

Listed Buildings – what you can do for climate change

As concerns about climate change have risen, and energy costs are increasing, everyone is looking for ways to adapt and retrofit their houses to make them more energy efficient. Legal provisions, including the Building Regulations and Minimum Energy Efficiency Standards (MEES) for rented homes, require building owners to face up to the need to make homes more energy efficient. All these improvements can be more challenging when you live in or own a listed building. This document aims to explain what can be achieved to save energy and at the same time conserve the special interest of your listed building.

There are approximately 26,500,000 buildings in England and Wales (domestic and non-domestic). Of these, about 400,000 (1.5%) are listed. Buildings are listed by the Government (on the advice of Historic England) when they are considered to have special architectural or historic interest in a national context. The listing gives statutory protection to the whole of the exterior and interior of the building (not just the elements listed on the list description) and, potentially, any buildings and structures in its curtilage. Most changes to listed buildings will therefore require Listed Building Consent, as well as any planning permission that the works might require.

Local authorities have a statutory duty to have special regard to the desirability of preserving listed buildings, their settings and any features of special architectural or historic interest they possess.

Climate and ecological emergency

Dorset Council declared a climate and ecological emergency in 2019 and the council has a climate and ecological emergency strategy. Becoming a carbon-neutral council by 2040 is a key priority for the council, along with showing leadership in driving the change needed to decarbonise Dorset by 2050 and ensure 30% of land is in positive management by 2030.

In 2021, Dorset Council successfully secured one of the largest funds in the country from the government's Public Sector Decarbonisation Scheme. This resulted in a £19million retrofit programme which improved the energy-efficiency of over 200 council-buildings, with nearly 400 measures fitted and over 5MW of renewable energy installed. One example is Durlston Castle, included as Case Study 2.

The Council has also published an interim guidance and position statement in relation to planning for climate change. This provides commentary on the weight given to climate change in decision making and sets out what Dorset Council expects from planning applications given current planning policy. The position statement focusses on new built development and proposals for stand-alone renewable energy generation schemes.

Conservation officers are aware of the climate and ecological emergency and the need for everyone to reduce their energy costs. There are a number of options available to achieve this in existing buildings, and this document summarises the options available for listed buildings. It also explains why certain options are not appropriate on listed buildings, and what suitable (and often cheaper) alternatives are available. Assessments or inspections carried out free of charge by companies with a product or treatment to sell should be treated with caution.

General good practice

Carrying out repairs and regular maintenance promptly can improve the thermal efficiency of a building and early intervention may save significant costs later on. Bills can be much higher if windows or doors are not correctly fitted and fixed. Failure to deal with leaking

gutters and rainwater pipes can cause damp walls and damage to the building fabric. Good control systems that enable you to regulate energy use also help reduce costs, such as thermostats and timers. Turning down a thermostat by one degree Celsius in a centrally heated house may reduce its annual heating energy consumption by 10% or more ([Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency \(historicengland.org.uk\)](https://historicengland.org.uk/guidance-and-publications/buildings-energy-efficiency-and-historic-buildings-how-to-improve-energy-efficiency/)).

Why do older buildings need a special approach?

Most listed buildings are constructed differently to modern buildings in that they use traditional materials and have solid walls, which together operate on the principle of 'breathability'. 'Breathability' means that the structure naturally admits a degree of moisture but allows it to evaporate externally and internally through ventilation and heating. Buildings constructed like this also tend to heat up and cool down more slowly, helping to even out changes in humidity and temperature.

It is for these reasons that, for example, non-breathable render or plaster on outside or inside walls can prevent this natural evaporation and then lead to problems such as damp or condensation, which in turn reduces both thermal performance and energy efficiency.

By contrast, most modern buildings use cavity walls and impermeable materials to prevent moisture entering the structure at all and so aim to control the movement of moisture and air within the building envelope.

Identifying areas for improvement

Historic England recommends that a whole-building approach is used to identify areas for improvement. This includes looking at building use and occupation, building fabric, engineering services and equipment and energy supply.

