

HERITAGE LINCOLNSHIRE



# A Beginner's Guide: Understanding Historic Buildings

---

---

# THE CARRINGTON TOWNSCAPE HERITAGE PROJECT

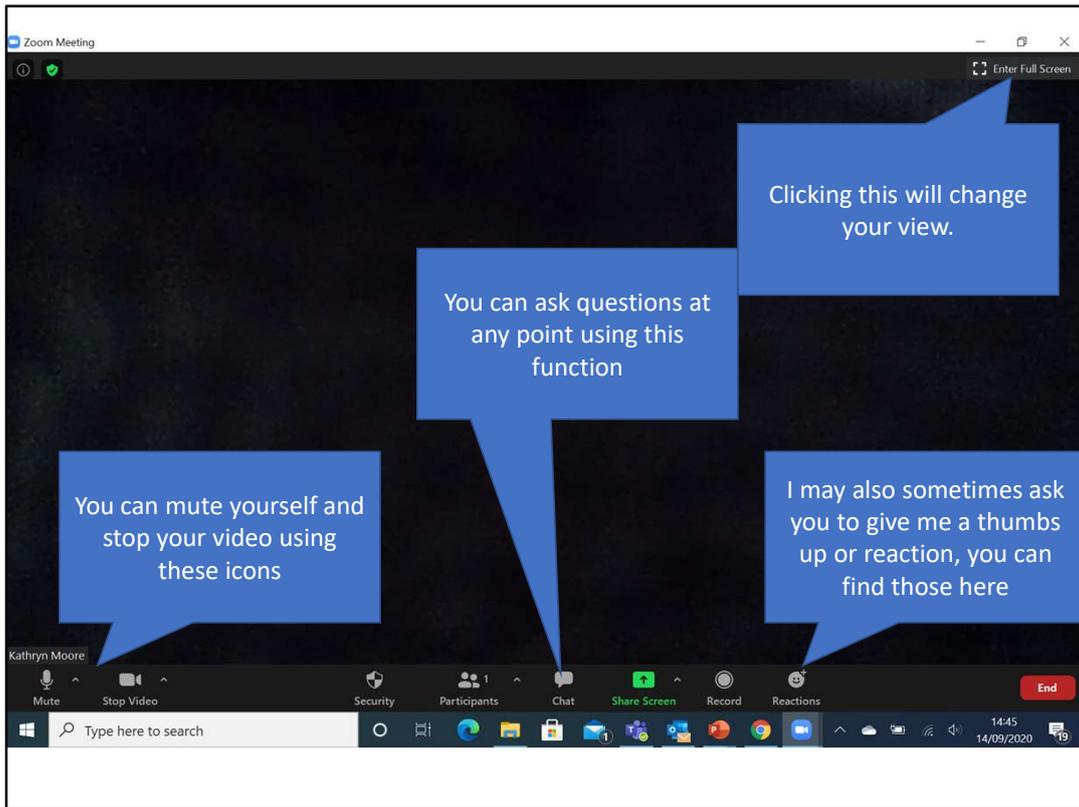


Made possible with  
Heritage  
Fund



Nottingham  
City Council





Default on mute so that everyone can hear well. Also happy for people to stop their videos at any point.

If you can't see me try the view change

Reactions – especially if your camera is off.

Chat function – ask questions as we go. I'll keep an eye on them and answer at the end of a slide/topic or at the end if more appropriate.

## **Welcome**

Aims of this Session

What is an historic building and how are they protected?

## **Break**

How do historic buildings work differently from modern buildings?

Appropriate materials for traditional buildings

## **Lunch**

What can go wrong with traditional buildings?

Spot the fault game

Dealing with planning and conservation

Case studies from me - and you!

Evaluation and close

HERITAGE LINCOLNSHIRE



Health and safety – screen time & breaks

*By the end of the session you will be able to:*

1. Understand what designations apply to historic buildings and how to interact with conservation professionals
2. Describe what an historic building is, how it is constructed and its functions.
3. Identify key traditional materials and what makes them appropriate for historic buildings, and which key modern materials are inappropriate for historic buildings
4. Identify common faults that occur in historic materials and their main causes.

