable energy (front roofslope)

- Solar thermal - 8m<sup>2</sup>
- Solar PV - 8m<sup>2</sup>



### Permissions required

#### Planning Process

- Planning permission is not required for the works, including solar panels as they are 'permitted development' (Subject to General Permitted Development Order Regulations and conditions)

#### Building Control Process

- Building Control consent may be required for solar panels on the roof due to their weight
- Building Control consent is required for this amount of insulation
- Building Control consent not required if windows are manufactured and installed by a FENSA approved contractor
- Building Control consent is not required for boilers and heating controls installed by CORGI registered installer

#### Points to consider

- Approval of freeholder may be required.
- Roof structure may need to be strengthened to take two solar panels

## What works require planning permission?

### UNLISTED BUILDING

#### IN A CONSERVATION AREA WITHOUT ARTICLE 4 DIRECTION

### Conservation Area without Article 4 Direction

<p>Solar panels PV &amp; hot water</p> <p>Attached to a building (main or one in curtilage, for example on a garden shed)</p>	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- Not on a wall which fronts the highway</li> <li>- Protrude no more than 200mm from the roof slope or wall</li> <li>- No higher than the roof line (excluding chimney)</li> <li>- Must be sited so as to minimise its effect on the external appearance of the building</li> <li>- Must not be installed on a wall which fronts a highway</li> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
<p>Solar panels PV &amp; hot water</p> <p>Free standing (for example in a garden)</p>	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- No more than one panel/array</li> <li>- No higher than 4m above ground level</li> <li>- Not closer to the highway than the dwelling house itself</li> <li>- Not within 5m of the property boundary</li> <li>- Area of panels not to exceed 9m<sup>2</sup></li> <li>- Any single dimension of an array not to exceed 3m</li> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>

## Conservation Area without Article 4 Direction

Air source heat pumps	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is only one ASHP proposed;</li> <li>- No wind turbine is already installed on the property</li> <li>- The volume of the unit must not exceed 0.6 cubic metres</li> <li>- 1m in from the property boundary</li> <li>- It is not installed on a pitched roof</li> <li>- Installed on a flat roof and 1m from the external edge of the roof</li> <li>- The unit is not installed above the level of the ground storey</li> <li>- Not on a wall or roof if fronts a highway or be nearer to any highway which bounds the property than any part of the building</li> <li>- The unit is solely used for heating purposes</li> <li>- It is sited to minimise the effect on the external appearance of the building and the amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Ground source heat pumps Vertical and horizontal	<p><b>Permitted</b></p>
Biomass heating system, including wood-burning stoves  Combined heat and power system	<p><b>Permitted</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Flue not to exceed highest part of the roof by more than 1m</li> <li>- Flue would not be installed on a wall or roof slope which fronts a highway</li> <li>- boiler/stove is to be an 'exempt' appliance <i>or</i> authorised fuels are to be burnt, as required by the Clean Air Act</li> <li>- (a list of 'exempt' appliance and authorised fuels can be found on the smoke control section on the DEFRA web-site)</li> </ul>

## Conservation Area without Article 4 Direction

Wind turbine	<p><b>Permitted on the building if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine (including blades) would not exceed 3m above the highest part of the roof (excluding chimney) or would not exceed 15m in height (from ground level).</li> <li>- The blades are higher than 5m from the ground</li> <li>- The swept area of any blade would not exceed 3.8m<sup>2</sup></li> <li>- Any part of the turbine is not within 5 metres of any boundary</li> <li>- It is attached to a wall or roof slope which fronts a highway</li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul> <p><b>Permitted as stand alone turbine if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine would not exceed 11.1m in height (from ground level)</li> <li>- The blades are higher than 5m from the ground</li> <li>- It is located in a position which is less than a distance equivalent to the overall height (including blades) of the stand alone wind turbine plus 10% of its height when measured from any point along the boundary of the curtilage</li> <li>- The swept area of any blade would exceed 3.8m<sup>2</sup></li> <li>- The wind turbine is no nearer to any highway than the part of the dwelling house which is nearest to that highway</li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul>
Solid Wall Insulation (internal)	<b>Permitted</b>



**Conservation Area**  
without Article 4 Direction

Solid Wall Insulation (external)	<b>Planning permission required</b> <b>Planning permission required (flats)</b>
Double Glazing	<b>Permitted</b> Conditions: <ul style="list-style-type: none"> <li>- <b>Dwellinghouse</b> - materials used to be of similar appearance to the existing ones</li> <li>- <b>Flats</b> - appearance of windows to be the same as existing windows</li> </ul>
Window repair/ draught proofing 'like for like' window upgrades	<b>Permitted</b>
Mechanical heat vent recovery	<b>Permitted</b>
Loft Insulation	<b>Permitted</b>
Cavity Wall	<b>Permitted</b>
Floor (ground) insulation	<b>Permitted</b>
Gas Central Heating More efficient gas boiler	<b>Permitted</b>



