



Historic England

Energy Efficiency and Historic Buildings

Open Fires, Chimneys and Flues



This guidance note has been prepared and edited by David Pickles. It forms one of a series of thirteen guidance notes covering the thermal upgrading of building elements such as roofs, walls and floors.

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[HistoricEngland.org.uk/energyefficiency](https://www.historicengland.org.uk/energyefficiency)

Front cover:

Chimneys are often prominent and significant parts of historic buildings.

Summary

This guidance provides advice on how unused or intermittently used chimneys can be made more energy efficient by preventing draughts. Open chimneys and flues can be useful sources of ventilation but they can often let too much warm air out and cold air in. The resultant draughts can create uncomfortable conditions.

Chimneys in older buildings can develop a wide range of defects. This guidance note also discusses how to avoid introducing further defects when measures are taken to improve energy efficiency but it does not cover the diagnosis or remedy of common defects.

Chimneys are often prominent and significant parts of historic buildings and fireplaces are frequently striking and significant elements of the interior. Many chimneys were constructed in single skin brickwork and are very sensitive to alteration. Great care should be taken and specialist advice sought, before adapting or altering a chimney.

Fireplaces and chimneys are often still in use, some for open fires, some for room heating stoves, and some for central heating and hot water boilers. Many other fireplaces and chimneys are no longer needed and have been blocked up, temporarily or permanently. Whether used or unused, fireplaces and chimneys can have an important role in improving the energy efficiency of a building.

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Introduction

Energy Planning

Before contemplating measures to enhance the thermal performance of a historic building it is important to assess the building and the way it is used in order to understand:

- the heritage values (significance) of the building
- the construction and condition of the building fabric and building services
- the existing hygrothermal behaviour of the building
- the likely effectiveness and value for money of measures to improve energy performance
- the impact of the measures on significance
- the technical risks associated with the measures

This will help to identify the measures best suited to an individual building or household, taking behaviour into consideration as well as the building envelope and services.

Technical Risks

Altering the thermal performance of older buildings is not without risks. The most significant risk is that of creating condensation which can be on the surface of a building component or between layers of the building fabric, which is referred to as ‘interstitial condensation’. Condensation can give rise to mould forming and potential health problems for occupants. It can also damage the building fabric through decay. Avoiding the risk of condensation can be complex as a wide range of variables come into play.

Where advice is given in this series of guidance notes on adding insulation into existing permeable construction, we generally consider that insulation which has hygroscopic properties is used as this offers a beneficial ‘buffering’ effect during fluctuations in temperature and vapour pressure, thus reducing the risk of surface and interstitial condensation occurring. However, high levels of humidity can still pose problems even when the insulation is hygroscopic. Insulation materials with low permeability are not entirely incompatible with older construction but careful thought needs to be given to reducing levels of water vapour moving through such construction either by means of effectively ventilated cavities or through vapour control layers.

The movement of water vapour through parts of the construction is a key issue when considering thermal upgrading, but many other factors need to be considered to arrive at an optimum solution such as heating regimes and the orientation and exposure of the particular building.

More research is needed to help us fully understand the passage of moisture through buildings and how certain forms of construction and materials can mitigate these risks. For older buildings there is no 'one size fits all' solution, each building needs to be considered and an optimum solution devised.

Technical Details

The technical drawings included in this guidance document are diagrammatic only and are used to illustrate general principles. They are not intended to be used as drawings for purposes of construction.

Older buildings need to be evaluated individually to assess the most suitable form of construction based on a wide variety of possible variables.

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1 Developments in Chimney Design

Chimneys were not widely used in domestic buildings until brick became available in the late medieval period. Before this, most dwellings used open hearths, with one large fire typically located in the centre of the building for both heating and cooking. The smoke would billow around the inside of the building before escaping through gaps or simple louvres in the roof.

Some early chimneys were constructed of timber framing with a wattle and daub infill known as 'smoke hoods'. If they are found in-situ or even in use they are important and rare survivals of historic fabric which should be conserved.

Smoke hoods are often not recognised because a later chimney with fireplace has been inserted at low level and a brick or stone stack added above the roof.

