

**SOUTH DOWNS
NATIONAL PARK**



Retrofitting Historic Buildings for Energy Efficiency and Carbon Reduction

October 2025



CONTENTS

1. INTRODUCTION.....	1	SOLAR COLLECTION.....	11
WHOLE BUILDING APPROACH	1	WIND TURBINES	13
2. REDUCING ENERGY DEMAND	3	AIR SOURCE HEAT PUMPS.....	14
FLOORS	3	GROUND SOURCE HEAT PUMPS.....	15
WALLS.....	4	BATTERY STORAGE.....	16
ROOFS.....	6	EV CHARGING.....	16
FIREPLACES	7	APPENDIX A: CONSENT/PERMISSION	
WINDOWS AND DOORS.....	8	CHECKLIST	18
3. ENERGY SAVING TECHNOLOGIES	10	FURTHER INFORMATION.....	20
HEATING SYSTEMS	10		
EFFICIENT LIGHTING AND APPLIANCES.....	10		
MORE EFFICIENT ENERGY SUPPLY	11		

1. INTRODUCTION

1.1 Today's homeowners are understandably keen to improve the energy efficiency of their homes and the SDNPA (the Authority) is committed to reducing carbon emissions across its area to combat Climate Change. This document is designed to help you consider the carbon emission reduction options available which are likely to be the most effective, whilst also acknowledging the architectural history and traditional construction of the building.

1.2 Listed buildings account for just 2% of the building stock, nationally and they are easily damaged by ill-conceived alterations. It is generally accepted, for instance, that most traditionally constructed buildings, pre 1919, are unsuited to the high levels of insulation required to meet current building regulations, although some practical improvements set out in this document for significant carbon emission reductions can have minimal harm.

1.3 When considering how to improve the energy efficiency of a building that is listed or within a conservation area, there is an over-riding presumption by the Authority of the importance of retaining the historic fabric. Works to improve the energy efficiency of buildings, especially in roof spaces, may also have an impact on protected species.

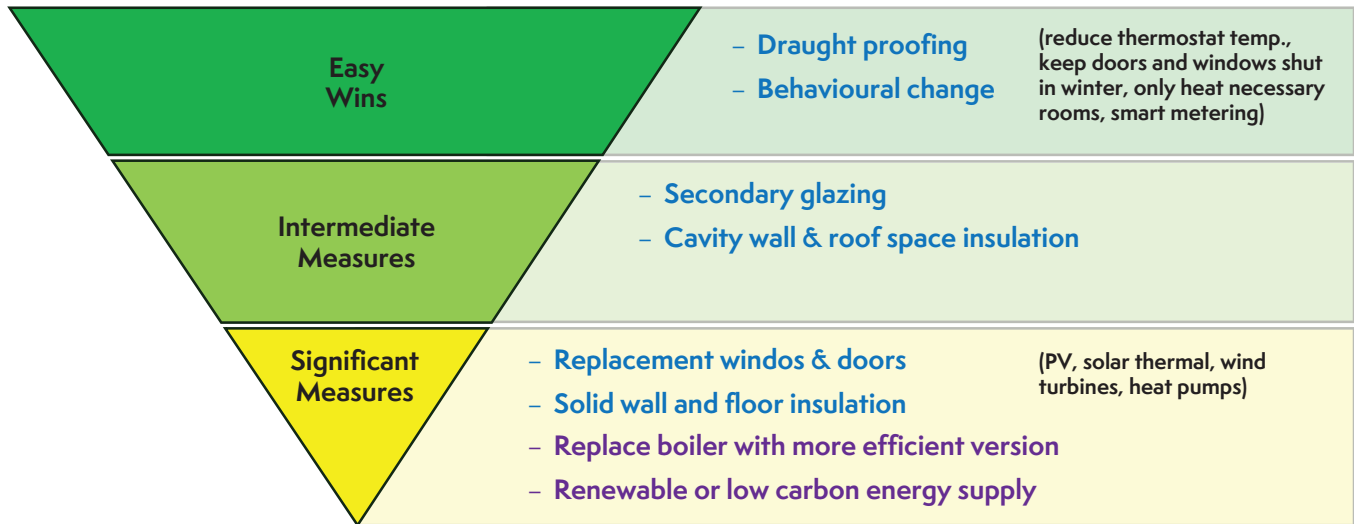
WHOLE BUILDING APPROACH

1.4 Historic England (HE), the Society for the Protection of Ancient Buildings (SPAB) and other experts strongly recommend adopting a "whole building" approach when addressing the thermal efficiency of older and historic buildings, so that any changes made to improve energy efficiency do not lead to possible unintended consequences such as moisture accumulation, overheating or fabric damage. It is important to understand the way an individual house performs as an integrated environmental system. Links to relevant sites and documents published by HE and SPAB on their websites are provided at the end of this document.

1.5 Understanding the building's construction and ventilation is important in order to provide the appropriate thermal upgrade with the most appropriate measures and remember traditional buildings need to breathe (you may need to seek expert advice from a historic building surveyor).