Quick wins

Low cost, simple improvements may include regulating energy use to fit your daily routine, using thick curtains, repairing or reinstating window shutters and awnings, draught proofing windows and doors and installing loft insulation. These can be undertaken quickly and can reduce energy consumption. In addition to reducing energy costs, repairing historic features such as window shutters and wall panelling will enhance a building's character and significance.

Conservation principles, measures and techniques

The following high-level principles apply to the repair of historic buildings. They should also be considered when designing energy efficiency improvements:

- Only techniques and materials that have been demonstrated to be appropriate to the building fabric should be used. These will normally be the same as the original or host material. When this material is no longer available or appropriate, the proposed work should employ a material that has compatible properties, both technically (similar permeability or porosity) and aesthetically.
- Interventions should maximise the life expectancy of significant building fabric, consistent with sustaining its significance.
- Interventions should be technically feasible, practicable and reversible – or at least re-treatable – and should not prejudice future interventions when they become necessary.
- All works should be adequately recorded, and the records made available for others who may take on the building in the future.

- Interventions should contribute to, or at least not compromise, the sustainability of future management and maintenance.

Building Regulations and Building Control.

Any building work being proposed to a property may require Building Regulation Approval as well as Listed Building Consent and Planning permission. Certain requirements of the Building Regulations and Approved Documents including “Approved Document Part L – Conservation of fuel and power” can and may be modified for listed buildings and buildings in conservation areas but a Building Regulation application is still required and should be submitted before work commences.

The energy efficiency of historic and traditional dwellings should be improved only if doing so will not cause long-term deterioration of the building’s fabric or fittings. In particular, this applies to historic and traditional buildings with a vapour permeable construction that both absorbs moisture and readily allows moisture to evaporate.

New extensions to historic and traditional dwellings should comply fully with the energy efficiency standards unless there is a need to match the external appearance or character of the extension to that of the host building.

In determining whether full energy efficiency improvements should be made, the Building Control team works with the authority’s conservation officers.

Please do contact Dorset Council Building Control team to discuss your Building Regulation application requirements.

<https://www.dorsetcouncil.gov.uk/planning-buildings-land/building-control/contacts/building-control-contacts>

Planning Permission

There are certain types of development that can be carried out without the need to apply for planning permission. These types of works/development are known as “permitted development”. Whether you need to apply for planning permission will depend on a number of factors. You can use the Planning Portal to get advice on your permitted development rights and common projects for residential properties.

<https://www.planningportal.co.uk/permission>

Further to the Planning Portal you can also find out further information on the Dorset Council website and the Council offer an informal process that can tell you whether or not you need planning permission. This service covers both householder proposals and non-householder proposals.

<https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning/find-out-if-you-need-planning-permission/find-out-if-you-need-planning-permission>

What can I do?

The whole-building approach is recommended to ensure that energy efficiency measures are suitable, robust, well integrated, properly co-ordinated and sustainable. This way we can better ensure that energy efficiency measures are in keeping with the way the building has been constructed and are thus consistent with its conservation for future generations.

For more detailed information see Guidance from Historic England – Energy Efficiency and Historic Buildings – How to improve energy efficiency – [Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency \(historicengland.org.uk\)](https://historicengland.org.uk/guidance-and-advice/energy-efficiency-and-historic-buildings/)

As a first step you could consider carrying out an audit of the energy use of your building and current equipment and remove any equipment no longer required. A more high-tech option is to commission a thermal imaging camera test to identify areas of heat loss and damp patches.

Do I need Listed Building Consent [LBC]?

The table below shows a number of works that can be undertaken to reduce energy bills and provides guidance as to when Listed Building Consent is required. It is advisable to seek pre application advice from Dorset Council (there is a fee for this), as this will provide feedback on your proposals and should lead to a better outcome when you submit your LBC application. For further information use this link: [Pre application advice - Dorset Council](#). You can also seek advice on whether planning permission is required. In general, LBC will not be required if:

1. Repairs to walls or ceilings make up less than 10% of the area of the wall or ceiling
2. Installing new services such as boilers, storage heaters and even draught proofing does not require intrusive attachments to historic fabric

To make an application for Listed Building Consent, log onto the [Planning Portal](#) and go through the applications link.