## Case Study 3: Conservation Area [with Article 4 Direction]

### UNLISTED BUILDING

### CONSERVATION AREA WITH ARTICLE 4 DIRECTION

- 70% reduction in carbon dioxide emissions

#### Historic terrace dwellinghouse

### Works carried out

#### Internal works

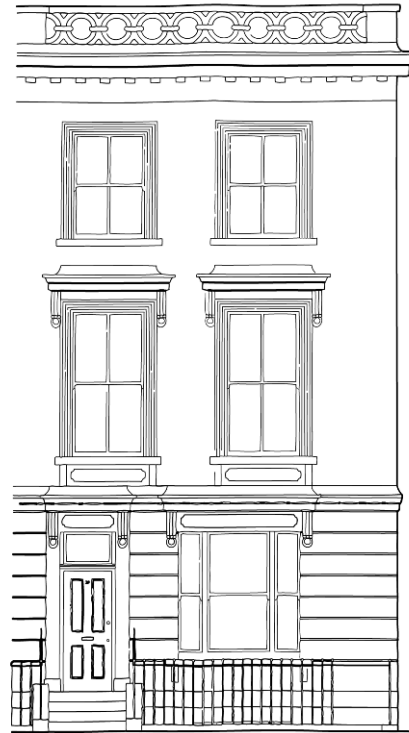
- Solid wall insulation (100mm)
- Loft insulation (200mm)
- Floor insulation (300mm)
- New heating system, including under floor heating on lower ground floor level
- Heat recovery

#### External works

- Windows – draught proofed, sealed, fitted with double glazed argon filled

#### Renewable energy

- Solar thermal - 8m<sup>2</sup> evacuated tubes
- Solar PV – 8m<sup>2</sup>
- Ground source heat pumps (horizontal/looped)



### Permissions required

#### Planning Process

- Solar panels are required to be located on the rear roofslope. The Article 4 Direction requires planning permission to be sought if the panels were to be located on the front roofslope.

#### Building Control Process

- Building Control consent required for insulation and solar panels to ensure structural stability of the house
- Building Control consent required for the upgrade of the windows as not FENSA approved
- Building Control consent is not required for boilers and heating controls installed by CORGI registered installer

#### Points to consider

- Relatively air tight construction is needed to enable heat recovery system to work efficiently
- A solid masonry ground floor is generally required to make under floor heating work effectively
- Roof structure may need to be strengthened to take two solar panels.

## What works require planning permission?

### UNLISTED BUILDING

#### IN A CONSERVATION AREA WITH ARTICLE 4 DIRECTION

#### Conservation Area with Article 4 Direction

<p>Solar panels PV &amp; hot water</p> <p>Attached to a building (main or one in curtilage, for example on a garden shed)</p>	<p><b>Planning Permission required –</b></p> <p>In the following Article 4 areas:</p> <ul style="list-style-type: none"> <li>- Belsize CA</li> <li>- Hampstead CA</li> <li>- Swiss Cottage CA</li> <li>- Frognal Way (specific properties)</li> </ul> <p><b>Permitted</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Not on a wall which faces a highway</li> <li>- Not on a main or side wall where visible from the highway</li> <li>- Protrude no more than 200mm from the roofslope or wall</li> <li>- No higher than the roof line (excluding chimney)</li> </ul>
<p>Solar panels PV &amp; hot water</p> <p>Free standing (for example in a garden)</p>	<p><b>Planning Permission required –</b></p> <p>In the following Article 4 areas:</p> <ul style="list-style-type: none"> <li>- Belsize CA</li> <li>- Hampstead CA</li> <li>- Swiss Cottage CA</li> <li>- Frognal Way (specific properties)</li> <li>- 67 Fitzjohns Avenue</li> <li>- South Hill Park (specified properties)</li> </ul> <p><b>Permitted</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- No more than one panel/array</li> <li>- No higher than 4m above ground level</li> <li>- Not to be installed nearer to any highway than any part of the dwelling house</li> <li>- Not within 5m of the property boundary</li> <li>- Area of the panels not to exceed 9m<sup>2</sup></li> <li>- Any single dimension of an array not to exceed 3m</li> </ul>

## Conservation Area with Article 4 Direction

Air source heat pumps (ASHP)	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is only one ASHP proposed;</li> <li>- A wind turbine is not already installed with the curtilage</li> <li>- 1m in from the property boundary</li> <li>- The ASHP is not installed on a pitched roof</li> <li>- Installed on a flat roof and 1m from the external edge of the roof</li> <li>- Not to be installed nearer to any highway than any part of the dwelling house</li> <li>- Not on a wall if fronts a highway and any part of that wall is above the level of the ground storey.</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Ground source heat pumps Vertical and horizontal	<b>Permitted</b>
Biomass heating system, including wood-burning stoves  Combined heat and power system	<p><b>Planning Permission required –</b></p> <p>In the following Article 4 areas (due to requirement for a flue)</p> <ul style="list-style-type: none"> <li>- Belsize CA</li> <li>- Hampstead CA</li> <li>- Swiss Cottage CA</li> <li>- Frognal Way (specific properties)</li> </ul> <p><b>Permitted</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Flue not to exceed highest part of the roof by more than 1m</li> <li>- boiler/stove is to be an 'exempt' appliance or authorised fuels are to be burnt, as required by the Clean Air Act</li> <li>- (a list of 'exempt' appliance and authorised fuels can be found on the smoke control section on the DEFRA web-site)</li> </ul>
Wind turbine	<b>Planning permission required</b>
Solid Wall Insulation (internal)	<b>Permitted</b>
Solid Wall Insulation (external)	<b>Planning permission required</b>