FIGURE 1: WHOLE BUILDING APPROACH



Measures that **reduce energy demand** and **provide a more sufficient energy supply**

FIGURE 2: HIERARCHY OF ENERGY EFFICIENCY MEASURES IN A BUILDING

The key is to first reduce energy demand

There are a few measures that householders can take to enable them to live comfortably in their historic home and reduce carbon emissions and energy consumption, that have minimal or no impact on the historic fabric of the house. These include:

- Practical day-to-day measures in how you live in the building
- Relatively simple ways to reduce heat/energy loss
- Measures to improve energy efficiency of the home

2. REDUCING ENERGY DEMAND

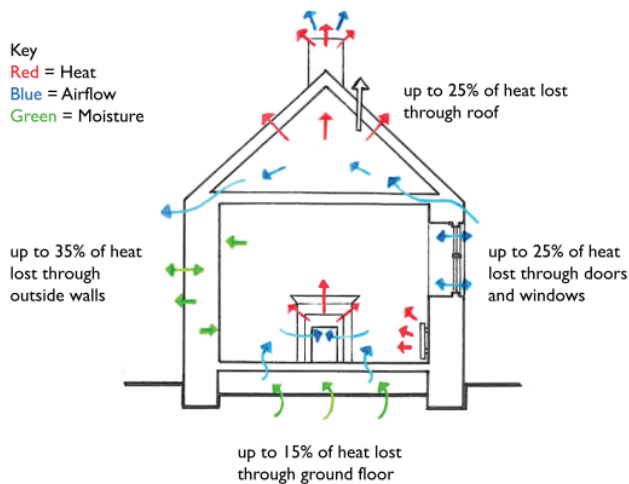


FIGURE 3: SHOWING A STANDARD TRADITIONAL HOUSE

FLOORS

Suspended floor insulation

2.1 Some floors do not sit directly on the ground, but are raised up from it using floor joists, supported from a masonry substructure or the base of the external walls. These floors are described as being suspended and they can be a significant source of heat loss particularly if there are gaps between floorboards allowing draughts. Insulation can be fitted between or above the floor joists, to limit the passage of heat through the floor.

2.2 It can be achieved easily if the floorboards can be lifted, but where this is not possible without harm, installation requires the void below to be deep enough for working access to the underside. It is essential to maintain the subfloor ventilation to the space below the insulation to avoid the risk of condensation, and it is important that the insulation does not transfer moisture from damp walls or adjacent ground to timber joists, therefore a natural breathable product is recommended.



FIGURE 4: BATTENS ADDED AT THE SIDES OF THE JOISTS TO SUPPORT BOARDING & CARRY COMPRESSIBLE SHEEP'S WOOL INSULATION IN A SUSPENDED FLOOR

(©Oxley Conservation in HE – Adapting Historic Buildings for Energy and Carbon Efficiency 20024)

Solid Floor insulation

2.3 Ground floors of historic buildings are often solid, laid directly onto the ground, with minimal foundations and insulation. The energy savings resulting from insulating solid ground floors can in many cases be of marginal benefit when the cost and disruption to the building fabric are considered. Insulating other building elements is likely to produce greater benefits in energy efficiency for significantly less cost. This is partly because a typical solid floor already provides a degree of insulation, but mainly because the ground beneath maintains a stable temperature of around 10 degrees centigrade. However, where an existing floor is being taken up, replaced or repaired, then it can be worth making use of the opportunity to improve its thermal performance.

2.4 In all cases this involves a deeper floor build-up that involves considerably more work, and in most cases, insulation cannot be retrofitted to an existing solid floor. Altering a finished floor level is likely to cause problems at the bottom of stairs, doors and skirting boards. Excavating and replacing solid floors is subject to listed building consent, which can be contentious if the floors have historic finishes.

What is the Authority's view?

The Authority will support applications for a listed building to install solid floor insulation and suspended floor insulation, where it preserves important historic building fabric and uses materials which are appropriate to the building.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required.
- **Conservation Areas:** planning permission not required
- **Listed Buildings:** listed building consent required.

Specific requirements for listed building consent application:

- Specifications of proposed insulation materials, and method statement for installation, including details of associated alterations to existing building fabric (such as floor structures, floorboards and surface finishes)

SEE FURTHER INFORMATION:

- **Energy Efficiency and Historic Buildings: Insulating Suspended Timber Floors** Historic England
- **Energy Efficiency and Historic Buildings** Historic England: **Insulating Solid Ground Floors**

WALLS

2.5 Wall materials can include bricks of varying hardness and permeability, dressed stone blocks of varying types, rubble stone, flint and rammed earth, and also timbers. Mortars can also be a mix or naturally hydraulic lime (NHL) based, with wide variations in permeability and durability. A standard traditional brick wall is used in the examples in this section, although the principles would apply to most walls. Vapour permeable materials should always be used which are sympathetic with the qualities of historic fabric, e.g. wood fibre, insulating NHL (lime) render, aerogel etc. to allow the building to breathe.

Cavity Wall Insulation

2.6 Cavity Walls are unusual in traditional construction but may be present on buildings and extensions from

the early twentieth century onwards. The process involves installing insulation in the gap between the two walls, generally by injection, to reduce the transfer of heat across the gap between each wall.

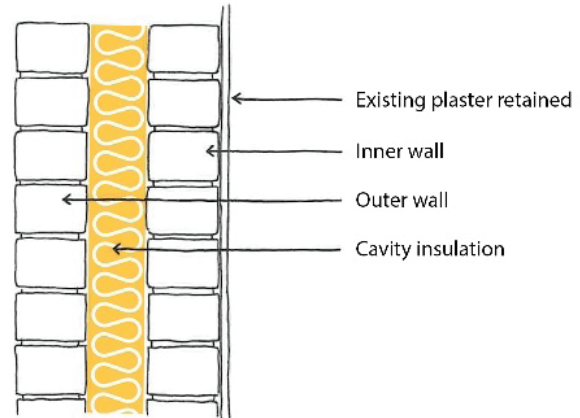


FIGURE 5: CAVITY WALL INSULATION (USING BRICK WALL EXAMPLE)

What is the Authority's view?

The Authority will support applications to insulate modern cavity walls on historic buildings. Proposals to insulate historic cavity walls may be acceptable, subject to the details of the proposal.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required.
- **Conservation Areas:** planning permission not required
- **Listed Buildings:** listed building consent will be required

Specific requirements for listed building consent application:

- Specifications of proposed insulation, and method statement, including details of surface finish

Solid Wall Insulation

2.7 Most historic buildings will have solid walls. The best place for wall insulation is on the outside of a building, the heat from inside keeps the fabric warm in winter, minimising condensation and moisture and the walls are protected from external heat, so they remain cooler in the summer. The problem is that the external insulation will change the appearance and character

of the historic buildings, by obscuring the fabric and altering window, door and eaves details. This visual change is often not acceptable.