Works to reduce energy bills in listed buildings	LBC not needed	LBC needed	Comments regarding proposal
Works to alleviate or tackle damp problems, such as repairs to permeable mortars, plasters or renders	X	X	LBC is not needed if repairs are in matching materials. If a change of materials is proposed, then LBC will be needed but the change is likely to be acceptable if the proposed materials maintain or introduce breathability. If in doubt, always seek advice from the Conservation team.
Draught-proofing to windows and doors	X		LBC will be needed if any chasing of any services into underlying historic fabric is required to fit draught proofing. Most draught proofing is reversible.
Like-for-like replacement boiler (using existing flue opening), radiators, or storage heaters	X		
Loft insulation	X		Does not require consent if simply placed upon floor joists
Low energy light bulbs in existing fittings	X		
New central heating controls	X		
New (first time) storage heaters (providing no fixings onto historic fabric)	X		
Remedying poorly adjusted, faulty or inappropriate controls and malfunctioning systems / equipment	X		
Repair (<i>in situ</i>) of ill-fitting and damaged historic window and door frames to reduce draughts	X		
Repair (<i>in situ</i>) of window shutters (internal / external) and awnings	X		
Repair of wall panelling	X		This is only applicable to small areas of like-for-like repair. However, some historic wall panelling will require a specialist contractor (e.g. where panelling has ornament or mouldings) and advice should be sought from the

Works to reduce energy bills in listed buildings	LBC not needed	LBC needed	Comments regarding proposal
			Conservation team first in these instances.
Thick curtains / carpets / rugs / wall hangings / screens / draught-excluders	X		
Vented register plates to reduce draughts in chimneys, but allow air flow to reduce condensation	X		
Air-source heat pumps		X	Consent only needed for new service runs. Planning permission is always required.
External insulation to exterior walls		X	Please contact conservation team to discuss as this could impact on historic fabric of the building
Floor insulation between joists (where floor covering is modern and/or no disturbance of ceilings is required)		X	Where there are sub-floor voids, care should be taken in all cases to ensure that insulation does not block ventilation. Please contact conservation team to discuss as this could impact on historic fabric of the building
Installation of insulated breathable solid floor substrate (e.g. Limecrete with recycled foamed glass)		X	The acceptability of these works depends on the nature and extent of works needed to break out any existing floor slab.
Insulation on outside face of exterior walls		X	Please contact conservation team to discuss as this could impact on historic fabric of the building
Insulation of 'room in the roof' insulation		X	Insulation of roof between rafters likely to be acceptable.
Insulation on internal faces of exterior walls		X	The extent to which this is permitted depends heavily on the nature of the building and the nature of the proposed insulation. For example, buildings with internal ornament (e.g. dado rails, picture rails, panelling, window surrounds etc.), which would be compromised if insulation were added, are less likely to be suitable. In addition, in

Works to reduce energy bills in listed buildings	LBC not needed	LBC needed	Comments regarding proposal
			all cases the insulation would need to be a breathable product.
New boiler in new location with new flue		X	
New (first time) central heating system		X	
Reinstate window shutters (internal / external) and awnings		X	
Replace historic single-glazed windows with new double-glazed windows		X	Please contact conservation team to discuss as this could impact on historic fabric of the building
Replace modern single-glazed windows with new double-glazed windows		X	
Restoration of ill-fitting and damaged historic window and door frames (where this requires removal)		X	
Secondary glazing		X	In most cases, secondary glazing will require a bespoke and high-quality design. LBC not required if secondary glazing is simply pushed into the frame surrounds, and can be removed.
Solar PV panels		X	On listed buildings themselves, these are likely only to be acceptable in the minority of cases where they are fully obscured by parapets on large or complicated roofs or on modern extensions. It may be possible and preferable to look for opportunities to install them on outbuildings (see below) or on ground-mounted arrays, though these would likely need planning permission. Please contact conservation team to discuss as this could impact on historic fabric of the building
Solar PV panels on outbuildings		X	LBC will be needed here where the outbuildings are considered to be curtilage-listed buildings (i.e. date before 1 July 1948, are in the same