### Conservation Area with Article 4 Direction

Double Glazing	<p><b>Permitted</b></p> <p>Conditions:</p> <p>Apart from the glazing panels the window must be like for like; that is</p> <ul style="list-style-type: none"> <li>- match in materials, colour &amp; surface finish (e.g. bricks, mortar, timber)</li> <li>- same dimensions</li> <li>- same fenestration pattern and detailed profile</li> <li>- replicate original details such as window catches, handles, pulleys, etc</li> </ul>
Window repair/ draught proofing 'like for like' window upgrades	<b>Permitted</b>
Mechanical heat vent recovery	<b>Permitted</b>
Loft Insulation	<b>Permitted</b>
Cavity Wall	<b>Permitted</b>
Floor (ground) insulation	<b>Permitted</b>
Gas Central Heating More efficient gas boiler	<b>Permitted</b>

## Case Study 4: Listed Building (Grade II) in a conservation area

### LISTED BUILDING

### CONSERVATION AREA

- 40% reduction in carbon dioxide emissions

#### Historic terraced dwellinghouse

### Works carried out

#### Internal works

- Loft insulation (300mm natural fibre)
- Insulation under ground floor and air gaps sealed
- Windows draught proofed
- Shutters to front windows
- Secondary glazing to rear windows
- Draught proofing
- Flue damper in chimney breast
- New boiler
- Insulate hot water pipes, where possible
- Heating controls
- Reflective panels behind radiators

#### Renewable energy

- Solar PV - 8m<sup>2</sup> on south facing part of valley roof



### Permissions required

#### Planning Process

- Planning permission not required for works which are internal
- Listed building consent is required for the solar panel and may be required for new pipe work which accompanies the new boiler and heating controls.
- Solar panel is considered acceptable as it is hidden in the valley roof, behind a parapet.
- Installation of an air source heat pump within the curtilage of a Listed Building requires planning permission as well as listed building consent.

#### Building Control Process

- Building Control Consent required for loft insulation and solar panel to ensure structural stability of the house
- Building Control consent required for the secondary glazing they are not FENSA approved windows
- Building Control consent is not required for boilers and heating controls installed by CORGI registered installer

#### Points to consider

- Where insulation is improved it will be important to select natural insulation materials that allow the building fabric to breathe

## What works require planning permission and listed building consent?

### LISTED BUILDING

### CONSERVATION AREA

#### Listed Buildings (Grade II)

<p>Solar panels PV &amp; hot water</p> <p>Attached to a building (main or one in curtilage, for example on a garden shed)</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>May be acceptable if panels do not damage internal or external historic fabric of the building and are not visible from the street or adjoining properties eg hidden by parapet or on a valley roof.</p> <p>Where a conservatory is permitted PV could be integrated into glazed panels.</p>
<p>Solar panels PV &amp; hot water</p> <p>Free standing (for example in a garden)</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>May be acceptable if does not affect the setting of the listed building.</p>
<p>Air source heat pumps</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable given impact on appearance of the property</p>
<p>Ground source heat pumps Vertical and horizontal</p>	<p><b>Planning permission not required</b></p> <p><b>Listed Building consent required</b></p> <p>May be acceptable if does not damage the historic fabric of the building, however work best with under floor heating which generally require a solid masonry floor which may not be acceptable</p>
<p>Biomass heating system, including wood-burning stoves</p> <p>Combined heat and power system</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent may be required,</b> depending on the alterations to the historic fabric ie pipe work, flues.</p> <p>May be acceptable where flue does not damage the historic fabric and appearance of the building. Take advantage of existing chimneys.</p> <p>Use same route for pipes and openings, where possible.</p>
<p>Wind turbine</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable due to impact of setting of building</p>



### Listed Buildings (Grade II)

Solid Wall Insulation (internal)	<p><b>Planning permission not required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable due to impact on the fabric of the building, internal details and maintenance of original fabric due to moisture build up.</p> <p>20th century concrete buildings - could be acceptable</p>
Solid Wall Insulation (external)	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable due to impact on the historic fabric of the building</p>
Double Glazing	<p><b>Planning permission not required</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- <b>Dwellinghouse</b> - materials used to be of similar appearance to the existing ones</li> <li>- <b>Flats</b> - appearance of windows to be the same as existing windows</li> </ul> <p><b>Listed Building consent required</b></p> <p>Original/historic parts of a building - Unlikely to be acceptable due to impact on appearance and fabric of the building</p> <p>Double glazing on non-original/non-historic parts of building – likely to be acceptable</p> <p>Secondary glazing is generally acceptable where it does not damage original window or shutters, if present and does not conflict with existing glazing patterns</p>
Window repair/ draught proofing 'like for like' window upgrades	<p><b>Planning permission not required</b></p> <p><b>Listed Building consent generally not required</b> unless substantial replacement of materials required.</p> <p>Recommended approach.</p>