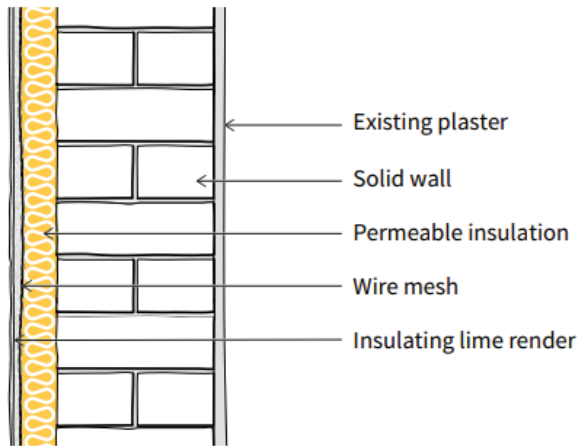


FIGURE 6: EXTERNAL SOLID WALL INSULATION (HE INSULATING SOLID WALLS 2016)



FIGURE 7: AN EXAMPLE WHERE THERE WAS A LACK OF UNDERSTANDING THAT THE BUILDING WAS A SHOP, WITH CORNER DOOR AND LARGER WINDOWS, WITH A MIXTURE OF FABRICS, CAUSING MORE ISSUES WHEN INSULATING. (HE)



FIGURE 8: EXTERNAL SOLID WALL INSULATION APPLIED TO THE SOUTH DOWNS CENTRE, MIDHURST 2023- 2024. REMOVAL OF EXISTING RENDER ABOVE.



FIGURE 9 AND 10: EXTERNAL SOLID WALL INSULATION APPLIED TO THE SOUTH DOWNS CENTRE, MIDHURST 2023- 2024.

FIGURE 9 INSTALLATION OF INSULATION AND FIGURE 11 THE FINISHED BUILDING AFTER RE-RENDERING.

2.8 Internal solid wall insulation is fixed to the internal face of an external wall to limit the passage of heat through the wall. This is more usual in historic buildings than external wall insulation. The acceptability of the process depends on the significance of the internal fabric and features that would be altered to this building.

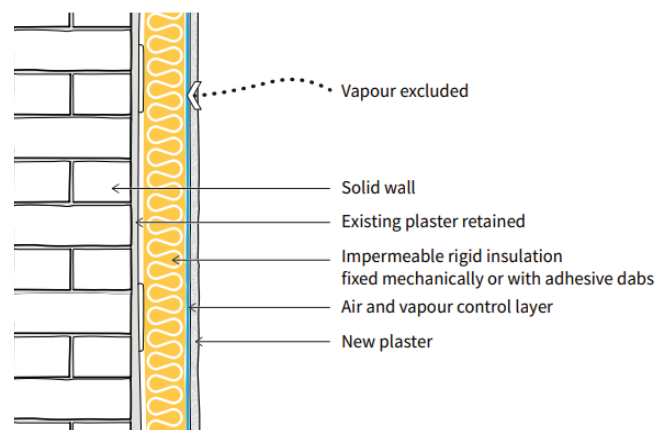


FIGURE 11: INTERNAL SOLID WALL INSULATION (HE INSULATING SOLID WALLS 2016)

What is the Authority's view?

The Authority will not generally support applications for external solid wall insulation for historic buildings, due to the way in which this can harm the external appearance of the building. It may be acceptable in limited circumstances for rear elevations and more recent extensions. Care will need to be taken in the detailing of eaves, rainwater goods, corners and window/door reveals.

Internal wall insulation can sometimes be accommodated, but this would need the significance assessed and evidence-based justification and methods detailed. The process will generally alter and disrupt significant features; plaster, joinery, chimney stacks etc.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required if the materials used are of a similar visual appearance to the existing wall, otherwise, planning permission required.
- **Conservation Areas:** planning permission required
- **Listed Buildings:** listed building consent and planning permission required,

Specific requirements for listed building consent application:

- Specifications of proposed insulation, and method statement, including details of surface finish, the impact of the loss of fabric and significance of this both physically and visually

FOR FURTHER INFORMATION:

- **Energy Efficiency and Historic Buildings: Insulating Timber Framed Walls Historic England**
- **Energy Efficiency and Historic Buildings: Insulating Solid Walls Historic England**

ROOFS

2.9 Insulating a loft can be achieved internally without affecting the external appearance of the house and generally without destroying internal original features. Ideally, traditional loft insulation should be laid both between and over the ceiling joists for full coverage and avoidance of cold spots. Loft voids on the cold side of the insulation should be well ventilated. This is mitigated by modern 'breathable bat friendly' roofing felt.' See below.

Protected Species

2.10 Works to roofs should consider bats and their roosts, which are protected by law. Bat safe products should be used, including natural fabric, fibre boards, safe timber treatments, TLX membranes etc.

Cold Roof Insulation

2.11 This is insulation generally laid flat between or above the ceiling, at the base of the attic. It limits the movement of heat from the heated spaces in the rooms below, leaving the attic cold, and as a result this is named Cold Roof Insulation.

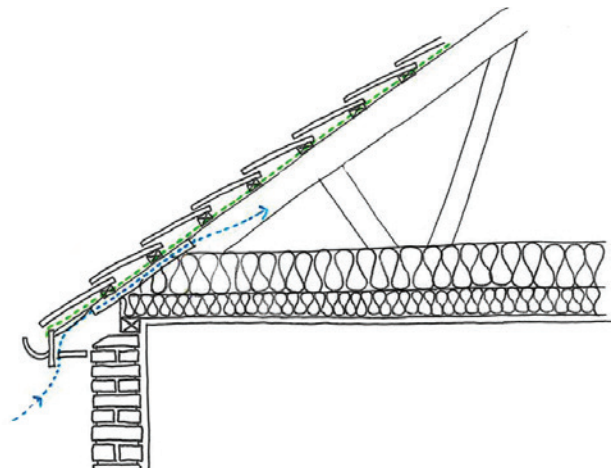


FIGURE 12: COLD ROOF STANDARD (MOVEMENT OF MOISTURE (GREEN) AND AIR (BLUE))

Warm Roof insulation

2.12 This is insulation fixed at rafter level, with either a very small or no gap between it and the roof covering. It stops heat escaping through the envelope of the roof and allows the attic space to be heated. It is often used where the attic has been converted to a habitable room.