Works to reduce energy bills in listed buildings	LBC not needed	LBC needed	Comments regarding proposal
			ownership and are spatially and functionally ancillary to the main listed building). In all cases, advice should be sought from the Conservation Team.
Underfloor heating		X	
Works to modern extensions to listed buildings		X	Works to thermally upgrade modern extensions are likely to be acceptable
Works to alleviate or tackle damp problems involving injected damp-proof courses		X	Please contact conservation team to discuss as this could impact on historic fabric of the building

How does the Council make decisions affecting listed buildings?

The nature of the historic environment means councils must assess applications for retrofit or other energy-saving measures on a case-by-case basis. Listed buildings make up a tiny fraction of the total number of buildings and so there has been no change by Government to the legislation which requires us to protect what is special about them, even in the face of climate change.

We have a statutory duty to have “special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses”. This duty requires us to assess objectively the impacts of any proposals on the significance of listed buildings through national and local policy.

Where proposals will result in harm to the significance of a listed building, there are various tests which have to be met in order for the harm to be permitted. The most common is that there must be public benefits which are sufficiently substantial to outweigh the harm caused, but taking into account that ‘special regard’ (i.e. the ‘great weight’ in planning policy) to be given to protecting what is special about them.¹ This great weight rightly sets the bar high in deciding whether harm should be permitted.

Where harm occurs through, say, the installation of solar panels, the issue therefore tends to be that the addition of solar panels to one building rarely qualifies as being a public benefit of sufficient substance, though of course it might be outwardly beneficial to wider national and global aims.

Can I put solar panels on unlisted buildings in a Conservation Area?

Conservation Areas exist to manage and protect the special architectural and historic fabric of a place – the features that make it unique. Dorset has c. 180 Conservation Areas, including parts of villages and towns such as Corfe Castle, Blandford Forum, Wimborne,

¹ More information on what constitutes ‘public benefits’ can be found in the Government’s Planning Practice Guidance: <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>

Shaftesbury and Dorchester. The attractiveness of these areas is a key reason why people want to live and work in Dorset, and local authorities have a duty to protect them.

There are existing Permitted Development rights to install solar panels on unlisted buildings in Conservation Areas, provided that certain criteria are met, such as ensuring that they are not higher than the highest part of the roof or fitted to a wall that fronts a highway. Therefore, where the installation meets certain criteria, solar panels can be installed without the need for planning permission.

Can I put solar panels on the roof of my listed building?

Installing solar panels on listed buildings can have a negative impact on the special architectural interest of the building therefore the positioning of any proposal needs to be considered carefully. The setting of the building and, where relevant, the character and appearance of the Conservation Area (to which listed buildings typically contribute significantly) should also be considered.

This does not automatically mean that installing solar panels is completely out of the question. Conservation Officers have worked with owners of buildings such as the Corn Exchange in Dorchester and Durlston Castle. With careful design and sensitive siting, it has been possible to install solar panels on these Grade I and II* listed buildings without impacting their significance negatively. In addition, there could be opportunities to utilise the roofs of modern extensions.

On smaller properties, it may be possible to site solar panels on sheds or garage roofs, or to the rear of a building. Renewable energy projects and the infrastructure associated with them should aim to be reversible where possible and avoid damage both to the significance of the building and its fabric.

The possibilities very much depend on the context and each situation is assessed on a case-by-case basis.

Can I install double glazing in my listed building?

Numerous requests are received by local authorities to remove historic windows from listed buildings and replace with double glazing. There are a number of reasons why consent may not be obtained:

- Many listed buildings have historic glass which can be decades or even centuries old. This gives it a particular look and quality which is completely different from modern double glazing. Historic windows with designs following historic patterns, usually make an important contribution to the significance of historic buildings. They should be retained and repaired wherever possible.
- Upvc is rarely considered to be an acceptable solution on a listed building, due to the impact on the character and appearance of the building.