HERITAGE LINCOLNSHIRE

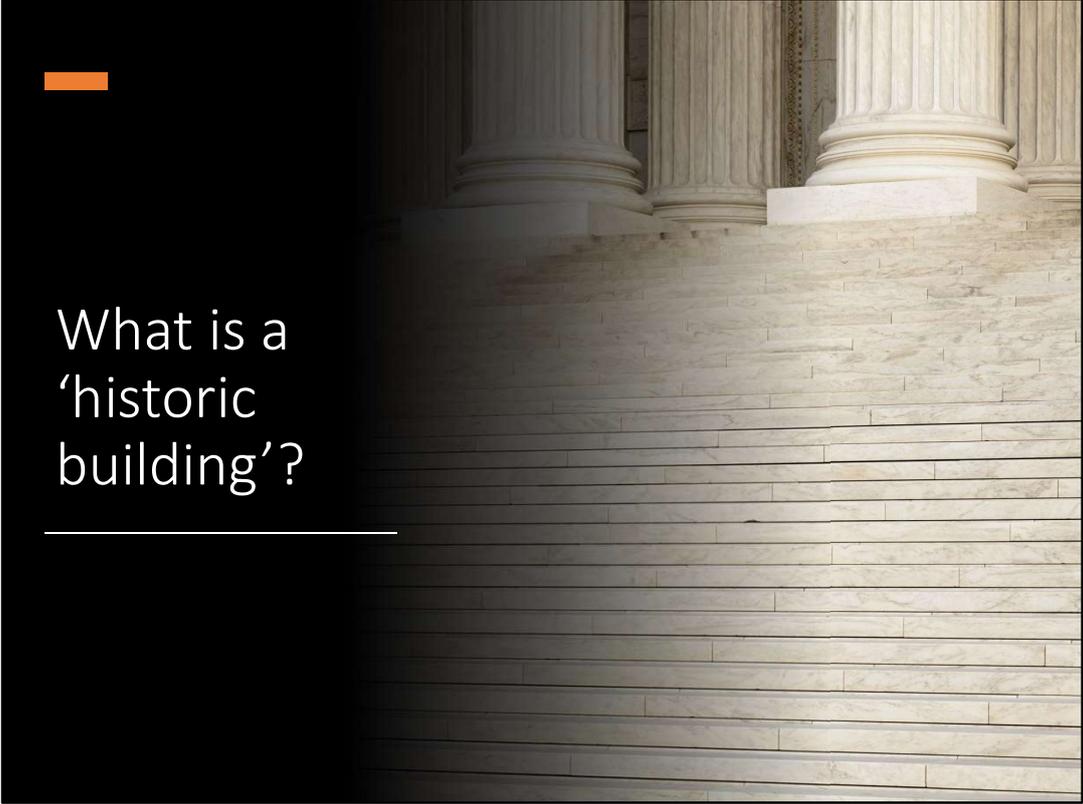


# Charlotte

Sites Manager & Heritage  
Open Days Co-Ordinator,  
Heritage Lincolnshire

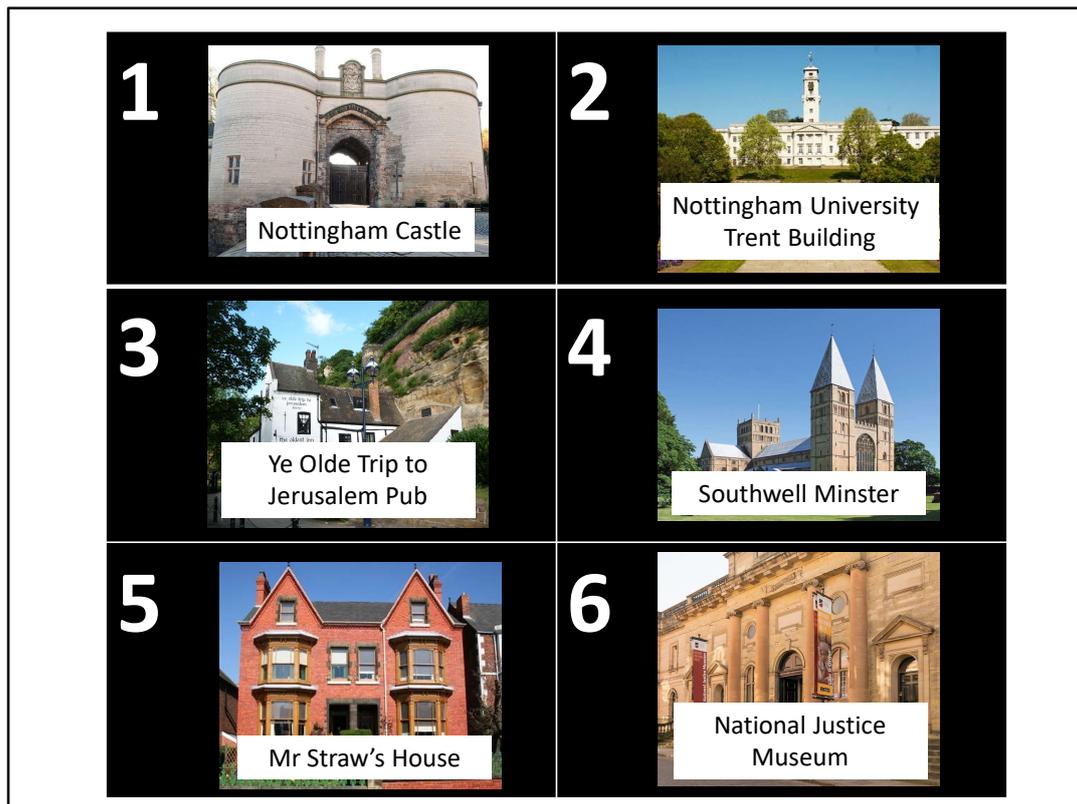


Me intro – not an architectural historian etc. Member



What is a  
'historic  
building'?

---



What do you think of when I say 'historic building'?

4, 1, 3, 6, 5, 2

Southwell Minster: Site is over 900 years old. Saxon era Church, but known today for its spectacular Charter House which dates back to 13<sup>th</sup> Century.

Nottingham Castle: Original structures dating from 1068 – 1330. In 1831, the Castle was aglow with flames, as rioters torched it following the Duke of Newcastle's vote against extending the right to vote. The charred remains were left for half a century before creativity blossomed, and an art gallery rose from the ashes.

Old Trip to Jerusalem: Claims to date back to 1189AD but the current structure we have today is mid 17<sup>th</sup> Century

National Justice Museum: Former courthouse which dates back to 15<sup>th</sup> Century, but the building we see today is mostly 18<sup>th</sup> Century

Mr Straw's House: Built in 1905 and home to the Straw family. It was left to the National Trust along with a collection of over 30,000 period items and is used to recreate Edwardian life.

Nottingham Trent Building: Built in 1928

For purposes of today when we talk about historic buildings – pre-1919 traditionally constructed. C. 5 million buildings in England c. 20% buildings and poss up to 40% of dwellings

Not just individual buildings! Like the castle, many buildings may be made up of several different materials and have rooms or parts which are different in age. For instance, your house may be Victorian, but your conservatory is probably not.

What  
designations  
apply to  
historic  
buildings?



## The Historic England List

What is it?

<b>Building</b>	<b>Ruin/Historic Site</b>	<b>Other</b>
Grade I	Scheduled Monuments	Registered Parks
Grade II*	Registered Battlefields	Registered Gardens
Grade II		Protected Wreck Sites
<b>Other:</b>	Conservation Areas	

Why does it exist?

What does this mean for the public?

### What is it?

Listing is the term given to the practice of listing buildings, scheduling monuments, registering parks, gardens and battlefields, and protecting wreck sites. Listing allows us to highlight what is significant about a building or site, and helps to make sure that any future changes to it do not result in the loss of its significance.

### Buildings:

In brief, the following buildings are normally listed:

Pre - 1700 which survive in anything like their original condition. Most buildings of about 1700 to 1840.

Between 1840 and 1914 only buildings of definite quality and character are listed.

Between 1914 and 1939, selected buildings of high quality/particular e.g.s only are listed.

Buildings less than thirty years old are normally only listed if they are of outstanding quality and under threat. Buildings less than ten years old are not listed.

Grade I: Grade I buildings are of exceptional interest, only 2.5% of listed buildings are Grade I

Grade II\*: Grade II\* buildings are particularly important buildings of more than special interest; 5.8% of listed buildings are Grade II\*

Grade II: Grade II buildings are of special interest; 91.7% of all listed buildings are in this class and it is the most likely grade of listing for a home owner.

## **Ruins/Historic Sites**

Scheduled monuments are nationally important, they can be: Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. They cannot be ecclesiastical sites in use or dwellings (with exceptions of caretakers). Scheduling trumps listing.

Historic England's Register of Historic Battlefields identifies 47 important English battlefields. Its purpose is to offer them protection through the planning system, and to promote a better understanding of their significance and public enjoyment.

### **Other:**

The Parks and Gardens Register predominantly covers gardens, grounds and other planned open spaces, such as town squares. The majority of sites registered are, or started life as, the grounds of private houses, but public parks and cemeteries form important categories too. Even hospital landscapes and two pumping stations are included, because they have skilfully-planned surroundings reflecting the landscaping fashions of their day. The emphasis of the Register is on 'designed' landscapes, rather than on planting or botanical importance.

The Protection of Wrecks Act 1973 allows the Secretary of State to designate a restricted area around a wreck to prevent uncontrolled interference. These protected areas are likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance.

### **Conservation Areas:**

Conservation areas are generally administered by the Local Authority, with little involvement from Historic England beyond recording their designation. These are whole areas of special architectural interest and the designation gives local authorities control over the demolition of unlisted buildings & any works that may effect the special character, such as new windows.

### **Why does it exist?**

In short, it is to protect heritage from damage, removal and/or interference. It gives historic buildings, sites and areas legal protection. Developers can and will be taken to court for unapproved modifications to a protected site, and are often forced to put it back as was. It also serves as a resource for the public as all designated sites are contained on Historic England's List and information on them can easily be looked up from their website.

### **What does this mean for the public?**

On the one hand, it means that historic sites can be protected for future generations to enjoy and learn from, but there are some things to think about. Many people live and/or work in listed buildings, or in buildings based in a conservation area. It is highly recommended that those that do, familiarise themselves with the responsibilities which come with occupying a designated building or site, because of the legal ramifications involved. It's not something to be afraid of, however ignorance is not an excuse if a legal challenge does occur. Listed buildings, or Conservation Areas require consent before some works can be undertaken. For low level designations, it is often much less rigorous, but Scheduled Monuments for example, require consent for any work beyond basic maintenance, including repairs.