The earliest brick chimneys were built over open hearths. Wood consumption was high as most of the heat went up the chimney with the smoke, while cold air was sucked in from the outside through the leaky building fabric.

As comfort standards improved and buildings became more subdivided, smaller fireplaces were required in more areas of the building. This trend



Figure 1 (above)
Fireplace in the first floor bedchamber at Castle Acre Priory.

Figure 2 (right)
Fireplace in the solar at Stokesay Castle with 17th century carved overmantel.





Figure 3 (above)
An 18th century cast iron grate in a fireplace at the Great Yarmouth Row Houses.

Figure 4 (right)
An inter-war fireplace at Eltham Palace.



was aided by the growing availability of coal in the 17th and 18th centuries, especially in urban areas. Coal burns more efficiently than wood, providing more heat from a smaller fire. Coal fires benefit from being in a grate that allows more oxygen to reach the burning coal.

In the 18th century the writings of Count Rumford, founder of the Royal Institution, greatly influenced the basic design principles of chimneys and fireplaces. The desire for improved efficiency provided the impetus for filling in many earlier inglenook fireplaces.

As fireplaces became smaller and more efficient, so did chimneys. In the 18th and 19th centuries they became more complex, often combining several flues, each serving a separate fire. The divider between flues within one chimneystack is called a *withe*. *Withes* were often slender, sometimes a single thickness of brick laid on edge, sometimes thin cut stones or occasionally a single layer of slate. This makes them vulnerable to damage when a chimney is swept, particularly at bends and other complex flue configurations.

Most brick flues are lined to prevent gases escaping through joints and cracks. The traditional method of lining chimney flues was to apply a mix of lime putty and fresh cow dung, known as 'parge' as the chimney was built. Parging continued to be common until the 1965 Building Regulations introduced a requirement for all new flues to be built with a liner during construction. During the 1960s the most commonly used flue liner was clay pipes, though with further tightening of the regulations, concrete and metallic flue liners took over.

Chimney pots did not come into common use until the 17th century and early 18th century. Most pots seen today usually date from the 19th century or later.

The fabric of chimneys in historic buildings and debris that accumulates in disused chimneys can be of archaeological importance. Care should be taken not to lose historic fabric during the opening up of old flues or during the process of making alterations to flues in historic buildings. Listed Building Consent may also be required.

2 Chimneys in Use

2.1 Building Regulations

Any installation of a heating appliance, or modification to a chimney such as re-lining, has to be carried out in accordance with the Building Regulations (Approved Document J) which gives detailed advice on this type of work. There is also a requirement that Building Control consent is obtained unless the work is carried out by someone registered with a 'competent person's scheme'.



Figure 5
Chimneys are often prominent and significant parts of historic buildings.
© Oxley Conservation.

Competent persons' include the following:

- Installation of a heat producing gas appliance

A person or an employee of a person, who is a member of a class of persons approved in accordance with Regulation 3 of the Gas Safety (Installation and Use) Regulations 1998 (SI 1998/2451), that is 'The Gas Safety Register'.

- Installation of an oil fired combustion appliance

A person registered by Ascertiva Group Ltd, Association of Plumbing and Heating Contractors (Certification) Ltd, Benchmark Certification Ltd, Building Engineering Services Accreditation Ltd, ECA Certification Ltd, HETAS Ltd, NAPIT Registration Ltd or Oil Firing Technical Association Ltd.

- Installation of a solid fuel burning combustion appliance

A person registered by Ascertiva Group Ltd, Association of Plumbing and Heating Contractors (Certification) Ltd, Benchmark Certification Ltd, Building Engineering Services Accreditation Ltd, ECA Certification Ltd, HETAS Ltd or NAPIT Registration Ltd.

Smoke test procedure (from BS 6461: Part 1)

If there is an appliance fitted at the base of the chimney burn some newspaper in the fire/grate for 2/3 minutes to establish a flue draw. A longer warming up time may be needed with wet or cold flues (please note that this will not replicate the temperatures or volume of hot gases that would normally be created whilst a heat generating source is in use but this is still useful).