Planning inspectors have demonstrated this through recent decisions where appeals regarding double glazing have been dismissed.

A historic window that has been in position for many years has a low carbon footprint: repairs may enable it to last decades or even centuries more. In contrast, double glazing has a high carbon footprint and is likely to need replacing every 10-20 years. uPVC is not always easy to recycle. This makes it a much less cost effective and sustainable option than retaining and repairing original windows.

If maintained correctly and fitted well, a good quality timber window will far outlive the lifespan of a uPVC window and, unlike the latter, can be sourced sustainably.

In a listed building, uPVC windows may be difficult to install, given their generic sizing when considered alongside historic windows that are invariably of differing sizes.

The advice regarding historic windows will always be to repair them wherever possible, to retain any historic glass and associated heritage interest. In cases where repairs are not possible the windows should be replaced in the traditional style. Options such as secondary glazing and thick curtains can be effective at reducing heat loss, retaining the historic interest of the property and costing less than double glazing.

If I sell or rent out my listed building, do I need an Energy Performance Certificate (EPC)?

Contrary to popular belief, Listed Buildings are **not** exempt from the need to obtain an EPC.

I rent out my listed building and it has an energy rating of F or G. What should I do?

Since the 1 April 2020 [The Energy Efficiency \(Private Rented Property\) \(England and Wales\) Regulations 2015](#) have required landlords to ensure that all rented homes achieve a minimum EPC rating of at least an E. EPCs normally provide a list of the recommended improvements that can be carried out.

If your listed building has an EPC of F or G, you will need to carefully consider which recommended energy efficiency improvements can be completed, either without the need for consent or with consent, which is likely to be granted.

If no recommendations can be carried out as Listed Building Consent is not likely to be granted or permitted works have been done and the rating remains below an E, then landlords can [apply for an exemption to the regulations](#).

Landlords can also use the Council's online [Energy Rating Improver](#) service to see what they need to do to comply.

Examples of applications where energy efficiency measures have been approved

Case study 1 - Durlston Castle

Durlston Castle is a grade II listed building designed by George Crickmay in 1887 at the request of George Burt, a prominent patron in 19th century Swanage. Constructed from Purbeck Stone in castle form, the rectangular structure was originally meant to form a restaurant to an unbuilt holiday complex. The Castle is situated within the grade II listed Registered Park and Garden which is incorporated within the wider Durlston Country Park.



At Durlston Castle, a decarbonisation project included the installation of a hybrid air source heat pump solution, a roof mounted Solar PV array, and LED lighting upgrades. Given the heritage and environmental sensitivities of the site (with much of the wider Country Park falling in a SSSI), officers in the Sustainable Property Team worked closely with the Durlston Rangers Team, Planning Department and Conservation Officer to find the best solution for the building, with regards to the siting of the solar panels and air source heat pump compound.

The initial proposal for the solar PV installation was for 3 arrays to the southern and western roof planes of the listed building and on the southward facing roof plane on the modern liner extension to the rear. Due to the visually permeable arched parapet design of the Castle, installing panels on the main roofscape would have resulted in less than substantial harm to the character and appearance of the Listed Building. The principal elevation of this landmark building is in the forefront of designed views and installing solar panels in this location would also cause less than substantial harm to the setting of the Registered Park and Garden with public benefit not considered to outweigh the harm caused.

The design of the scheme was amended to install solar panels on the single storey modern extension to the rear of the Castle, and the application was approved. The photos below show the before and after views.



Siting of the air source heat pump compound presented a number of challenges, dictated by the steep terrain surrounding the building, sensitive ecology of the site (including SSSI designations) and listed nature of the buildings. Several options were investigated and following ecological survey a site adjacent to the LPG tanks away from the main building was chosen. This involved laying additional underground pipework along the main access path and bringing a new power supply from a nearby substation. The final location balanced the environmental heritage sensitivities of the site, whilst providing a workable solution from an electrical and mechanical perspective.