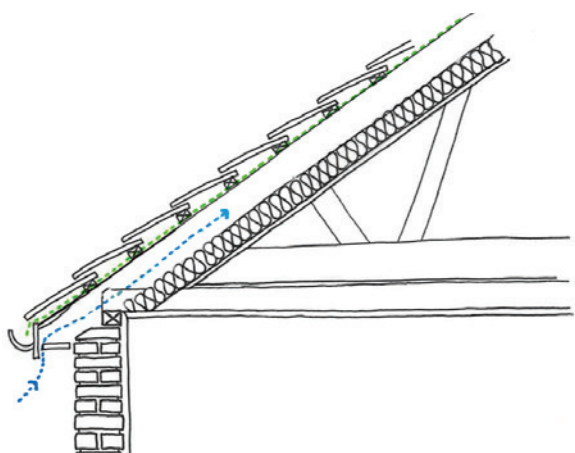


FIGURE 13: WARM ROOF STANDARD (GREEN MOISTURE, BLUE AIR)

What is the Authority's view?

We encourage owners of historic buildings to properly insulate their roof, as this can be the biggest single source of heat loss. The type of insulation used should be breathable, natural and bat friendly and at an appropriate thickness, with adequate ventilation. Generally, The Authority will support applications which seek to insulate historic roofs provided that they use materials appropriate to the building, that they do not result in the loss of historic building fabric and that (where appropriate) they preserve the character of important roof spaces. Other associated alterations such as ceiling removal and rooflights will be assessed on their own merits.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required
- **Conservation Areas:** planning permission not required
- **Listed Buildings:** listed building consent will normally be required

Specific requirements for listed building consent application:

- Specifications of proposed insulation, and method statement of works and materials

FOR FURTHER INFORMATION:

- **Building Works and Bats Historic England**
- **Energy Efficiency and Historic Buildings: Insulating Pitched Roofs at Ceiling Level Historic England**
- **Energy Efficiency and Historic Buildings: Insulating Pitched Roofs at Rafter Level Historic England**
- **Energy Efficiency and Historic Buildings: Insulating Dormer Windows Historic England**
- **Energy Efficiency and Historic Buildings: Insulating Thatched Buildings Historic England**

FIREPLACES

2.13 Most domestic buildings can have good indoor air quality through passive ventilation: opening windows and doors, fireplaces, vent bricks etc.. Fireplaces, flues and chimneys are important ways of providing ventilation and allowing the dispersal of water vapour. If a fireplace is no longer used, the flue can be closed off temporarily to reduce draughts.

2.14 Some fireplaces have built in dampers as part of the cast iron hood, or a chimney balloon is a good way to close off a flue and is easily removed, without harm to fabric.

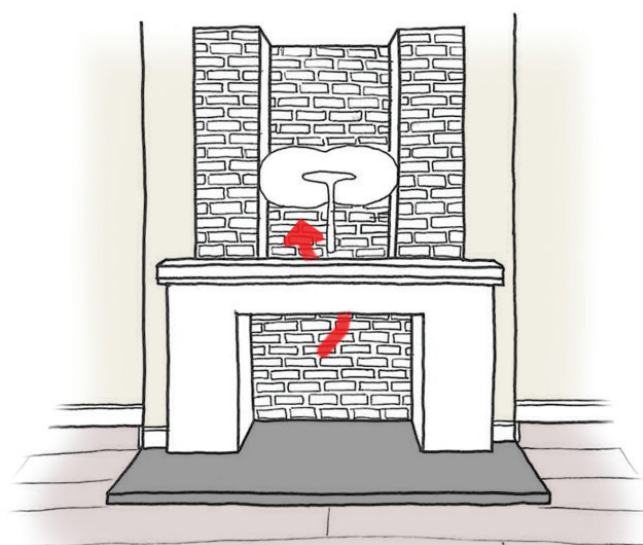


FIGURE 14: CHIMNEY BALLOON AND HEAT LOSS

What is the Authority's view?

The Authority Supports measures which homeowners can take to make their heating systems more effective and efficient.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required
- **Conservation Areas:** planning permission not required
- **Listed Buildings:** listed building consent will normally be required

Specific requirements for listed building consent application:

- Specifications of proposed insulation, and method statement of works and materials

See Further Information on back page.

WINDOWS AND DOORS

2.15 Windows and doors are the least thermally efficient elements of a house. However, the thermal efficiency of our houses can be improved greatly without replacing the windows and doors that contribute so much to the historic and visual significance of buildings. The removal of old windows carries a high carbon cost. After removal, windows have to be disposed of either as landfill or incineration and replacement windows have a high 'embodied energy' cost associated with their material extraction, manufacture and transport.

2.16 Heat escapes through windows both by direct fabric heat loss through the glass and by excessive ventilation by draughts. There are two relatively straightforward but effective measures to consider which reduce the energy consumed with very little or no change, to either the appearance or historic fabric.

- Draught-proofing
- Installing secondary glazing

Draught proofing

2.17 Draught-proofing of windows and doors will be mostly acceptable, except in cases where the windows are of exceptional delicacy, or windows which cannot be unobtrusively draught-proofed, for example, stained glass panels.