Place two smoke pellets on a brick (or similar) in the opening at the base of the flue or in the appliance if one is fitted. Follow the pellet manufacturer's safety instructions.

Ignite the pellets and when they start smoking seal the opening with a board or plate sealed at the edges or if an appliance is fitted, close all doors, ash pit covers and vents.

When smoke begins rising out of the top of the chimney, seal the top of the flue, terminal or pot (use an inflated football bladder or plastic bag sealed in position with tape).

Examine the full length of the chimney for any leakage of smoke (include, where relevant, any cavities at the back or around the chimney, roof space and around windows).

Remedy any points of leakage using technically and aesthetically appropriate materials and repeat the test (remember to remove the bottom and top closers upon completion of the test).

For gas fired appliances BS 5440-1 contains a flue flow and spillage test.



Figure 6
Care should be taken and specialist advice sought before adapting or altering chimneys.

2.2 Re-using old chimneys

It may be possible to re-use an old chimney for solid fuel, oil or gas fires or stoves, depending on the desired aesthetic and functional requirements and the nature and condition of the chimney. Whatever fuel is used the installation should be carried out in accordance with Building Regulations and British or European Standards appropriate for the appliance selected. It is essential to establish that the chimney is safe to use.

Before returning an old chimney to use, its condition should be checked thoroughly including that of any withes. If a visual examination is not possible the use of a borescope or CCTV should be considered. Even if the flue is to be lined, ensure that any necessary repairs are made before the liner is inserted. Finally the chimney should be tested according to the fuel used.

If there are any concerns about the structural integrity or water-tightness of a chimney, a structural engineer, surveyor or architect should be retained to investigate. The disturbance caused by the insertion of a flue liner and the stresses caused by the heating and cooling cycles can exacerbate any existing problems. A survey is particularly important if the chimney is to be reused for an open fire without a lining; the stack will be subject to greater heating and cooling cycles and to chemical attack from compounds in the smoke.

Any fossil fuel-fired fire or stove, new or existing, needs ventilation to feed combustion. Check carefully as draught-proofing measures and other works may have reduced the air supply available for the fire. With insufficient ventilation, the chimney may not 'draw' properly and smoke and/or invisible odorless carbon monoxide may spill out into the room. Carbon monoxide detectors may be installed to warn against the build-up of this toxic gas but care is needed to position and maintain them –consult the manufacturer's instructions or seek expert advice.

In some properties, large fireplaces have been partially blocked to install smaller more efficient ones. There is often a desire to open up the fireplace, particularly where large 'inglenooks' may be present. Before doing such works an assessment should be made of the historical value of later insertions or alterations. For listed buildings the local planning authority should be consulted, as consent is likely to be required. Take care when exposing an early fireplace as it is easy to destroy historic detail, such as decorative paint schemes.

Large fireplaces often have chimneys which are too large for modern needs. If so, a register plate can be installed- to reduce the size of opening at the base of the chimney flue. This is normally a horizontal fireproof (metallic) plate with a central opening to allow the fire to be used and to which a flue liner can be connected above. Sometimes a hood is attached to the underside of the register plate to guide smoke from a large hearth into the flue. Register plates above open fires (other than gas effect fires) should be provided with dampers (see below). Disused fireplaces may be fitted with a register plate with no opening, or with small holes to provide any necessary ventilation.

2.3 Open fires

Open solid fuel fires are the most traditional method to heat old buildings, but they are much less efficient than a solid fuel stove. Whilst open fires tend to produce lower flue gas temperatures, liners are advisable to safely conduct the flue gases to outside. Liners are essential for chimneys in poor or uncertain condition, or if there are problems of contamination in the flue.

Solid fuel open fires use three main types of fuel:

- Wood
- Bituminous house coal
- Smokeless fuels (either natural anthracites or manufactured smokeless brickettes)

Smoke control legislation

The Clean Air Act of 1956 gave local authorities the ability to declare smoke control areas. In those areas it is an offence to emit any smoke from a domestic chimney, except for the very small amounts from burning authorised 'smokeless' fuels.