Listing essentially means there will be extra control over what changes can be made to a building's interior and exterior. Owners will need to apply for [Listed Building Consent](#) for most types of work that affect the 'special architectural or historic interest' of their home. For Listed Buildings and Conservation Areas, this usually goes through the Local Authority's Conservation Officer or Planning Department.



**Break  
10 Minutes**

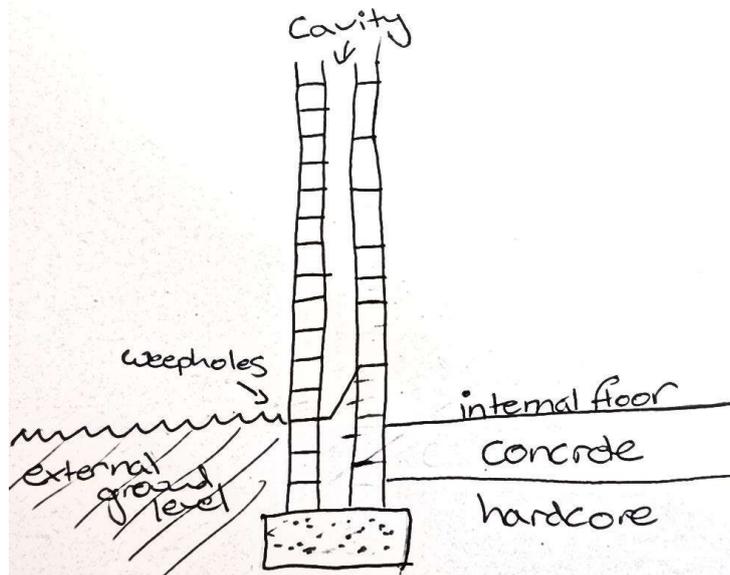
HERITAGE LINCOLNSHIRE



How is a historic building constructed and how does it differ from modern buildings?



Post 1919



HERITAGE LINCOLNSHIRE



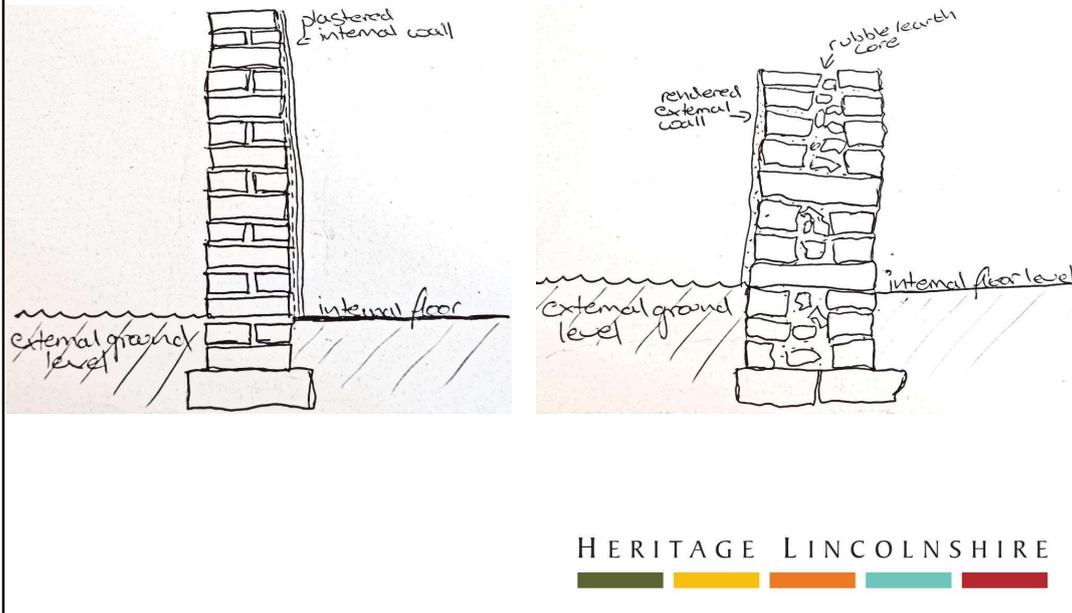
Modern buildings are generally built like this.

Cavity walls are used to help with insulation, and modern building materials are used which are both strong and efficient when used together.

Weepholes are put in to allow moisture to escape the house, discouraging damp. Floors are also built in three levels, with hardcore topped with concrete and then the actual internal floor.

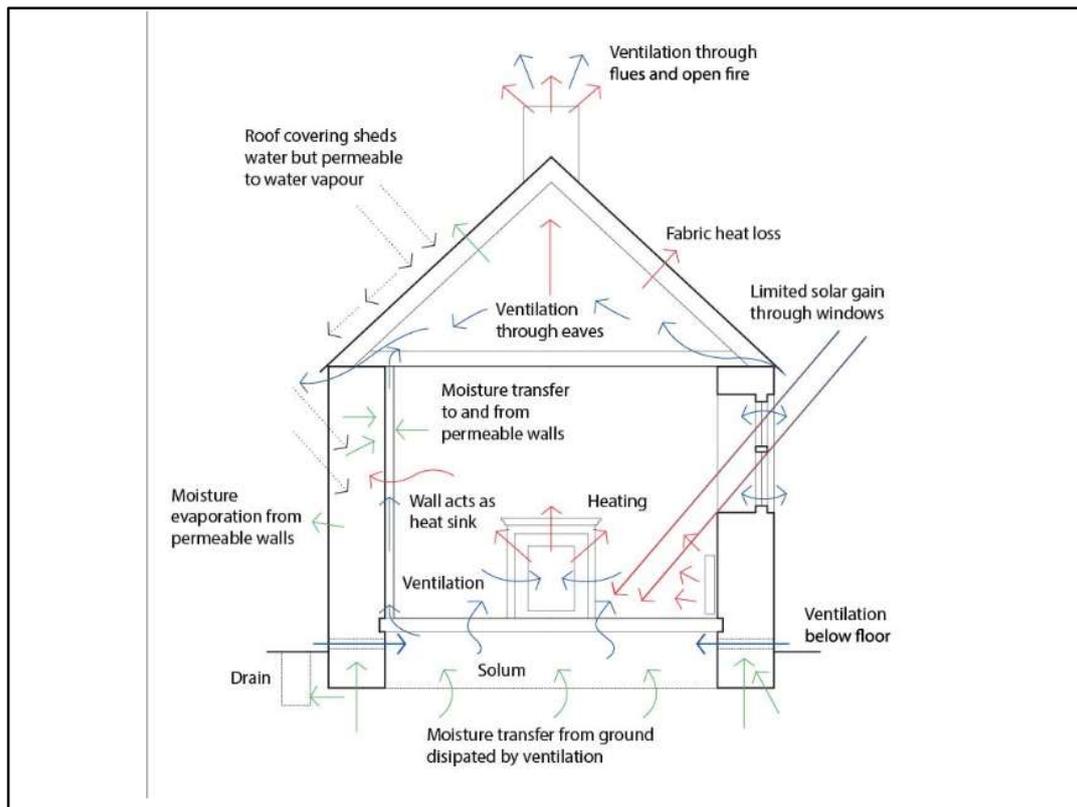
Modern techniques (when working together) allow the house to 'breathe'. We'll go into this metaphor further in a moment.