2.18 Draught-proofing is one of the most cost-effective and least intrusive ways of improving comfort and reducing space heating, with little or no change to a building's appearance and little or no impact on the

historic fabric. It can reduce up to 50% of air leakage from windows.

2.19 Sliding sash windows are the most difficult to draught-proof, and it is recommended to have the work done by specialists. Casement (hinged) windows can be similarly adapted, and while the work is simpler, it is essential that the moving parts are suitably adjusted to allow for the new seals.

Secondary glazing

2.20 Secondary glazing is internal glazing affixed to the frame of an existing window, to improve the thermal or acoustic insulation of a window, whilst retaining the existing window in situ. There are many different options available, and this can be a bespoke design to a specific window.

2.21 The benefits of secondary glazing are that it can be easily fitted without extensive work or harm to the original woodwork, when installed sympathetically, and it is completely reversible. There are temporary lightweight systems using magnets, which can be removed and stored during the summer months.

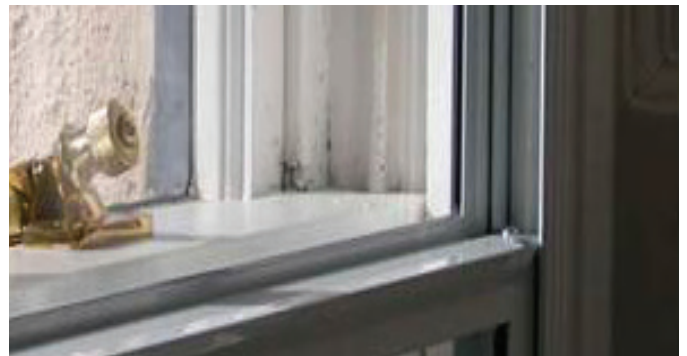


FIGURE 15: SECONDARY GLAZING (HE ADAPTING HISTORIC BUILDING'S FOR ENERGY AND CARBON EFFICIENCY 2024)

What is the Authority's view?

The Authority encourages owners of historic buildings to consider internal secondary glazing as a good solution to insulate windows, subject to the significance of the windows and method of installation proposed on fabric and visually. This is highly energy efficient, enables historic windows to be retained and preserves the embodied carbon and energy of the building.

Window/door replacement

2.22 Historic windows and doors are an irreplaceable resource, produced using historic timber of a quality not easily available today and attractive historic glass. Such fabric is required to be retained and repaired.

2.23 Where it is evidenced that modern timber replacements or windows/doors are beyond repair, like for like replacements will be advised.

2.24 New windows can be slim-profile or vacuum slim double-glazing units (6mm-18mm width), where appropriate and if beyond repair or broken. Sealants and spacers should match the finish colour of the frames, for less visual impact.

What is the Authority's view?

The Authority supports the replacement of windows or doors which are demonstrably inappropriate to the building or area, or are evidenced as not historic, or have been evidenced to be beyond repair in a condition survey report. In these circumstances, replacement with slim double glazing of an appropriate design and detailing may be considered. The Authority will not support proposals to remove windows or doors from an historic building where those windows are considered to be historic or are in a good condition. In those circumstances, we would recommend repairs and secondary glazing. Where the principle of replacement has been established, the Authority will not support the use of uPVC, but will encourage traditional materials appropriate to the building.

The fitting of draught excluders to windows is a matter outside the listed building controls, but only if it involves no physical changes to the joinery. For systems that require alterations to the existing fabric, more than fixings, consent is likely to be required, but the expectation is that it would likely be allowed.

Replacement windows and doors would require consent and planning permission.

Specific requirements for listed building consent:

- Drawing/plans/photos (to scale) to identify the windows on which it is proposed to be installed
- Specifications of proposed secondary glazing, and method statement for installation, including means of fixing and alterations to existing aperture

FOR FURTHER INFORMATION:

- **Energy Efficiency and Historic Buildings: Draught-proofing Windows and Doors Historic England**
- **Energy Efficiency and Historic Buildings: Secondary glazing for windows Historic England**

Do they require permission?

- **Outside of Conservation Areas:** planning permission not required, unless in a flat
- **Conservation Areas:** planning permission not required, unless in a flat or replacement windows/doors
- **Listed Buildings:** permanently fitted secondary glazing is likely to require consent but is likely to be uncontentious.

3. ENERGY SAVING TECHNOLOGIES

HEATING SYSTEMS

Smart heating controls:

3.1 Some heating systems can now be controlled by an app on a mobile device, which allows the heating to be adjusted remotely. These systems can also provide information about energy usage patterns and consumption. This information can enable a heating system to be used more efficiently. For instance:

- Remote heating controls allow you to turn the heating up or down so that you are not heating an empty house.
- You can heat different rooms in your house at different temperatures rather than heating the whole house (including empty rooms) at the same temperature.
- Smart thermostats can automatically turn the heating up in cold weather and down when the home is receiving solar gain in sunny weather.
- Some systems can detect when you have left the house and automatically lower the temperature.
- Some systems detect open windows and lower the temperature or shut down to conserve energy.

3.2 All these features can significantly reduce energy consumption, lower energy bills, and reduce carbon emissions. Smart heating control systems are also designed to be compatible with low-carbon heating technologies like air source heat pumps or solar thermal systems making their use more efficient. If you have an electric car, they can also adapt the heating system to minimise demand while charging.



FIGURE 16: HEATING CONTROLS AND SMART PHONE

What is the Authority's view?

The Authority supports measures which homeowners can take to make their heating systems more effective and efficient.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required
- **Conservation Areas:** planning permission not required
- **Listed Buildings:** listed building consent not required provided that the installation does not require substantial material alterations to a building (i.e. large new holes through existing walls.)

See Further Information on back page.

EFFICIENT LIGHTING AND APPLIANCES

3.3 Changing lights with more efficient light bulbs (e.g. LEDs) can provide the same amount of illumination but with much reduced wattage and therefore electricity use. Similarly, A-rated appliances (see **Home appliances and energy efficiency ratings – Energy Saving Trust**) can also save significant amounts of electricity, and therefore carbon emissions, compared with older, less efficient alternatives.