There is an exemption for appliances approved as being able to burn bituminous coal and/or wood without creating smoke.

For further information about:

- smoke control legislation
- smoke control areas
- authorised fuels, and
- exempted appliances

or to check whether a particular building is within a smoke control area contact the local authority or visit smokecontrol.defra.gov.uk/index.php.

Wood has the lowest carbon emissions of the fuels but burns least efficiently and is not suitable for use in smoke control areas (unless used in a stove that has an exemption). House coal is inexpensive but is also unsuitable for use in smoke control areas. Smokeless fuels can be burned in any location and burn more efficiently than either house coal or wood.

Logs are the most common form of wood fuel for open fires. These will usually come from local sources and can be bought from a variety of outlets such as coal merchants, farmers and timber yards. Logs need to be dry and seasoned for at least one year or more for certain timbers. Wet or unseasoned wood not only burns less efficiently, but can cause a harmful build-up of deposits in the chimney in a very short time.

The resulting thick coatings of creosote or resinous material can cause chimney fires, prevent the chimney functioning properly and introduce contaminants that can seep through the walls and discolour decorations.

Open fires may be simulated by decorative fuel effect gas fires. These remove the need to buy and store wood or coals but they do require a gas supply, typically from either from a natural gas mains supply or a local LPG (liquid petroleum gas) tank or bottle. They are also very inefficient – typically 20% to 40% efficient, compared to over 90% efficiency for a condensing gas boiler.

Types of firewood

Historically the knowledge of timbers for fires was well known and a number of well-known rhymes describe the virtues of various species when used as a fuel.

Beechwood fire burns bright and clear,
If the logs are kept a year.
Store your beech for Christmastide,
With New Year holly cut beside.
Chesnut only good, they say,
If for years 'tis stored away.
Birch and firewood burn too fast,
Blaze too bright and do not last.
Flames from larch will shoot up high,
Dangerously the sparks will fly,
But ashwood green and ashwood brown
Are fit for a queen with a golden crown.
Oaken logs, if dry and old,
Keep away the winter cold.
Poplar gives a bitter smoke,
Fills your eyes and makes you choke.
Elmwood burns like a churchyard mould,
E'en the very flames are cold.
Hawthorn bakes the sweetest bread,
So it is in Ireland said.
Applewood will scent the room,
Pearwood smells like flowers in bloom.
But ashwood wet and ashwood dry
A king may warm his slippers by.

2.4 Dampers

A chimney for an open fire will be a cause significant draughts when it is not in use. A good remedy for this is to fit a damper, which can be installed either in the throat of the chimney, the flue or at the top of the chimney. The best types are easily opened and closed using a handle that also indicates the position of the damper flap. Dampers should not block all the air entering the chimney as a small permanent flow is necessary to ventilate the flue when it is not in use. If a gas appliance is to be used any damper must be fixed in the permanently open position.



Figure 7
Cast iron fireplaces such as this one often incorporated built in dampers to restrict draughts when the fireplace was not in use.

2.5 Flue sizing

The smallest recommended flue size for an open flue solid fuel fire with an opening of 500mm x 500mm is a round flue of 200mm diameter, or rectangular section of 175mm. This may have to be increased if the chimney is less than 5 metres high or if there are bends in the flue. For a larger open fire the cross section area of the flue should be at least 15% of area of the fire opening (width x height). Details of flue sizing for all fuels are given in the Building Regulations (Approved Document J).



Figure 8
Stoves burn fuel much more efficiently than open fires and cause fewer draughts.

2.6 Room heaters and stoves

A 'room heater', an enclosed appliance in which fuels are burnt, can be a suitable alternative to an open fire in traditional buildings. A wide range of designs are available. They burn fuel much more efficiently than open fires and cause fewer draughts. Often they can burn wood logs, scraps, chips and pellets, which can help to reduce carbon dioxide emissions. Gas fired versions are also available.

Heat radiates from the casing and through a glass front and by convection from air passing around or through the appliance. Some room heaters are recessed or semi-recessed into a wall, often in an existing fireplace; others are freestanding away from the wall. Some recessed models have back boilers which can supply hot water or central heating. Freestanding stoves are types of room heater. Certain room heaters are certified as being able to burn wood and coal without creating smoke, allowing wood to be burned in smoke control areas.