## Pre 1919 – Traditionally Constructed



Traditionally constructed (historic) buildings are similar in their need to 'breathe' but this is achieved in a completely different way.

Walls are generally fully constructed with no empty cavity. Sometimes they have air bricks which operate like weepholes, but many traditional buildings don't even have this. So how is damp prevented?



Many defects in the structure of old buildings are actually down to moisture, and a simple way of avoiding the worst of it is to make sure buildings can 'breathe'.

Now in a sense we almost mean this literally, as air and moisture travels through buildings like they do the human lungs.

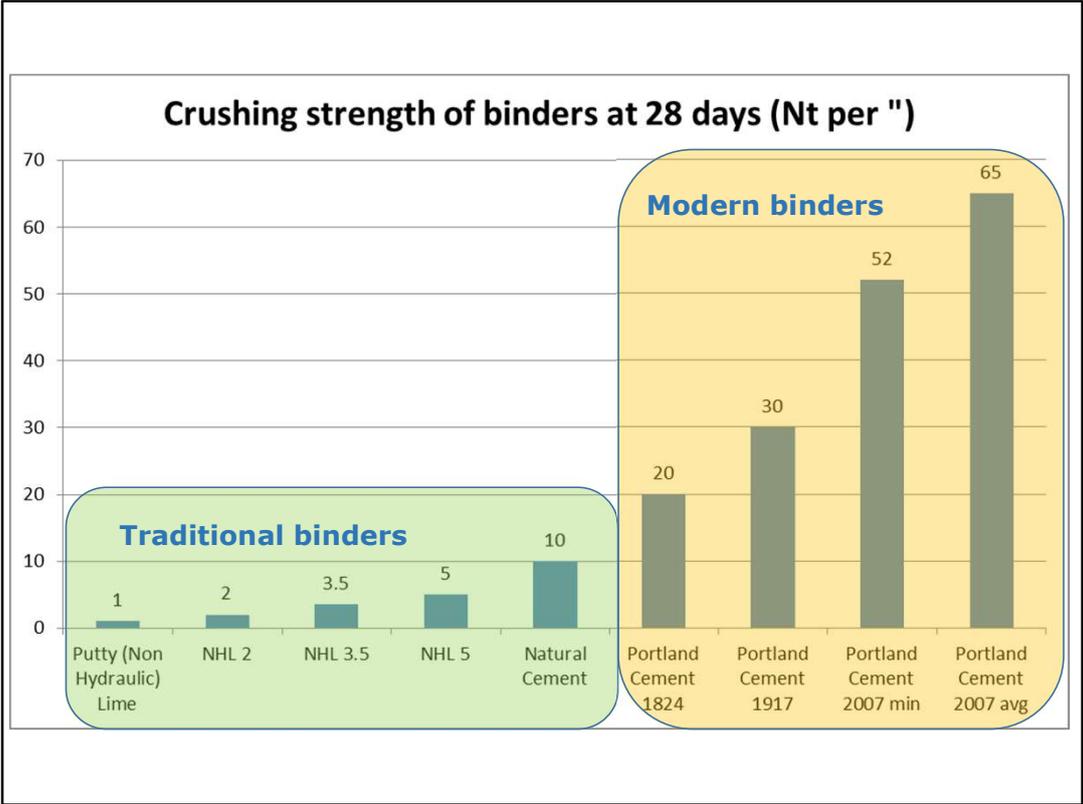
The diagram here shows how moisture and air generally flows around homes whether they be modern or traditional. The red arrows represent warm air, generated by the heating system, fireplace and solar warmth. The blue arrows represent cool air which enters and leaves through basic ventilation. The Green arrows represent the ingress of moisture and how it travels.

Moisture can enter a house in several different ways. It can come up from the ground, through the walls (when wet) and in through the roof and open holes. Houses in poor repair see greater ingress of moisture through cracks and holes.

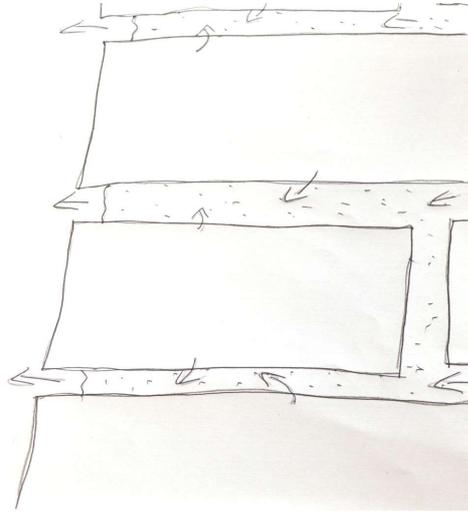
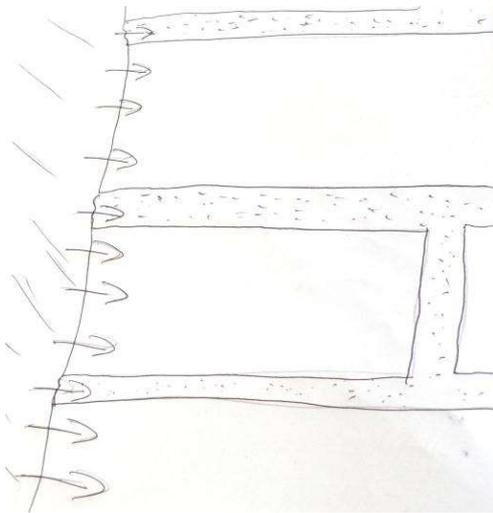
Much moisture will be removed from the building before it ever enters. For example, most roofs are designed to shed water which is carried into drains via drain pipes and gutters.

Once in though, moisture can leave a house through evaporation or ventilation, providing there is an avenue to do so. These avenues will include holes (e.g. heat will rise up chimneys causing moisture to be carried out with the hot air). They also include the building itself. So in the modern house, the cavity wall allows moisture to form into

droplets and escape out of the weepholes. Traditional houses deal with this differently though, as they don't have the cavity walls.