## Planning permission is not required for internal works

Mechanical heat vent recovery	<p><b>Listed building consent required</b></p> <p>Individual rooms e.g. bathroom and kitchen - Generally acceptable where alterations to the fabric of the building for ducting and associated works are minimal.</p> <p>Whole house – unlikely to be practical or acceptable given amount of ducting and space required.</p> <p>Use existing openings in the fabric where possible.</p>
Loft Insulation	<p><b>Listed Building consent required</b></p> <p>Generally acceptable</p> <p>May need to leave air gap around edges to avoid damp and allow air to circulate.</p>
Cavity Wall	<p><b>Listed Building consent required</b></p> <p>Only applicable to 20th century buildings – generally acceptable.</p>
Floor (ground) insulation	<p><b>Listed Building consent required</b></p> <p>May be acceptable where there is limited impact to the fabric of the floor.</p> <p>May need to ensure air can circulate under wooden floor to avoid damp.</p>
Gas Central Heating More efficient gas boiler	<p><b>Listed building consent required</b></p> <p>Generally acceptable where alterations to the fabric of the building due to ducting and associated works are minimal.</p>

## Building Regulation Requirements

### Building Regulations

<p>Solar panels PV &amp; hot water</p> <p>Attached to a building (main or one in curtilage, for example on a garden shed)</p>	<p>Part A (Structural safety) - need to confirm the roof can take the weight of panels</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part J (Combustion appliances and Fuel Storage systems) – when altering boiler system</p> <p>Part P (Electrical safety) – Not needed if installer is registered under the Competent Persons Scheme</p>
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### Building Regulations

<p>Solar panels PV &amp; hot water</p> <p>Free standing (for example in a garden)</p>	<p>Part A (Structural safety) - need to confirm any structure the panels are attached to can take weight of panels</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part J (Combustion appliances and Fuel Storage systems) – when altering boiler system</p> <p>Part P (Electrical safety) – Not needed if installer is registered under the Competent Persons Scheme</p>
<p>Air source heat pumps</p>	<p>Part E (Resistance to sound)</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part P (Electrical safety)</p> <p>Permission not required if installed under Competent Person Scheme</p>
<p>Ground source heat pumps Vertical and horizontal</p>	<p>Part E (Resistance to sound)</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part P (Electrical safety)</p> <p>Permission not required if installed under Competent Person Scheme</p>
<p>Biomass heating system, including wood-burning stoves</p> <p>Combined heat and power system</p>	<p>Part B (Fire safety)</p> <p>Part E (Resistance to sound)</p> <p>Part F (Ventilation) - Extraction flues should be positioned away from air intake vents and open-able window</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part J (Combustion appliances and Fuel Storage systems) – when altering boiler system</p> <p>Part P (Electrical safety)</p> <p>Permission not required if installed under Competent Person Scheme</p>
<p>Wind turbine</p>	<p>Part A (Structural safety)</p> <p>Part K (Protection from falling)</p> <p>Part P (Electrical safety) - Not needed if installer is registered under the Competent Persons Scheme</p>
<p>Solid Wall Insulation (internal)</p>	<p>Part F (Ventilation)</p> <p>Part L (Conservation of fuel and power)</p> <p>Part P (Electrical safety) - Not needed if installer is registered under the Competent Persons Scheme</p>

### Building Regulations

Solid Wall Insulation (external)	Part F (Ventilation) Part L (Conservation of fuel and power) - Not needed if installer is registered under the Competent Persons Scheme
Double Glazing	Part L (Conservation of fuel and power) Part N (Glazing safety) – Not needed if installer is registered under the Competent Persons Scheme
Window repair/ draught proofing 'like for like' window upgrades	Part L (Conservation of fuel and power) Part N (Glazing safety) – Not needed if installer is registered under Competent person Scheme
Mechanical heat vent recovery	Part L (Conservation of fuel and power) Part P (Electrical safety) not needed if installer is registered under Competent person Scheme Part F (Ventilation) - Extraction flues shall be positioned away from air intake vents and open-able window
Loft Insulation	Part L (Conservation of fuel and power) Part P (Electrical safety) not needed if installer is registered under Competent person Scheme
Cavity Wall	Part A (Structural safety) – need to check wall ties Part F (Ventilation) Part L (Conservation of fuel and power) Not needed if installer is registered under the Competent Persons Scheme
Floor (ground) insulation	Part L (Conservation of fuel and power) Part P (Electrical safety) Not needed if installer is registered under the Competent Persons Scheme
Gas Central Heating More efficient gas boiler	Part L (Conservation of fuel and power) Part P (Electrical safety) Not needed if installer is registered under the Competent Persons Scheme Part G (Sanitation, Hot Water Safety and Water Efficiency) Permission not required if installer is Gas Safe approved

# Part 2: Sustainable Technologies

## Solar panels | PV & hot water [ attached to a building ]

(main or one in curtilage – e.g. on a garden shed)

Cost	£ £ £ £ £
CO2 benefit	★ ★ ★ ★ ★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<p><b>Permitted if</b></p> <ul style="list-style-type: none"> <li>- Protrude no more than 200mm from the roofslope or wall</li> <li>- No higher than the roof line (excluding chimney)</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Must be sited so as to minimise its effect on the external appearance of the building</li> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Conservation Area [ without Article 4 ]	<p><b>Permitted if</b></p> <ul style="list-style-type: none"> <li>- Not on a wall fronting the highway</li> <li>- Protrude no more than 200mm from the roofslope or wall</li> <li>- No higher than the roof line (excluding chimney)</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Must be sited so as to minimise its effect on the external appearance of the building</li> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul> <p>Preference is for the integrated roof tile style.</p> <p>Where a conservatory is permitted PV could be integrated into glazed panels.</p>
Conservation Area [ with Article 4 that cover solar panels ]	<p><b>Permitted</b></p> <p>Except in the following Article 4 areas:</p> <ul style="list-style-type: none"> <li>- Belsize CA</li> <li>- Hampstead CA</li> <li>- Swiss Cottage CA</li> </ul>