Room heaters or stoves must be installed by a 'competent person'; for example, an engineer registered with HETAS for solid fuel, OFTEC for oil or Gas Safe for gas. The flue gas temperatures from a room heater can be significantly more than from an open fire so care is needed to reduce the risk of fire or heat damage. A flue liner will always be required, and if a flexible metal liner is used it should be double skinned. Some chimneys may not be capable of accommodating an adequate liner and so will be unsuitable for a room heater.

2.7 Boilers

An old chimney is often a good place to run the flue from a new energy efficient boiler fired by solid fuel, oil or gas. However, some modern boilers have relatively cool exhaust gases that may not be able to rise up some chimneys, particularly tall ones. Such boilers are now available with flues that can vent the exhaust gases horizontally through the wall of the building. Sometimes these flues can be run for a short distance up a disused chimney before venting to the outside in a more convenient and perhaps less conspicuous position.

Fitting a boiler to an existing flue will normally require the insertion of a flue liner. It is important that this should be selected and installed by a competent certified professional to the standards set out in the European Standards for flues. A flexible corrosion-resistant metal liner is lowered down the flue in a continuous length.

2.8 Fitting flue liners

Not all chimneys are capable of accepting a new flue liner. Flues in traditional buildings are sometimes narrow, contorted or distorted by structural movement over the years. Attempting to force a flexible metal flue liner down such chimneys will not always be successful and risks damaging historic fabric. Flexible metal liners also do not have a long life and will need to be inspected and replaced when necessary. The space between the original flue and the new flue liner should be ventilated top and bottom. Flue liners that require backfilling between the liner and the chimney should be avoided in traditional buildings.

2.9 Sweeping chimneys

Chimneys in use should be swept regularly. This will help reduce the risk of poisonous gases spilling into occupied rooms, help prevent chimney fires and enhance the operation of the flue. The National Association of Chimney Sweeps recommends the following:

- Smokeless Fuels > At least once a year
- Bituminous Coal > At least twice a year
- Wood > Quarterly (when in use)
- Oil > Once a year
- Gas > Once a year

All gas appliances including the flues should be checked for safety at least every twelve months by a Gas Safe-registered installer. It is a requirement that landlords letting property should have all gas appliances and flues checked annually.

2.10 Thatch

Great care is required when using combustion appliances and chimneys in thatched buildings. If in any doubt, consult the local fire prevention officer. The risks of the thatch catching fire can be minimised with careful maintenance. Evidence from the Hampshire Fire and Rescue Service suggests that 90 per cent of thatch fires are caused by faults in the flue or chimney, not by flying sparks. The National Society of Master Thatchers considers that a major cause of fire in thatched buildings is the build-up of thatch to thicknesses in excess of one metre as a result of repeated over-thatching. This provides better insulation to the chimney and can raise the temperature of the thatch near the chimney to levels at which fires can ignite. This risk is greatest in chimneys positioned centrally in the roof, and is exacerbated by the use of multi-fuel stoves with very hot flue gasses, and inappropriate flue liners.

The most important fire preventing measures are therefore to:

- avoid excessive build-up of thatch thickness around chimneys in use
- be especially cautious about installing multi-fuel stoves in thatched buildings
- ensure that the pointing and brickwork of the chimney stack are in good condition (repairs are most easily carried out during re-thatching)
- fit flue liners
- sweep chimneys frequently

Spark arresters at the top of chimneys can provide some extra protection, but only if they are cleaned and maintained regularly. If maintenance is neglected, as it often is, the spark arrester may itself add to the risk.

For information about improving the energy efficiency of thatched buildings see the guidance note [Insulating Thatched Roofs](#) in this series.