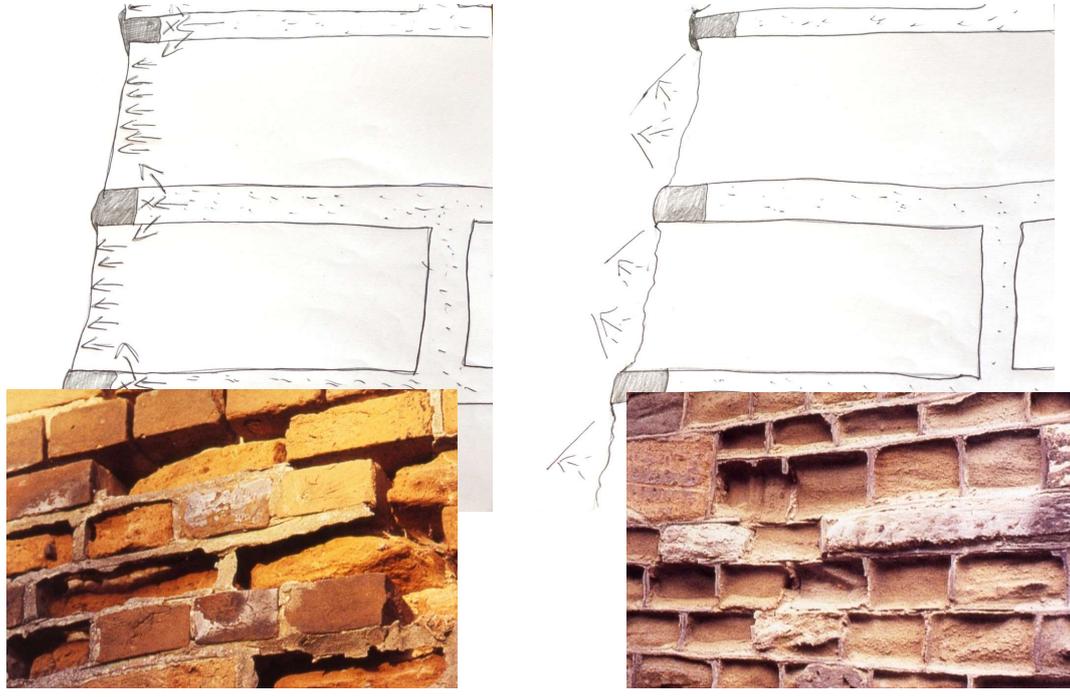
## Functioning Lime Pointing



HERITAGE LINCOLNSHIRE



## Cement re-pointing





## Roofing materials: Slate



Welsh slate – much more homogenous – but weathers a lovely greeny tinge, often much darker in colour. As you go on in 19<sup>th</sup> C gets much more regular, and modern roofs can be very smooth looking – which can occasionally cause problems as the dressing of the slates is what helps shed water. Dressing is where the slate above sits over the slate below creating a steeper angle for runoff. 150 yr life

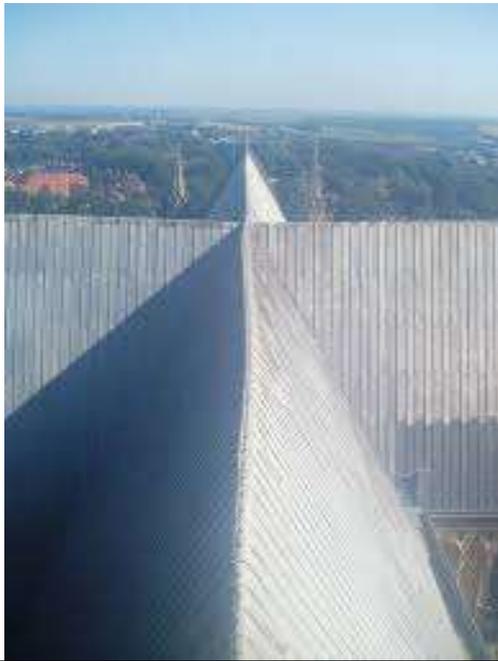
Collyweston Slates (from Welland Roofing Stamford) limestone stone slates – huge colour variation available from 17<sup>th</sup> C onwards – higher status buildings, 200 yr life

Some slates are unacceptable for historic buildings including Spanish Slate:

Spanish and other imported slates are darker than British slates and generally contain more impurities. For this reason, all forms of artificial slate and reconstituted slate are unacceptable on Listed Buildings and buildings within Conservation Areas, including new buildings.

Chinese slate is also included in this category since it's arrival to the UK market in the late 80s. The issue is that Chinese slate does not adapt well to British climates and has a different grading system to us. After a few years, owners will often see cases of delamination. This is because impurities form in the layers causing them to split apart.

## Roofing materials: Lead



Lead is a popular traditional roofing material often seen on churches. There are different grades which denote thickness so it's important to get the right grade for the building. Generally the higher the grade, the thicker the lead sheet.

It works mostly in harmony with other traditional materials, but its big draw back is how lucrative the lead market is currently.

Alternatives such as stainless steel – including Terne-Coated which still offers the patina of lead, Zinc and Aluminum – all have strengths and weaknesses, presumption towards using the original material wherever possible, especially on designated buildings.

Copper is another metal roofing material that we have evidence of historically – Victorian buildings for rounded roofs etc. as example.

## Roofing materials: Tile



Plain tiles – popular in midlands and south – where pantiles and thatch don't reach – messier the tiles = older as hand made, later machine made tiles

Pan tiles – pic of OKH!!! More common across Lincolnshire and the whole east coast from 17<sup>th</sup> C – come from the 'Low countries' that we're trading with originally and then we start to make them ourselves, but later do start to spread, especially rurally if they are not getting slate. Huge tile production along areas such as the humber bank where some places still survive today.

## Timber

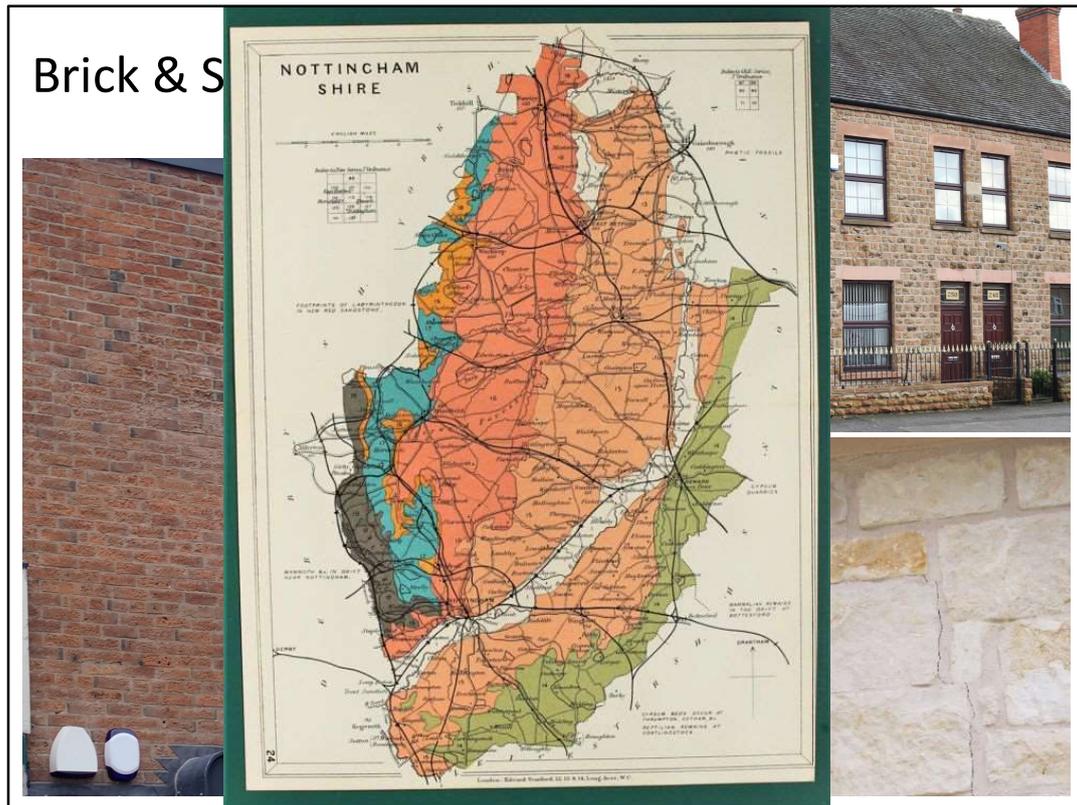


Often a key element structurally in an historic building – especially the further back we go. Roof trusses, whole frames for buildings, floor joists and floors (Castle Howard) themselves, panelling as well as doors and windows.