Left: solar panels
Above: air source heat pump
Below: completed panels



Case study 2 – renewable energy at Athelhampton House

Athelhampton Manor House is a grade I listed building, continually lived in since Saxon times and mentioned in the Domesday book. The current house was largely constructed in Tudor times and extended in Elizabethan times. The park and garden are also grade I listed.

Through careful design by SPASE design architects and surveyors, a variety of renewable energy improvements have been carried out at Athelhampton. Works have included:

- PV solar arrays outside the boundary of the listed park
- 15 air source heat pumps which heat the main house
- A ground source heat pump which provides heating for river cottage and the coach house

It is estimated that these improvements will save over 100 tonnes of carbon each year, with a payback time expected in the region of 7 years. The siting of the infrastructure associated with these works has been located to ensure it is not impacting the Listed Building or its setting.



Ground source heat pump equipment sited in a room at the back of the building



Solar photovoltaic panels and associated planting to the rear of the river cottage and outside the boundary of the listed park



Air source heat pumps at the side of a modern building



Solar photovoltaic panels situated in working yard, adjacent to compost heaps

Case Study 3 - Low Carbon Dorset

In 2018 Dorset Council secured funding from the ERDF to provide grant support and free technical advice for energy decarbonisation projects with the public sector, SMEs and community groups. The following summarises, by measure, projects on listed buildings which have been supported through Low Carbon Dorset grants:

- **Air source heat pump:** listed property at St. Mary's Church Beaminster, Athelhampton House (towards public facing part of the house only, see also case study 2), Sherborne Abbey
- **Ground source heat pump:** Kingston Maurward College, Kingston Lacy
- **Photovoltaics:** St. Mary's Church Beaminster, Blandford Forum Museum, Dorchester Corn Exchange
- **LEDs:** Upton House, Dorchester Corn Exchange, The Hyde Tennis Club Ltd, Springhead Trust (also insulation and secondary glazing), Lyme Regis Baptist Church
- **Biomass boiler:** Dorchester Corn Exchange

Further information

There is a wealth of freely available guidance on these matters, some of which are listed below and which can be downloaded from the relevant websites. These outline some of the technical aspects of energy performance of traditionally constructed buildings, but also sustainable and non-invasive ways in which this can be improved.

- [Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency \(historicengland.org.uk\)](#)
- [Energy Efficiency and Historic Buildings: Solar Electric \(Photovoltaics\) \(historicengland.org.uk\)](#)
- [Planning Responsible Retrofit of Traditional Buildings | Historic England](#) Sustainable Traditional Buildings Alliance (STBA)
- [Energy Efficiency and Traditional Homes | Historic England](#)
- [SPAB Briefing Energy efficiency.pdf](#) Society for the Protection of Ancient Buildings (SPAB)

For further information contact the Conservation team:
planningconservation@dorsetcouncil.gov.uk or ring 01305 252388

[Low Carbon Dorset](#) provides FREE technical advice to businesses and community organisations in the Dorset Council area, to help them deliver energy efficiency and renewable energy projects. They have worked with a number of organisations based in listed

buildings and conservation areas so may be able to help you decide the most appropriate options for your site.

Relevant legislation

[Planning \(Listed Buildings and Conservation Areas\) Act 1990 \(legislation.gov.uk\)](#) (s.16, 66): local authorities are to have “special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses”. An equal duty exists for Conservation Areas (s. 72).

[National Planning Policy Framework - GOV.UK \(www.gov.uk\)](#) paragraphs 199 and 200 state that “when considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation....Any harm to, or loss of, the significance of a designated heritage asset (from its alteration...) should require clear and convincing justification.”

[The Energy Efficiency \(Private Rented Property\) \(England and Wales\) Regulations 2015](#) require that rented homes achieve a minimum energy rating of E on the EPC scale. Landlords may only apply for an exemption to the regulations where a recommended improvement would unacceptably alter the character or appearance of the listed building and no other recommended works are possible.

[Conservation of fuel and power: Approved Document L - GOV.UK \(www.gov.uk\)](#) - Building regulations setting standards for energy performance in new and existing buildings