	<ul style="list-style-type: none"> <li>- Frognal Way (specific properties)</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Not on a wall which fronts a highway</li> <li>- Not on a wall where visible from the street</li> <li>- Protrude no more than 200mm from the roofslope or wall</li> <li>- No higher than the roof line (excluding chimney)</li> </ul> <p>Where a conservatory is permitted PV could be integrated into glazed panels.</p>
<p>Considerations where planning permission required</p>	<ul style="list-style-type: none"> <li>- Location</li> <li>- Impact on appearance of property, streetscene, historic value of the property or streetscene</li> <li>- Efficiency of the panel</li> <li>- Preference is for the integrated roof tile style</li> </ul>
<p>Listed Buildings</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>May be acceptable if panels do not damage internal or external historic fabric of the building and not visible from the street or adjoining properties e.g. hidden by parapet or on a valley roof.</p> <p>Where a conservatory is permitted PV could be integrated into glazed panels.</p>
<p>Building Regulations</p>	<p>Part A (Structural safety) - need to confirm the roof can take the weight of panels</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part J (Combustion appliances and Fuel Storage systems) – when altering boiler system</p> <p>Part P (Electrical safety)</p>

## Solar panels | PV & hot water [ free standing e.g. in a garden ]

Cost	£ £ £ £ £
CO2 benefit	★ ★ ★ ★ ★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<p><b>Permitted if</b></p> <ul style="list-style-type: none"> <li>- No more than one panel/array</li> <li>- No higher than 4m above ground level</li> <li>- Not within 5m of the property boundary</li> <li>- Area of panels not to exceed 9m<sup>2</sup></li> <li>- Any single dimension of an array not to exceed 3m</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Conservation Area [ without Article 4 ]	<p><b>Permitted</b></p> <ul style="list-style-type: none"> <li>- No more than one panel/array</li> <li>- No higher than 4m above ground level</li> <li>- Not to be installed nearer to the highway which bound as the curtilage than the part of the dwelling house which is nearest to that highway</li> <li>- Not within 5m of the property boundary</li> <li>- Area of panels not to exceed 9m<sup>2</sup></li> <li>- Any single dimension of an array not to exceed 3m</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Conservation Area [ with Article 4 ]	<p><b>Permitted if</b></p> <p>Except in the following Article 4 areas:</p> <ul style="list-style-type: none"> <li>- Belsize CA</li> <li>- Hampstead CA</li> <li>- Swiss Cottage CA</li> <li>- Froggnal Way (specific properties)</li> <li>- 67 Fitzjohns Avenue</li> <li>- South Hill Park (specified properties)</li> </ul> <p>Conditions:</p>



	<ul style="list-style-type: none"> <li>- No more than one panel/array</li> <li>- No higher than 4m above ground level</li> <li>- Not visible from a public highway</li> <li>- Not to be installed nearer to the highway which bound as the curtilage than the part of the dwelling house which is nearest to that highway</li> <li>- Not within 5m of the property boundary</li> <li>- Area of panels not to exceed 9m<sup>2</sup></li> <li>- Any single dimension of an array not to exceed 3m</li> <li>- Must be sited so as to minimise its effect on the amenity of the area; and</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Considerations where planning permission required	<ul style="list-style-type: none"> <li>- Location</li> <li>- Impact on appearance of property, streetscene, historic value of the property or streetscene</li> <li>- Efficiency of the panel</li> <li>- Amenity of neighbours eg outlook, reflection of the panels</li> </ul>
Listed Buildings	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>May be acceptable if do not affect the setting of the listed building.</p>
Building Regulations	<p>Part A (Structural safety) - need to confirm any structure panels are attached to can take weight of panels</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part J (Combustion appliances and Fuel Storage systems) – when altering boiler system</p> <p>Part P (Electrical safety)</p>

## Air source heat pumps

(some times operate as reverse cycle air conditioning)

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- The volume of the unit must not exceed 0.6 cubic metres</li> <li>- A wind turbine is already installed within the curtilage</li> <li>- There is only one ASHP proposed</li> <li>- 1m in from the property boundary</li> <li>- Installed on a flat roof and 1m from the external edge of the roof</li> <li>- Not on a wall if fronts a highway and any part of that wall is above the level of the ground storey.</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Conservation Area [ without Article 4 ]	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is only one ASHP proposed;</li> <li>- The volume of the unit must not exceed 0.6 cubic metres</li> <li>- 1m in from the property boundary</li> <li>- Installed on a flat roof and 1m from the external edge of the roof</li> <li>- Not on a wall or roof if fronts a highway or be nearer to any highway which bounds the property than any part of the building.</li> <li>- Not installed on a wall above the level of the ground storey</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Conservation Area [ with Article 4 ]	<p><b>Permitted if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is only one ASHP proposed;</li> <li>- The volume of the unit must not exceed 0.6 cubic</li> </ul>