3 Disused Flues

3.1 Alternatives for disused flues

Traditional buildings need ventilation to help the fabric 'breathe'. When in use, the chimney and the fire beneath would have contributed greatly to the ventilation rate, so it is sometimes thought that chimneys need to be left open to allow continuing ventilation. In most traditional buildings the

sources of air for combustion, plus other gaps in the fabric are sufficient for the interior fabric to perform properly. A disused flue if left fully open will often add unnecessarily to draughts and heat loss. If uncapped, it can also let water in leading to damp and staining. If the building is thought to be particularly airtight, perhaps shown by condensation or mould growth in other rooms,

Dampness in chimneys

Dampness in chimneys may be caused by water penetration down open flues, water penetration through the walls of the chimney or as a result of condensation within blocked or partly blocked flues.

Chimneys tend to have slender walls which make them vulnerable to water penetration in exposed locations. Particularly vulnerable are side stacks and chimneys with offsets.

Water penetration may also be attributable to the deterioration of the fabric (cracks, worn pointing), the lack of effective flaunching or a damp proof barrier, or the use of inappropriate materials (cement based pointing or renders).

In view of the slenderness of the masonry the problems cannot always be eliminated. However, using lime based mortars for pointing and rendering (both internally and externally) can significantly reduce the impact of water penetration.

Chimneys are particularly prone to deterioration in the area immediately at and below the level of the roof covering. This may occur as a result of moisture within the upper exposed part of the stack being drawn down towards the protected (drier) area and evaporating, causing salt deposition and deterioration of the upper part of the protected section of chimney. It is therefore important to regularly inspect this part of the chimney. In thatched buildings, the area concealed can be large, so it is essential to check chimney stacks during patching/re-thatching work and to remedy any defects in brickwork, masonry and pointing.

Staining on the internal face of an old chimney is usually caused by condensation inside disused or rarely used flues that are inadequately ventilated. The moisture is absorbed by the masonry, carrying with it sooty tar deposits which then appear on the face of the plasterwork as an unattractive brown stain.

then a fan pressurisation test can be used to determine to what extent the flue should be left open.

A disused flue still needs some residual ventilation to help keep it dry. Chimneys are prone to water penetration, being very exposed to the weather and often having thin brick skins. Combustion by-product deposits in the flue can also take water out of the air and not only dampen the fabric but lead to unsightly staining on interior decorations.

3.2 Caps

A ventilated cap at the top of a chimney will prevent water ingress but allow through ventilation. Clay, metal and plastic caps are available – since the caps are very prominent choosing one with a good appearance is important. Caps are subject to large wind forces and so must be attached firmly. They can cause considerable damage and be very dangerous if they blow off.

Installing a cap provides the best ventilation for the disused chimney, with ample fresh air moving up its entire length which is relatively straightforward to achieve. The disadvantage is that in most cases the inner face of the chimney breast will be made of a thin brick layer, creating a cold bridge to the interior.

3.3 Venting internally

The disused chimney is sealed from the outside by a hard capping at the top and the flue is vented both at the base and at a high level in the upper floor. Through-ventilation is provided by warm internal air.

Internal ventilation is most often used when the chimney stack above roof level has been in poor condition and has had to be dismantled. It is less suitable where the chimney stack is still in place, as the upper portion lacking ventilation can become damp. There may also be problems with

chimneys on outside walls as condensation from moist air from indoors can form on the cold outer skin. If the flue is sooty, ventilating it internally can lead to unpleasant smells.

Finally, thought should also be given to the possibility of fire and smoke passing up through the disused flue from lower to upper floors in buildings with fire compartmentalisation. This may not be acceptable and in other buildings it would be sensible to at least fit a smoke detector by the upper vent.

3.4 Internal to external ventilation

The base of the flue is partially blocked to restrict airflow. This could be achieved by inserting a balloon closing an existing damper or by installing a register plate with ventilation holes. Alternatively, the fireplace could be blocked by a panel at its opening with a vent inserted in the panel.

3.5 Balloons

A flue balloon is the quickest way to close the base of a flue that is not being used. These thick plastic balloons are available in various sizes and are normally inflated by a foot pump. Take care not to block the base of the flue completely.

Balloons are less appropriate for occasionally-used flues. Removing and reinstalling them can be awkward and dirty and they will melt if left in place accidentally. A better solution is a damper, although these are costlier and more disruptive.