What is the Authority's view?

The Authority supports measures which homeowners can take to make their heating systems more effective and efficient.

Does it require permission?

- **Outside of Conservation Areas:** planning permission not required
- **Conservation Areas:** planning permission not required
- **Listed Buildings:** listed building consent not required provided that the installation does not require substantial material alterations to a building (i.e. large new holes through existing walls.) Where the existing light fittings, components, such as switches etc, are of historic significance these should remain.

See Further Information on back page.

MORE EFFICIENT ENERGY SUPPLY

3.4 Replacement Boilers: Most conventional heating systems involve burning a fuel, often fossil fuels such as oil or gas. In future, fossil-fuelled boilers are unlikely to be permissible, but at present, it is possible to install these as replacements for existing heating systems. New gas and oil-fuelled boilers can be more efficient than older models. Biomass boilers require extra covered space for storing fuel and access for deliveries.

What is the Authority's view?

The Authority supports applications for alterations to enable the installation of new boilers, where they minimise the loss of historic building fabric, and are sensitively located in inconspicuous locations

Do they require permission?

- **Outside of Conservation Areas:** planning permission not required
- **Conservation Areas:** planning permission not required unless a new building is proposed to contain a new boiler and fuel storage (generally for biomass).

- **Listed Buildings:** listed building consent will usually only be required if alterations to walls, floors, ceilings or roofs are necessary for the replacement, such as for new flues and where the existing heating system components, such as cast-iron radiators, are of historic significance and should remain.

Specific requirements for listed building consent application:

- Drawing/plans (to scale) to identify areas proposed to be altered/locations of new structures
- Specifications of proposed materials and flues, and method statement for installation, including details of associated alterations to existing building fabric.

See Further Information on back page.

SOLAR COLLECTION

3.5 Roof mounted solar panels: Photovoltaic panels, slates and tiles and Solar Thermal panels will be acceptable in some cases. They can be fitted on the roofs of many buildings in ways that avoid direct harm to the fabric of buildings. They do have the potential to be visually intrusive through the change in material and reflectivity; harmful to the setting of a listed building; to the character and appearance of a conservation area or the wider landscape.

3.6 The panels should be carefully sited, on non-visible roof elevations (from the public domain) where possible to reduce their visual impact and for ease of access to enable maintenance.

3.7 The panels should be installed using qualified contractors and regular inspections and maintenance carried out to ensure they are in safe and working order, in accordance with the Fire Protection Association.



FIGURE 17: LOW VISUAL IMPACT PV TILES ON A SLATE ROOF



FIGURE 18 (LEFT): SOLAR PANELS IN A DISCREET LOCATION ON LEAN-TO

What is the Authority's view?

The Authority supports applications for roof mounted solar panels and solar slates/tiles which are sensitively located, are not unduly prominent in an area, do not require substantial alterations to or removal of historic building fabric, and preserve the residential amenity of neighbouring properties.

Do they require permission?

- **Outside of Conservation Areas:** planning permission not required, unless the solar panels would be higher than the highest part of the roof (excluding any chimneys) or would protrude more than 0.2m beyond the plane of the roof (when measured perpendicular to the roof slope). Houses in some areas may have an Article 4 Direction which reduces the permitted development rights and therefore requires planning permission for solar panels. Additional restrictions apply to non-domestic buildings and flats.
- **Conservation Areas:** planning permission not required, unless the solar panels would be installed on a roof slope facing a highway, higher than the highest part of the roof (excluding any chimneys), or would protrude more than 0.2m beyond the plane of the roof (when measured perpendicular to the roof slope).
- **Listed Buildings:** listed building consent and planning permission required to install solar panels fixed to the listed building.

Specific requirements for listed building consent application:

- Drawing/plans (to scale) to identify the locations of proposed solar panels, depth of solar panels (including fixings), and relationship with surrounding building fabric
- Specifications of proposed solar panels, and method statement for installation, including details of associated alterations to existing building fabric.
- Options of alternative locations to assess best option. including slopes, outbuildings, and at ground level.

See Further Information on back page.

3.8 Mounting panels on outbuildings and at ground level: Where there is sufficient space, it may be possible to install solar panels on supports directly fixed to the ground within the curtilage of listed buildings or on outbuildings. Provided that this land or the outbuildings are not of significance or visually

harmful and can be preferable to the installation on the main listed building.



FIGURE 19: GROUND MOUNTED SOLAR PANELS IN A GARDEN (HE ADAPTING HISTORIC BUILDINGS FOR ENERGY & CARBON EFFICIENCY 2024)

What is the Authority's view?

The Authority supports applications for ground mounted solar panels which are sensitively located, are not unduly prominent in an area, do not require substantial alterations to or removal of historic building fabric, and preserve the residential amenity of neighbouring properties.

Do they require permission?

- **Outside of Conservation Areas:** planning permission not required unless the solar panels would be within a scheduled monument, would be more than 4 metres in height or within 5 metres of the boundary of the curtilage. Additional restrictions apply to non-domestic buildings
- **Conservation Areas:** planning permission not required, unless (see above).
- **Listed Buildings:** listed building consent not required, unless impact on fabric from holes etc. Planning permission is required.

Specific requirements for listed building consent application:

- Drawing/plans (to scale) to identify the locations of proposed solar panels, depth of solar panels (including fixings), and relationship with surrounding building fabric
- Specifications of proposed solar panels, and method statement for installation, including details of associated alterations to existing building fabric.
- Options of other locations; slopes, outbuildings, ground, to assess best option.

See Further Information on back page.

WIND TURBINES

3.9 Wind turbines range from large scale to micro sized. Large scale turbines can affect the setting of listed buildings, and the character and appearance of conservation areas. Micro turbines installed on listed buildings can have a harmful impact visually and may affect the building's fabric.