	<p>metres</p> <ul style="list-style-type: none"> <li>- 1m in from the property boundary</li> <li>- Installed on a flat roof and 1m from the external edge of the roof</li> <li>- Not on a wall or roof if fronts a highway or be nearer to any highway which bounds the property than any part of the building.</li> <li>- Not installed on a wall above the level of the ground storey</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practical.</li> </ul>
Considerations where planning permission required	<ul style="list-style-type: none"> <li>- Noise</li> <li>- Vibration</li> <li>- Carbon dioxide efficiency</li> <li>- Unlikely to be acceptable to the front of the property.</li> </ul>
Listed Buildings	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable given impact on appearance of the property. Permitted development rights do not apply for installations within the curtilage of a listed building. Planning permission is required also side Listed Building consent.</p>
Building Regulations	<p>Part E (Resistance to sound)</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part P (Electrical safety)</p> <p>Permission not required if installed under Competent Person Scheme</p>

## Ground source heat pumps

Vertical and Horizontal

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b>
Conservation Area [ without Article 4 ]	<b>Permitted</b>
Conservation Area [ with Article 4 ]	<b>Permitted</b>
Considerations	- space required for horizontal system or to sink a vertical system
Listed Buildings	<b>Listed Building consent required</b>  May be acceptable if does not damage the historic fabric of the building, however work best with under floor heating which generally requires a solid masonry floor which may not be acceptable.
Building Regulations	Part E (Resistance to sound)  Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system  Part P (Electrical safety)  Permission not required if installed under Competent Person Scheme

## Biomass heating system, including wood burning stoves

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<p><b>Permitted if:</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Flue not to exceed highest part of the roof by more than 1m</li> <li>- Appliances must comply with the requirements of the Clean Air Act 1993. Unless authorised fuels are burnt only 'exempt' appliances can be used. A list of exempt appliances can be found on the DEFRA website.</li> </ul>
Conservation Area [ without Article 4 ]	<p><b>Permitted if:</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Flue not to exceed highest part of the roof by more than 1m</li> <li>- Flue not to be installed on a wall or roofslope which fronts a highway</li> <li>- Appliances must comply with the requirements of the Clean Air Act 1993. Unless authorised fuels are burnt only 'exempt' appliances can be used. A list of exempt appliances can be found on the DEFRA website.</li> </ul>
Conservation Area [ with Article 4 ]	<p><b>Permitted if:</b></p> <p>Except in the following Article 4 areas (due to requirement for a flue)</p> <ul style="list-style-type: none"> <li>- Belsize CA</li> <li>- Hampstead CA</li> <li>- Swiss Cottage CA</li> <li>- Frognal Way (specific properties)</li> </ul> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- Flue not to exceed highest part of the roof by more than 1m</li> <li>- Flue not to be installed on a wall or roofslope which fronts a highway</li> <li>- boiler/stove is to be an 'exempt' appliance or authorised fuels are to be burnt, as required by the Clean Air Act</li> </ul> <p>(a list of 'exempt' appliance and authorised fuels can be found on the smoke control section on the DEFRA website)</p>

<p>Considerations where planning permission required</p>	<ul style="list-style-type: none"> <li>- Location of the flue should not be detrimental to the design of the building and character of the streetscene. Use existing chimneys where possible.</li> <li>- An air quality assessment is required for biomass boilers to demonstrate 'negligible impacts on air quality</li> <li>- Emission control measures shall be adopted where NOx and PM10 emissions are shown to have a negative impact on air quality.</li> <li>- The impacts on neighbouring amenity space may also be considered on environmental health grounds.</li> </ul> <p><b>For further information on Wood Burning stoves in Camden please see <a href="#">Wood burning stoves in Camden</a></b></p>
<p>Listed Buildings</p>	<p>Listed Building consent may be required, depending on the alterations to the historic fabric.</p> <p>May be acceptable where flue does not damage the historic fabric and appearance of the building. Take advantage of existing chimneys.</p> <p>Use same route for pipes and openings, where possible.</p>
<p>Building Regulations</p>	<p>Part B (Fire safety)</p> <p>Part E (Resistance to sound)</p> <p>Part F (Ventilation) - Extraction flues shall be positioned away from air intake vents and open-able window</p> <p>Part G (Sanitation, Hot Water Safety and Water Efficiency) – when altering hot water system</p> <p>Part J (Combustion appliances and Fuel Storage systems) – when altering boiler system</p> <p>Part P (Electrical safety)</p> <p>Permission not required if installed under Competent Person Scheme</p>

## Wind turbine

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<p><b>Permitted on the building if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine (including blades) would not exceed 3m above the highest part of the roof (excluding chimney) or would not exceed 15m in height</li> <li>- The blades are higher than 5m from the ground</li> <li>- The swept area of any blade would not exceed 3.8m<sup>2</sup></li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul> <p><b>Permitted as stand alone turbine if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine would not exceed 11.1m in height</li> <li>- The blades are higher than 5m from the ground</li> <li>- It is located in a position which is less than a distance equivalent to the overall height (including blades) of the stand alone wind turbine plus 10% of its height when measured from any point along the boundary of the curtilage</li> <li>- The swept area of any blade would exceed 3.8m<sup>2</sup></li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul>
Conservation Area [ without Article 4 ]	<p><b>Permitted on the building if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> </ul>