Historic timber tends to be much better quality – it was slower grown and given time to season, sometimes reused from other projects (ships in particular). Victorian pine for example needs replacing with kiln dried Douglas fir! Durable (if kept free from excess moisture), flexible and works well with historic buildings however, by its nature can cause lots of problems where there is an excess of moisture!

Difference between hard and soft woods? Soft woods = evergreen, hard woods = deciduous - there are softer and harder woods within each of these!

Both can be structural, however hard wood is slower growing and thus denser and soft wood is less dense and more flexible. Historic buildings often contain a mixture of both depending on its purpose. Hardwoods are usually for exteriors and firm structural aspects, whereas softwoods are better for windows and wooden fixtures do to how easy they are to shape and manipulate.



## Brick & Stone

General rule – bricks increase in size from the medieval period to the 19<sup>th</sup> century and then diminish in size until the larger metric brick is introduced in the 20<sup>th</sup> century  
 Brick taxes introduced from 1784-1850 but brick remained a popular building material.  
 First seen as early as 14<sup>th</sup> Century where stone is scarce, but really takes off in 15<sup>th</sup> C.

Solid 9 inch walls the norm –so the success of the vernacular method depended on bonding used and the materials used to bond the brick together

Lime mortar used to create permeable, flexible material to allow the building to breath and move. Modern cement mortar does not allow this.

Bricks sold by size rather than weight. Modern bricks now 215mm x 105 x 65mm and mortar joints are around 10mm

Notts - Lots of brick (medieval onwards)

Bulwell Sandstone

Out towards Worksop way – Magnesian Limestone (not great for mortars due to the magnesium carbonate)

Lincolnshire limestone – Ancaster, Lincoln itself – is an oolitic stone (lots of little bits in it) – difference between sand and lime stone

Governed by geology – Greater Lincolnshire Nature Partnership map

Nottingham – greater amount of timber, meaning more timber framed buildings of better quality.



# Lunch

45 minutes

HERITAGE LINCOLNSHIRE



What can go wrong?



## Roof

- **Slates** can slip or get broken
- **Flashing** around chimneys can become damaged or can split
- **Lead** can become fatigued or can even be stolen



- Once moisture gets in it can introduce rot and pests to the structural timbers
- Moisture can start to rot and compromise the strength of roof elements such as beam, lathes etc.

## Rainwater goods

- Can **split or break** in bad weather
- Can become **blocked** with vegetation, nests, later interventions or ice
- If not maintained or fitted correctly it can **direct water** onto the building



- Cause leaks
- Damp in walls and roof spaces

# Walls

- **Inappropriate materials** can cause decay
- Moisture can get into walls and cause issues with **frost and salt movement**
- **Damp** can penetrate from the base of the wall, sides or the top
- **Movement** can cause walls to fail
- Most issues are due to **something else failing**



Discuss damp!

# Floors

- **Moisture** can penetrate from the ground or from the walls
- **Leaks** from interior items such as boilers or radiators can cause damage
- Spaces between floors may not be well **ventilated** encouraging mould growth



# Timber

- Excess **moisture** weakens timber and makes it vulnerable to **rot**
- Can be due to **condensation** or leaks
- Damp timber can attract **pests**



All rot requires moisture  
Insects cannot attack dry, heart wood.



Spot the fault!

HERITAGE LINCOLNSHIRE











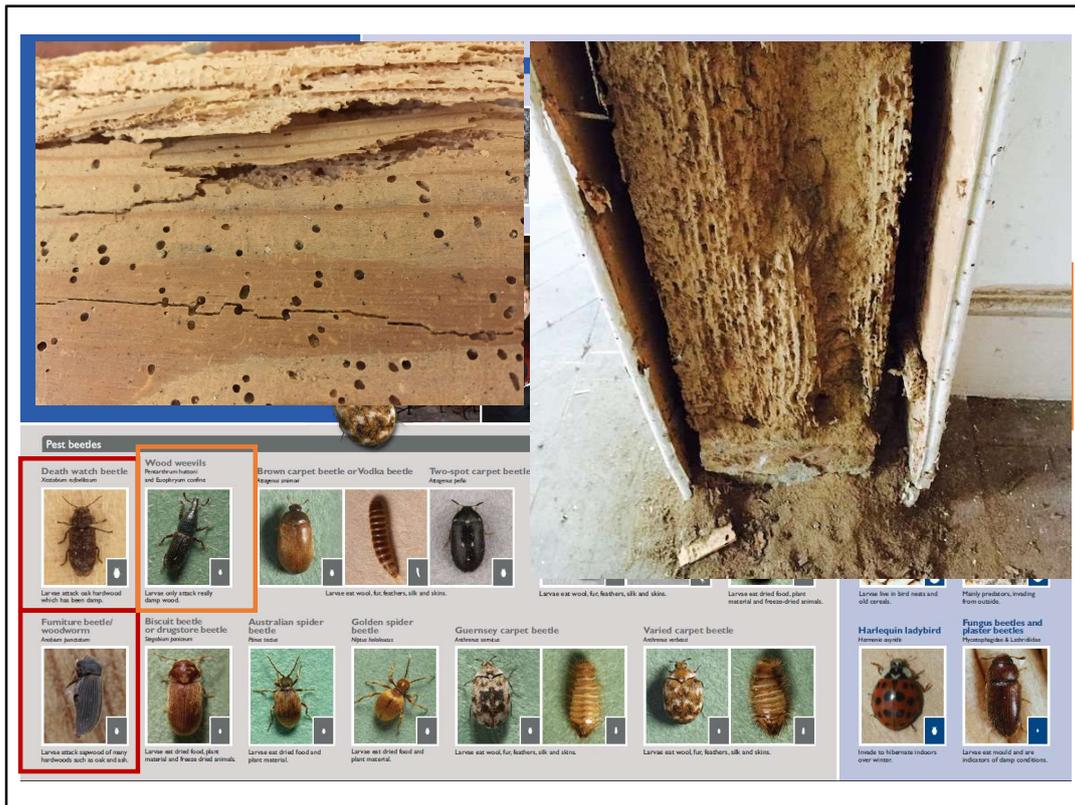


# Pests in Historic Buildings



HERITAGE LINCOLNSHIRE





Focus is on buildings, but there are lots of pests which can attack things inside your building too like cloths moths, flour weevils etc.

For today we'll focus on a few of the worst offenders that can actually weaken the structure of your building if left untreated.

The first is the Death Watch Beetle. (Victorian background). The love Oak, but will settle for any hardwood as long as it's damp.

Next is the Furniture Beetle, that you might recognise more as Woodworm. Again, hardwood is their meal of choice, but especially the sapwood. This is the wood on the outer layers of a tree. Again, they much prefer damp wood as it's softer.

Wood weevils and Woodlice are also a threat, but less so that the first two beetles. This is because the wood they eat has to be incredibly damp, even rotten, for them to actually be able to eat it.