A balloon and cap is the simplest solution. However, some warm air will continue to be lost up the flue and draughts and wind noise will not be completely eliminated. There may also be a risk of condensation inside the flue when it is cold and when warm moist air from inside the building flows through it. This means that internal to external ventilation is best suited to internal chimneys rather than those on the outside walls of buildings.

3.6 Retention of chimneys, stacks and pots

Chimneys can be key features that contribute to the significance and character of historic buildings. They may also fulfill structural functions. In listed buildings, consent is needed to remove chimney pots and dismantle chimney stacks. In conservation areas, chimneys are also frequently subject to planning controls.

Removing internal chimney breasts is best avoided if at all possible. Such work would need structural engineering advice and Building Control approval and if the building is listed, Listed Building Consent.

Condensation

All air contains some water vapour, but warm air can hold more water vapour than cold air. When warm, damp air is cooled it will reach a temperature – the ‘dew point’ – at which it can no longer hold all the vapour in it and some will condense out.

Warm damp air passing over a cold surface will be cooled locally below the dew point and condensation will take place. This effect causes the familiar condensation on the inside of cold windows.

3.7 Using chimneys for ventilation

If a disused flue is vented from inside to outside it can provide useful ‘trickle’ ventilation, for example in rooms with well-fitting windows that allow only limited air infiltration. If a suitable flue runs past, extra vents can even be provided for rooms that did not originally have fireplaces.

Disused flues can also house ducts from extractor fans from kitchens and bathrooms running to a discreet airbrick on the back of a disused flue. This can often provide a less intrusive solution than a cowl projecting through a roof line or a vent through a façade.

When venting extractors into a chimney, make sure that an air duct runs the full distance along the flue and is sealed around the point of discharge, for example the air brick. Otherwise, moist air venting into the flue could condense, causing damp and staining problems.

3.8 Maintaining disused flues

All disused flues require regular maintenance. The greatest risk is from bird nests or other debris entering the chimney from above, or from building debris (old parging or broken withes) from the flues themselves. Either form of debris can block flues in unexpected places, leading to damp, smells, staining and other problems. The simplest way to check for and clear such debris is to have the disused flues swept.

4 Where to Get Advice

This guidance forms part of a series of thirteen documents which are listed below, providing advice on the principles, risks, materials and methods for improving the energy efficiency of various building elements such as roofs, walls and floors in older buildings.

This series forms part of a wider comprehensive suite of guidance providing good practice advice on adaptation to reduce energy use and the application and likely impact of carbon legislation on older buildings.

The complete series of guidance is available to download from the Historic England website:
[HistoricEngland.org.uk/energyefficiency](https://historicengland.org.uk/energyefficiency)

Roofs

- *Insulating pitched roofs at rafter level*
- *Insulating pitched roofs at ceiling level*
- *Insulating flat roofs*
- *Insulating thatched roofs*
- *Open fires, chimneys and flues*
- *Insulating dormer windows*

Walls

- *Insulating timber-framed walls*
- *Insulating solid walls*
- *Insulating early cavity walls*

Windows and doors

- *Draught-proofing windows and doors*
- *Secondary glazing for windows*

Floors

- *Insulating suspended timber floors*
- *Insulating solid ground floors*

For information on consents and regulations for energy improvement work see historicengland.org.uk/advice/your-home/saving-energy/consent-regulations/

4.1 Useful organisations

BFCMA
(British Flue and Chimney Manufacturers Association)
2 Waltham Courtw
Milley Lane
Hare Hatch
Reading
Berkshire RG10 9TH
United Kingdom
Tel: + 44 (0)118 940 3416
E-mail: bfcma@feta.co.uk

HETAS
(Heating Equipment Testing and Approval Scheme)
Orchard Business Centre
Stoke Orchard
Gloucestershire GL52 7RZ
Tel: 0845 634 5626
www.hetas.co.uk

OFTEC
(The Oil Firing Technical Association)
Foxwood House
Dobbs Lane
Kesgrave
Ipswich IP5 2QQ
Tel: 0845 65 85 0800
www.oftec.org

NACS
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