	<ul style="list-style-type: none"> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine (including blades) would not exceed 3m above the highest part of the roof (excluding chimney) or would not exceed 15m in height (from the ground level)</li> <li>- The blades are higher than 5m from the ground</li> <li>- The swept area of any blade would not exceed 3.8m<sup>2</sup></li> <li>- Any part of the turbine is not within 5 metres of any boundary</li> <li>- It is attached to a wall or roof slope which fronts a highway</li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul> <p><b>Permitted as stand alone turbine if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine would not exceed 11.1m in height</li> <li>- The blades are higher than 5m from the ground</li> <li>- It is located in a position which is less than a distance equivalent to the overall height (including blades) of the stand alone wind turbine plus 10% of its height when measured from any point along the boundary of the curtilage</li> <li>- The swept area of any blade would exceed 3.8m<sup>2</sup></li> <li>- The wind turbine is no nearer to any highway than the part of the dwelling house which is nearest to that highway</li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul>
<p>Conservation Area [ with Article 4 ]</p>	<p><b>Permitted on the building if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine (including blades) would not exceed 3m above the highest part of the roof (excluding chimney) or would not exceed 15m in</li> </ul>



	<p>height</p> <ul style="list-style-type: none"> <li>- The blades are higher than 5m from the ground</li> <li>- The swept area of any blade would not exceed 3.8m<sup>2</sup></li> <li>- Any part of the turbine is not within 5 metres of any boundary</li> <li>- It is attached to a wall or roof slope which fronts a highway</li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is no longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul> <p><b>Permitted as stand alone turbine if:</b></p> <ul style="list-style-type: none"> <li>- The installation complies with the <a href="#">Microgeneration Certification Scheme Planning Standards</a></li> <li>- There is no other turbine on the building</li> <li>- An Air Source Heat Pump is not installed on the same building</li> <li>- The highest part of the turbine would not exceed 11.1m in height (from ground level)</li> <li>- The blades are higher than 5m from the ground</li> <li>- It is located in a position which is less than a distance equivalent to the overall height (including blades) of the stand alone wind turbine plus 10% of its height when measured from any point along the boundary of the curtilage</li> <li>- The swept area of any blade would exceed 3.8m<sup>2</sup></li> <li>- The wind turbine is no nearer to any highway than the part of the dwelling house which is nearest to that highway</li> <li>- The blades shall be made of non reflective material</li> <li>- It is sited to minimise its effect on the external appearance and amenity of the area</li> <li>- Equipment which is not longer needed for microgeneration shall be removed as soon as reasonably practicable</li> </ul>
<p>Considerations where planning permission required</p>	<ul style="list-style-type: none"> <li>- Noise</li> <li>- Vibration</li> <li>- Flicker</li> <li>- Amount of wind</li> <li>- Carbon savings / energy generation</li> </ul>
<p>Listed Buildings</p>	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable due to impact of setting of a listed building</p>
<p>Building Regulations</p>	<p>Part A (Structural safety)</p> <p>Part K (Protection from falling)</p> <p>Part P (Electrical safety)</p>

## Solid wall insulation [ internal ]

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b>
Conservation Area [ without Article 4 ]	<b>Permitted</b>
Conservation Area [ with Article 4 ]	<b>Permitted</b>
Considerations	In historic buildings choose natural and breathable insulation materials to allow for the transfer of moisture to avoid build up of condensation and rot.
Listed Buildings	<b>Listed Building consent required</b>  Unlikely to be acceptable due to impact on the fabric of the building, internal details and maintenance of original fabric due to moisture build up.  20th century concrete buildings - could be acceptable
Building Regulations	Part F (Ventilation) Part L (Conservation of fuel and power) Part P (Electrical safety)

## Solid wall insulation [ external ]

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<p><b>Permitted (dwellinghouses only)</b></p> <p>Conditions:</p> <ul style="list-style-type: none"> <li>- materials used are to be of a similar appearance to existing dwellinghouse</li> </ul> <p><b>Planning permission required (flats)</b></p>
Conservation Area [ without Article 4 ]	<p><b>Planning permission required</b></p> <p><b>Planning permission required (flats)</b></p>
Conservation Area [ with Article 4 ]	<p><b>Planning permission required</b></p> <p>May be acceptable if building has an existing stucco finish with no details and new finish matches.</p> <p>If you wish to improve the insulation of your property, the rear elevation has the most potential. However it is unlikely to be acceptable if:</p> <ul style="list-style-type: none"> <li>- the rear elevation has a detailed design</li> <li>- the rear elevation is part of a uniform terrace</li> <li>- the window and other details cannot</li> </ul>
Considerations where planning permission required	<ul style="list-style-type: none"> <li>- Appearance of property and streetscene</li> <li>- Effect on relationship of façade with adjoining properties and terrace</li> <li>- Impact of new materials on long term survival of original fabric and maintenance</li> </ul>
Listed Buildings	<p><b>Planning permission required</b></p> <p><b>Listed Building consent required</b></p> <p>Unlikely to be acceptable due to impact on the historic fabric of the building</p>
Building Regulations	<p>Part F (Ventilation)</p> <p>Part L (Conservation of fuel and power)</p>