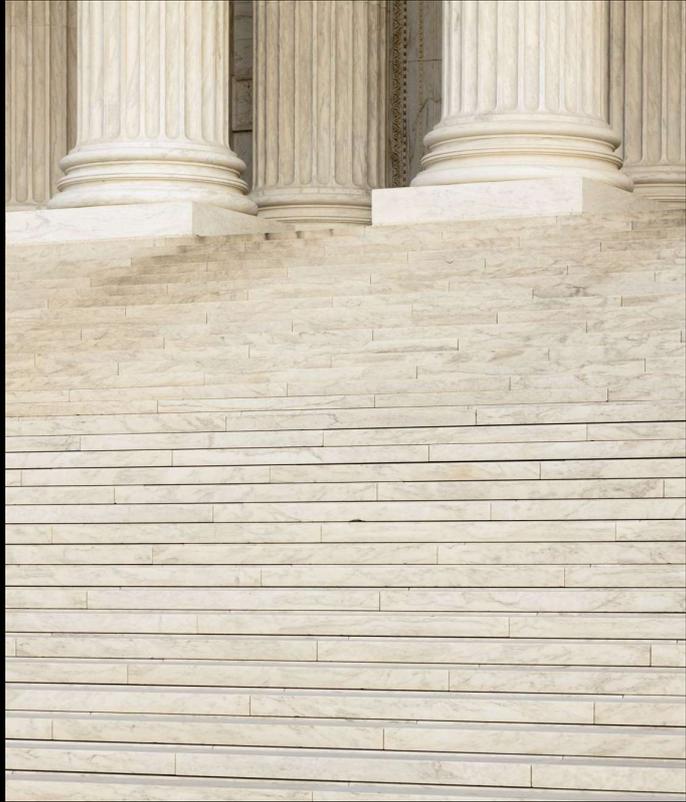
This is what woodworm actually looks like, and this is the destruction that can be left by Deathwatch beetles on a rampage if left untreated.

How to test for these pests.

Other pests can include birds and rodents that want to nest in a building. They don't generally cause structural damage, but can make holes and rodents will gnaw at things

to keep their teeth trimmed. Bats are also an issue, but it's not the bats themselves but the insects they attract with their guano. Also, most bat species are protected, so having them in your historic building can be problematic as you're not allowed to remove them once they're inside. It's best to keep the buildings secure and airtight against things like bats, rodents, and birds.

What to do  
when things  
go wrong...



## Working with Conservation professionals

- They're on your side!
- They are working according to the law
- They follow a process
- Significance
  - Architectural/Aesthetic
  - Historical
  - Evidential
  - Communal
- They have powers to take action

HERITAGE LINCOLNSHIRE



Conservation officers and planners with heritage responsibilities are not out to make your life difficult – they are out to protect buildings and ultimately this will protect your investment! They want to work with you and will give you the best advice they can. They've been subject to huge cuts – often in a local authority there may not even be one full time person dealing with conservation for the whole area.

They are following legislation such as: Town and County Planning Act, Listed building and conservation areas act, Enterprise and regulatory reform act; using guidance from the NPPF – they have to follow due process in making decisions about what does and does not require consent – particularly where demolition or partial demolition is involved. Anything that effects the special character of a building requires permission. So, like for like repairs are unlikely to need permission, but may require a conversation so that they are happy about the materials being used. There is a certain amount of personal judgement, but that is governed by professional standards (IHBC, BS)

As an individual or a charity you may find that you can get a certain amount of advice for free before you apply for listed building consent/planning permission, but this will be heavily caveated on needing to see full designs/a conservation plan. Pre application enquiry exists – often with a fee – and allows you to run through what you are looking at doing and get a formal opinion on your works. Listed building consent then has a timescale (8 weeks for Grade II or 12 weeks for Grade II\* or I). Listed buildings and planning permission for relevant demolition in a conservation area, no application fee is required. Work must begin within 3 years of consent.

They make a lot of decisions based on how what you want to do will alter the significance or 'special character' of the building. EXPLAIN – meaning they need to understand what you have before they can make decisions. The better they understand what you've got, the more they will be able to work with you in decisions

## Powers available to Conservation Officers

- Right of entry
- Section 215 notice
- Urgent works notice
- Repairs notice
- Compulsory purchase

HERITAGE LINCOLNSHIRE



If they believe that a historic, protected building is being mismanaged or neglected, Conservation Officers can arrange for entry, under the same guidelines as any other person under instruction of the Local Authority. However, they cannot force entry on their own, but impeding access means that legal proceedings can be issued ensuring that they gain entry at some point.

Section 215 - require the owner or occupier to carry out works to improve the external condition of a building or land if its neglect is adversely affecting the surrounding area.

Urgent works - allows a local authority to directly carry out works that are required urgently to make an unoccupied listed building weather tight – money for this is claimed back from the owner.

Repairs notice - allows a local authority to specify to the owner, works it considers reasonably necessary to secure the future of a listed building. If the repairs are not carried out, the power can lead to compulsory purchase of the building.

Compulsory purchase order - a last resort when all else has failed. Compensation payment to the owner, but this will take into account costs incurred while an authority has gone through this procedure.

All of these require strong backing of a local authority, including being willing to spend money if needed, so conservation officers are careful in using them.

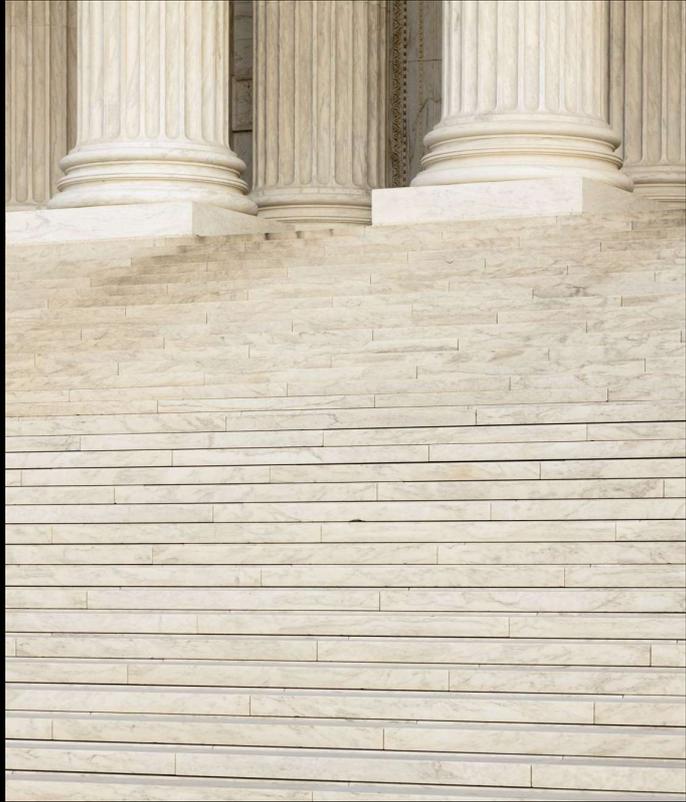


**Break  
10 Minutes**

HERITAGE LINCOLNSHIRE



Rare types  
of historic  
building...





## Cob (Cobb or Clom) |

Cob buildings are made from soil, water, fibrous material and sometimes lime.

This traditional building technique is thought to date back to prehistoric times, and versions of them can be seen all across the world. The most common examples in the UK are in Devon and Cornwall, as well as South Wales, but it is making a comeback for those wanting to create affordable eco-friendly homes.

A brick or stone foundation is laid and then the cob material is layered on by hand (and feet) in intervals. Each course would be build and then allowed to dry before the next one is added.

Walls are built quite thick (around 2ft) which makes them brilliant for insulation. It's a very soft material though, so like the examples to follow, has to be treated with care as even some paints can stifle the surfaces and cause damp. Limewash is often the most suitable

Thatch is the traditional roof type for Cob houses as the natural materials work well together and it's not as heavy as some of the other roof types.