What is the Authority's view?

The council will support applications for microgeneration wind turbines where they are sensitively located in grounds of historic buildings, and do not have an unacceptable impact on the character of the landscape or townscape and preserve the residential amenity of neighbouring properties.

Do they require permission?

- **Outside of Conservation Areas** and **inside Conservation Areas:** likely to require planning permission in most circumstances – the rules here are complex, please contact the Authority for further advice via planning@southdowns.gov.uk
- **Listed Buildings:** if attached to the listed building and planning permission in all circumstances.

Specific requirements for listed building consent application:

- Drawing/plans (to scale) to identify the locations of proposed wind turbine, means of fixing to the building (if applicable), full drawings of the turbine, and any associated equipment
- Specifications of proposed turbine, including size and appearance and method statement for installation
- Details of compliance with the Microgeneration Compliance Scheme

FOR FURTHER INFORMATION:

- **MCS Certified | Giving you confidence in home-grown energy**

AIR SOURCE HEAT PUMPS

3.10 Air source heat pumps (ASHPs) use electricity to extract heat from the air to heat a building. They work using a 'coefficient of performance' where for each unit of electricity used to operate the heat pump between 2.5 and 4 units of heat are produced. They are an efficient means of heating a building and can operate down to sub-zero temperatures. Air source heat pumps will work best in a well-insulated building.



FIGURE 20: A TYPICAL DOMESTIC-SCALE AIR SOURCE HEAT PUMP (SELFBUILD.UK)

3.11 When used as the main energy source, the pipes and radiators needed are larger than standard ones and this can affect the historic fabric significantly. Care should be taken in siting the pumps as they can be visually intrusive. More recent models are less noisy

than earlier versions but there is still potential for some noise nuisance if located very close to neighbouring properties.

What is the Authority's view?

The council will support the installation of new air source heat pumps and will approve applications for them when they are sensitively located so as to preserve the significance and character of historic buildings and conservation areas and preserve the residential amenity of neighbouring properties.

Do they require permission?

- **Outside of Conservation Areas:** planning permission not required
- **Conservation Areas:** planning permission not generally required, if; only one heat pump is on the site; the volume of the pump's compressor and housing is less than 0.6 cubic metres; the pump is located further than 1m from the boundary of the property, and it would be at ground floor level only; it would not be within a scheduled monument; and would not be located between the building and the highway.
- **Listed Buildings:** listed building consent is normally required for the installation of heat pumps which are fixed to a building or alter fabric, otherwise listed building consent is not required.

Specific requirements for listed building consent application:

- Drawing/plans (to scale) to identify locations of proposed air source heat pump' means of fixing to the building (if applicable), and any associated equipment or enclosure.
- Specifications of proposed heat pump, including size and appearance and method statement for installation, including details of associated alterations to existing building fabric.
- Details of compliance with the Microgeneration Compliance Scheme^x.

See Further Information on back page.

GROUND SOURCE HEAT PUMPS

3.12 Ground source heat pumps (GSHPs) also use electricity to exchange heat within the ground to heat a building. Typically, they are more efficient than air source heat pumps due to the more constant ground temperatures but are often more expensive. Horizontal loops can require large areas of land to operate and vertical GSHPs may require EA permission.

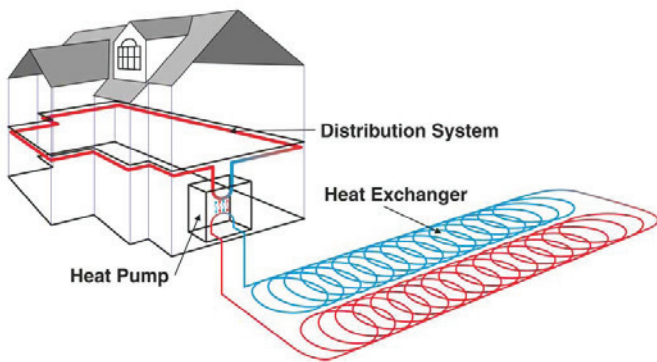


FIGURE 21: THE PRINCIPLES OF A HORIZONTAL LOOP GROUND SOURCE HEAT PUMP



FIGURE 22: TYPICAL EXCAVATION AND INSTALLATION OF VERTICAL GROUND SOURCE HEAT PUMP LOOP (WWW.SELF-BUILD.CO.UK)



FIGURE 23: TYPICAL PLANT FOR DOMESTIC HEAT PUMP (WWW.SELF-BUILD.CO.UK)

What is the Authority's view?

The council will support the installation of new ground source heat pumps and will approve applications for them when they are sensitively located to preserve the significance and character of historic buildings and gardens and conservation areas and preserve the residential amenity of neighbouring properties.

Do they require permission?

- **Outside of Conservation Areas** and **inside Conservation Areas**: planning permission not required within the domestic curtilage. Planning permission would be required outside of the domestic curtilage (i.e. the garden area of the house).
- **Listed Buildings**: listed building consent not required. If there are no fixings to a building or alteration of fabric, otherwise listed building consent will be required.
- Archaeological considerations for ground works in some areas, may be required.

See Further Information on back page.

BATTERY STORAGE

3.13 On-site renewable electricity generation facilities can be used in conjunction with a large purpose made battery, to store electricity on site, when demand is low, so that the stored electricity can then be used when demand is high.



FIGURE 25: A TYPICAL DOMESTIC SCALE BATTERY STORAGE UNIT LINKED TO PV ON A ROOF (SOLARPANELINSTALLERS.UK)

What is the Authority's view?

The Authority will support the installation of new battery storage systems and will approve applications which are sensitively located to preserve the significance and character of historic buildings and conservation areas, preserve the residential amenity of neighbouring properties, and where fire safety can be appropriately managed.

Do they require permission?