## Double glazing

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b> Conditions <ul style="list-style-type: none"> <li>- <b>Dwellinghouse</b> - materials used to be of similar appearance to the existing ones</li> <li>- <b>Flats</b> - appearance of windows to be the same as existing windows</li> </ul>
Conservation Area [ without Article 4 ]	<b>Permitted</b> Conditions <ul style="list-style-type: none"> <li>- <b>Dwellinghouse</b> - materials used to be of similar appearance to the existing ones</li> <li>- <b>Flats</b> - appearance of windows to be the same as existing windows</li> </ul>
Conservation Area [ with Article 4 ]	<b>Permitted</b> Conditions <p>Apart from the double glazing the window must be like for like; that is</p> <ul style="list-style-type: none"> <li>- match in materials, colour &amp; surface finish (e.g. bricks, mortar, timber)</li> <li>- same dimensions</li> <li>- same fenestration pattern and detailed profile</li> <li>- replicate original details such as window catches, handles, pulleys, etc</li> </ul>
Considerations where planning permission required	<ul style="list-style-type: none"> <li>- appearance of windows in relation to overall property and streetscene</li> <li>- materials and design should match original</li> </ul>
Listed Buildings	<b>Listed Building consent required</b> <p>Original/historic parts of a building - Unlikely to be acceptable due to impact on appearance and fabric of the building</p> <p>Double glazing on non-original/non-historic parts of the building likely to be acceptable</p> <p>Secondary glazing is generally acceptable where it does not damage original window or shutters, if present and does not conflict with existing glazing patterns</p>
Building Regulations	Part L (Conservation of fuel and power) Part N (Glazing safety) Not needed if installer is registered under the Competent Persons Scheme

## Mechanical heat vent recovery

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b>
Conservation Area [ without Article 4 ]	<b>Permitted</b>
Conservation Area [ with Article 4 ]	<b>Permitted</b>
Considerations	- Works best where a property is very air tight
Listed Buildings	<p><b>Listed building consent required</b></p> <p>Individual rooms eg bathroom and kitchen - Generally acceptable where alterations to the fabric of the building for ducting and associated works are minimal.</p> <p>Whole house – unlikely to be practical or acceptable given amount of ducting and space required.</p> <p>Use existing openings in the fabric where possible.</p>
Building Regulations	<p>Part L (Conservation of fuel and power)</p> <p>Part P (Electrical safety)</p> <p>Part F (Ventilation) – Extraction flues should be should be positioned away from air intake vents and openable windows</p>

## Loft insulation

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b> May need to leave air gap around edges to avoid damp and allow air to circulate.
Conservation Area [ without Article 4 ]	<b>Permitted</b> May need to leave air gap around edges to avoid damp and allow air to circulate.
Conservation Area [ with Article 4 ]	<b>Permitted</b> May need to leave air gap around edges to avoid damp and allow air to circulate.
Considerations	- Type and amount of insulation - May need to leave air gap around edges to avoid damp and allow air to circulate.
Listed Buildings	<b>Listed Building consent required</b> Generally acceptable May need to leave air gap around edges to avoid damp and allow air to circulate.
Building Regulations	Part L (Conservation of fuel and power) Part P (Electrical safety)

## Cavity wall insulation

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b>
Conservation Area [ without Article 4 ]	<b>Permitted</b>
Conservation Area [ with Article 4 ]	<b>Permitted</b>
Considerations	- Type and amount of insulation
Listed Buildings	<b>Listed Building consent required</b> Only applicable to 20th century buildings, where it may be acceptable.
Building Regulations	Part A (Structural safety) – need to check wall ties Part F (Ventilation) Part L (Conservation of fuel and power)

## Floor (ground) insulation

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b> May need to ensure air can circulate under wooden floor to avoid damp.
Conservation Area [ without Article 4 ]	<b>Permitted</b> May need to ensure air can circulate under wooden floor to avoid damp.
Conservation Area [ with Article 4 ]	<b>Permitted</b> May need to ensure air can circulate under wooden floor to avoid damp.
Considerations	<ul style="list-style-type: none"> <li>- Type and amount of insulation</li> <li>- May need to ensure air can circulate under wooden floor to avoid damp</li> </ul>
Listed Buildings	<b>Listed Building consent required</b> May be acceptable where there is limited impact to the fabric of the floor. May need to ensure air can circulate under wooden floor to avoid damp.
Building Regulations	Part L (Conservation of fuel and power) Part P (Electrical safety)



## Gas central heating

More efficient gas boiler

Cost	£ £ £ £ £
CO2 benefit	★★★★★
Disruption	• • • • •
No Designation [ full permitted development applies ]	<b>Permitted</b>
Conservation Area [ without Article 4 ]	<b>Permitted</b>
Conservation Area [ with Article 4 ]	<b>Permitted</b>
Considerations	
Listed Buildings	<b>Listed building consent required</b> Generally acceptable where alterations to the fabric of the building due to ducting and associated works are minimal.
Building Regulations	Part L (Conservation of fuel and power) Part P (Electrical safety) Part G (Sanitation, Hot Water Safety and Water Efficiency) Permission not needed if installer is CORGI approved

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