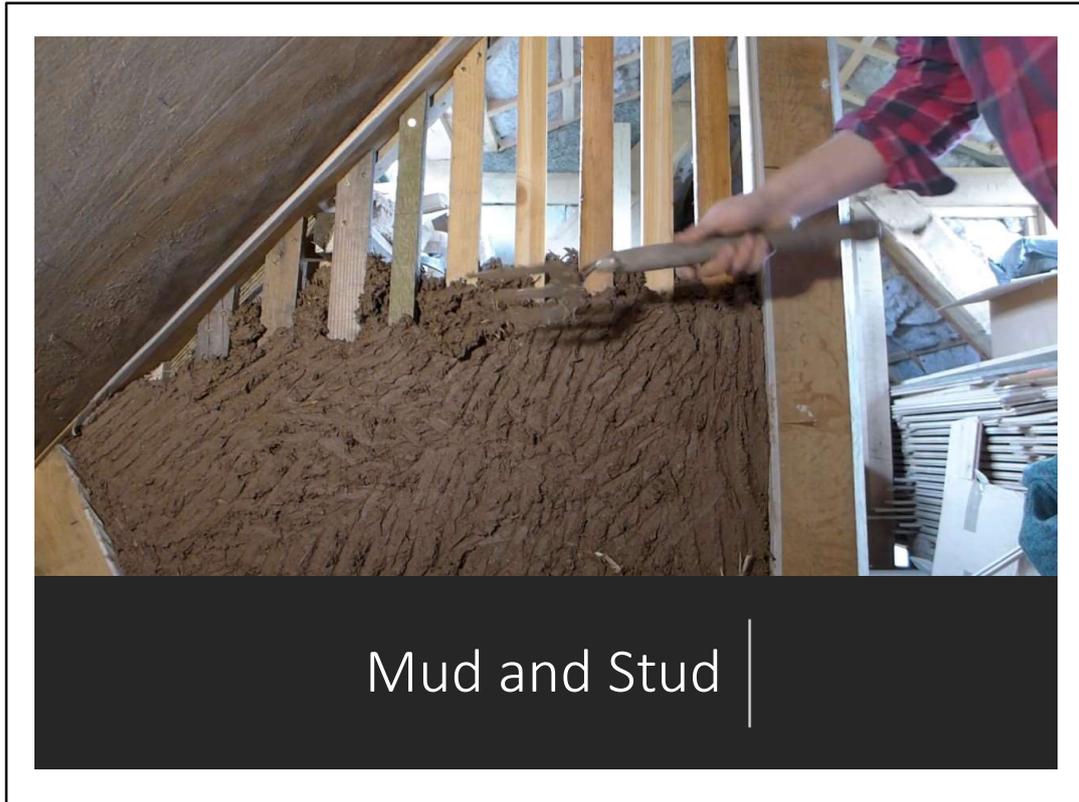


Wattle and Daub is a building technique where a woven lattice of wooden strips called wattle is daubed with a sticky material usually made of some combination of wet soil, clay, sand, animal dung and straw. It's often associated with Tudor timber-framed buildings but has been used across the world for at least 6,000.

Wattle is created when thin branches (either whole, or more usually split) are woven together or made into slats and attached between upright stakes. The wattle may be made as loose panels, slotted between timber framing to make infill panels, or made in place to form the whole of a wall. The wattle can be made from a variety of flexible materials, from soft woods to reeds.

Daub is a mixture of ingredients. As a rule there must be binding materials such as clay, lime, chalk dust and limestone dust, an aggregate(s) such as mud, sand, crushed chalk and crushed stone and finally some sort of reinforcement material such as straw, hair, hay or other fibrous materials, which holds the mix together and provides flexibility.

The daub is often mixed by hand, or by treading, then applied to the wattle and allowed to dry. The walls were usually limewashed to increase resistance to rain.



Mud and stud is really a combination of Cob and Wattle and Daub. It's found almost exclusively in Lincolnshire.

The technique involves a timber frame structure on a brick or stone foundation, where vertical laths are nailed between the studs. Local mud is mixed with chopped straw and water is applied in layers. Like the other two, limewash is applied to help make it water resistant.

# Case Studies

HERITAGE LINCOLNSHIRE



## Mill Hill Cottage



### Mud and stud cottage

1997 – owner approached HTL as he had been left the cottage after the death of the previous owner

Had been vacant for many years and for a long time only the right downstairs room had been used

Proposed that HTL bought the property and renovated it into holiday accommodation

Work began and finished in 2000



Some of mud plaster had collapsed  
Movement to main padstones supporting timber uprights  
Timbers decayed  
Areas of damp – mainly near chimney  
Some areas of mud and stud had been replaced by brick repairs  
Thatch had been covered with a tin roof which was nearing the end of its life (approx. 100yrs)



Padstones were underpinned  
Timber uprights were repaired  
Mud walls were repaired  
Services installed  
Roof was re-thatched  
Mud walls were limewashed



Thatching is another, rarer roof type predominantly used with traditional vernacular buildings like Mud and Stud. Thatch is historically important as there are lots of different styles and designs which represent local tradition.

Thatch is usually long-straw, but can also be made out of reed or a combination of the two. Wooden pegs are pushed through to keep it in place, and netting often applied to retain the structure and discourage wildlife from entering.

Thatch needs regular maintenance to preserve the roof. A good thatch, that is allowed to dry out between rainy spells, will last around 10-20 years without needing work, but eventually the top layer will begin to deteriorate. When it does it can shrink from flashing and stop being watertight, exposing lower layers to the elements and allowing vegetation to grow within it making the problem worse.

At Mill Hill we had this issue as for many years we couldn't find the right thatcher to do the job. Thankfully a gentleman called Stewart Alexander, Master Thatcher, was able to help and we stripped off the top three layers, retaining the historic thatch and refreshing it.

# Integrating new architecture

HERITAGE LINCOLNSHIRE





HERITAGE LINCOLNSHIRE





HERITAGE LINCOLNSHIRE





HERITAGE LINCOLNSHIRE



# Norwich Cathedral Refectory



# British Museum





Boston Town Hall – when new architecture grows up around an historic building – does this work?

## Further resources

- **National Heritage Training Group** – <http://www.the-nhtg.org.uk/> - Network for information on courses, contractors and funders
- **Society for the Protection of Ancient Buildings** - <http://www.spab.org.uk/> - General information for homeowners and guides which can be purchased
- **Responsible retrofit wheel** - <http://responsible-retrofit.org/wheel/> - Brilliant tool for seeing what different interventions will do to your building
- **Historic Scotland** - <http://www.historic-scotland.gov.uk/freepublications> - Fantastic set of free publications and guides to living in/owning historic buildings
- **English Heritage** – <http://www.english-heritageshop.org.uk> - Practical Building Conservation Series. Not cheap but exhaustive directory of all things conservation
- **Historic England** – <http://www.historicengland.org.uk> - Advice and technical guidance for listed building owners and information on planning guidelines
- **Listed Property Owners Club** - [www.lpoc.co.uk](http://www.lpoc.co.uk) - Membership group with advice for owners of listed buildings
- **Building Conservation website** – [www.buildingconservation.com](http://www.buildingconservation.com) - Articles and books as well as a directory of professionals. Also information on courses and qualifications

HERITAGE LINCOLNSHIRE



# Evaluation

<https://www.heritagelincs.org/carrington-st-area-thi-evaluation-form>



HERITAGE LINCOLNSHIRE