- **Outside of Conservation Areas:** and **inside Conservation Areas:** depending on its physical size and location, planning permission may be needed – please contact the council for advice planning@southdowns.gov.uk
- **Listed Buildings:** listed building consent would be required if unit installation required fixings or holes to historic fabric. Depending on its physical size, planning permission may be needed – please contact the council for advice via planning@southdowns.gov.uk

Specific requirements for listed building consent application:

- Drawing/plans (or annotated photographs) to identify the locations of proposed battery storage, means of fixing to the building (if applicable), and associated alterations to cabling and electrical supply
- Specifications of proposed battery storage, including size and appearance and method statement for installation.

See Further Information on back page.

EV CHARGING

3.14 Electric vehicle charging points are dedicated charging facilities for electric vehicles. They can charge an electric vehicle faster than a standard domestic socket. They may be accommodated without harm to historic buildings and their setting, provided they are located in discreet places, such as on a light post (see figure 26) on a wall or a less visible part of a building.

3.15 Consideration should be given to archaeological remains when considering ground works and service runs.

Freestanding



FIGURE 26: FREE STANDING DOUBLE CHARGE POINT IN RESIDENTIAL CAR PARK, MIDHURST

What is the Authority's view?

The Authority will support applications for electrical vehicle charging points where they are sensitively located on or near historic buildings, do not require the loss of historic fabric and preserve the amenity of neighbouring properties

Do they require permission?

- **Outside of Conservation Areas:** and **inside Conservation Areas:** planning permission not required, unless more than 1 charging point is proposed, the charging point would be more than 1.6m above ground level, would be within a scheduled monument or would be within 2 metres of a highway.
- **Listed Buildings:** listed building consent not required for detached freestanding charging points but planning permission would be required.

On-street charging may require separate permission from the Highway Authority.

Specific requirements for listed building consent application:

- Drawing/plans (or annotated photographs) to identify the locations of proposed charging point, means of fixing to the building (if applicable), and associated alterations to cabling and electrical supply.

Attached to a building

FIGURE 28: A WALL MOUNTED CHARGE POINT

What is the Authority's view?

The Authority will support applications for electrical vehicle charging points where they are sensitively located on or near historic buildings, do not require the loss of historic fabric and preserve the amenity of neighbouring properties

Do they require permission?

- **Outside of Conservation Areas:** planning permission not required, unless more than 1 charging point is proposed, the charging point would be more than 1.6m above ground level, would be within a scheduled monument or the curtilage of a listed building or would be within 2 metres of a highway.
- **Conservation Areas:** planning permission not required, unless the charging point would be covering an area greater than 0.2 sq. metres, would be within a scheduled monument or the curtilage of a listed building or would be within 2 metres of a highway.
- **Listed Buildings:** listed building consent and planning permission required.

On-street charging may require separate permission from the Highway Authority.

Specific requirements for listed building consent application:

- Drawing/plans (or annotated photographs) to identify the locations of proposed charging point, means of fixing to the building (if applicable), and associated alterations to cabling and electrical supply
- Specifications of proposed charging point, including size and appearance, and method statement for installation.

FOR FURTHER INFORMATION:

- **Microgeneration Compliance Scheme. MCS Certified | Giving you confidence in home-grown energy**

Appendix A: Consent/Permission Checklist

	Listed Buildings				General Houses		General Flats	
	CA		Outside CA		CA	Outside CA	CA	Outside CA
	pp	LBC	PP	LBC	pp	pp	PP	pp
Draught proofing doors and windows	●	●	●	●	●	●	●	●
Secondary glazing	●	●	●	●	●	●	●	●
New heating system/new condensing boiler or biomass boiler	●	●	●	●	●	●	●	●
Thermostatic radiator valves (TRVs)	●	●	●	●	●	●	●	●
Insulate hot water pipes and tanks	●	●	●	●	●	●	●	●
Swapping to energy efficient light bulbs	●	●	●	●	●	●	●	●
Solar panel	●	●	●	●	● **	● **	● **	● **
loft Insulation	●	● **	●	● **	●	●	●	●
Roor Insulation	●	● **	●	● **	●	●	●	●
Wal Insulation – internal	●	● **	●	● **	●	●	●	●
Wall Insulation – external	● *	● *	● *	● *	● *	● *	● *	● *
Slim. double or triple glazed windows	● *	● *	● *	● *	● *	● *	● *	● *

● Yes ● No ● Depends

PP = Planning Permission
LBC = Listed Building Consent
CA = Conservation Area

- * Depends on panel projection, roof pitch, whether flat roof, whether height of panel project beyond highest part of roof, if elevation fronts a highway (CAs).
- ** Depends if works affected building fabric.
- *** PP required if insulation involves cladding of any part of the exterior of the dwelling with stone, artificial stone, pebble dash, render, timber, plastic or tiles.

FURTHER INFORMATION

CONTACTS:

- Historic England (HE) 0370 333 0607
- customers@HistoricEngland.org.uk
- conservation@HistoricEngland.org.uk
- Society for the Protection of Ancient Buildings (SPAB)
020 7377 1644
- info@spab.org.uk
www.spab.org.uk/advice/technical-advice-line
- The Sustainable Traditional Building Alliance (STBA)
020 7704 3501
- www.responsible-retrofit.org
- Climate Emergency Retrofit Guide | LETI

PUBLICATIONS:

- Energy Efficiency and Retrofit in Historic Buildings Historic England
- Adapting Historic Buildings for Energy and Carbon Efficiency Historic England
- Planning responsible retrofit of traditional buildings: STBA
- Retrofitting of Traditional Buildings Guidance Note IHBC
- SDNPA Sustainable Construction Supplementary Planning Document
- Energy Efficiency and Historic Buildings: Draught-proofing Windows and Doors Historic England

CONTRACTORS AVAILABLE FROM:

- Architects Accredited in Building Conservation
- Conservation Accreditation Register for Engineers
- RICS Certified Historic Building Professionals (Surveyor)

