

CHAPTER 13

THATCH

- 13.1 It is generally acknowledged that thatch is a distinctive feature of the English landscape, particularly in the south and the east, and should be conserved as part of our built heritage.
- 13.2 Thatching materials and the methods by which they are applied reflect both the broad geographic and economic character of their areas over time. The survival of regional diversity in thatching is, therefore, a central aim of conservation policy in those areas where the character can be firmly identified.
- 13.3 South Cambridgeshire has historically been a predominantly arable area and consequently wheat straw has been the most widely available thatching material. This material is known as “longstraw” and the extent of its use helps characterise the district. However on the fen edge areas of the district some “water reed” has always been used. The Rural Industries Bureau particularly promoted this material in the first decades after the Second World War. The Bureau encouraged the use of water reed in order to stop the wide scale removal of thatched roofs following the introduction of the combine harvester, which rendered straw unusable for thatching.
- 13.4 The following criteria will apply in the consideration of proposals to alter a thatched property:
- As with all Listed Building Consent applications, applicants must be able to justify their proposals, to demonstrate why works which would affect the character of the Listed Building are desirable or necessary in terms of the preservation of the historic building.
 - A full survey of the roof from an independent thatching consultant will normally be required as part of the Listed Building application, to explain and justify any proposed alterations. Short-term economic arguments will not be considered as sufficient justification.
 - The Council will resist Listed Building applications for an alteration in thatching material or thatching detailing which is not traditional to the specific location or landscape character of the property.
 - The Council will resist Listed Building applications which result in a change to the external appearance of the historic building by introducing a different material, method of thatching or detailing.
 - Listed Building Consent will not normally be approved for the removal of original base layers and material of archaeological or historic importance. These will include medieval smoke-blackened thatch or timbers surviving

from the time prior to the erection of a chimneystack, or the remains of an original louver.

- 13.5 Listed Building Consent will always be required for a change in roof materials, as this will affect the character and appearance of the historic building. The Council will not normally support Listed Building applications which compromise the special historic interest of the building.
- 13.6 A change in thatching material or the method of application could significantly alter the character and appearance of a historic building and may destroy evidence of the original material. Consequently, replacement of original thatching material (in particular longstraw) with another material will not normally be granted Listed Building Consent.
- 13.7 For the avoidance of doubt, Listed Building Consent is required, but would **not** normally be supported for the following potential changes in thatching material:
- Longstraw to water reed
 - Longstraw to combed wheat reed or wheat straw prepared and laid in a different manner to traditional longstraw
 - Combed wheat reed to longstraw or water reed unless this is a reversion to an earlier material.
- 13.8 The above guidance is supported by the following Listed Building / planning appeals:
- Lordship Cottage, Fardells Lane, Elsworth: Change of thatching material (and method of application) from traditional longstraw to flail threshed combed long thatching straw on front elevation. Appeal dismissed 31 August 2005. Appeal ref: APP/W0530/E/05/1176368
 - Magdalen Cottage, Stoney Lane, Stocklinch, Somerset: Change of thatching material from combed wheat reed to water reed. Appeal dismissed 3 November 2004. Appeal ref: APP/R3325/E/04/1148702
- 13.9 The following principles will apply to the consideration of proposals to reinstate thatched material:
- Listed Building Consent will always be required for a reinstatement of thatching material, in order to ensure that material appropriate to the individual building and the landscape character of the area is utilised.
 - The Council will use its planning powers, grant scheme and advisory role to secure the reinstatement of original thatching material on historic buildings,

particularly where there is photographic or physical evidence for the particular material originally used on the building (either longstraw or water reed).

- The Council will discourage the use of materials and methods of thatching which are not traditional to the district.
- The Council will seek the retention of a “reed fleeking”, sometimes known as flecking, which is a woven mat visible between the rafters of early roofs, where it exists, to form the underlay for the new thatch.
- The Council will discourage the use of felt underlay or polythene sheeting when reinstating thatch, as it will inhibit drying out and may cause decay from condensation, but will accept breathable materials.
- The Council will require that prior to the commencement of works the use of anti-fire devices should be discussed and approved in writing with the Council’s historic buildings officer. Any such devices should be visually appropriate and not detract from the character or appearance of the historic building.

13.10 In the period between First and Second World Wars and immediately after the Second World War, there was a shortage of skilled thatchers and a lack of suitable straw. This resulted in the covering of large numbers of thatched roofs with corrugated iron and in some cases corrugated asbestos, asbestos slates, timber shingles or tiles. Some buildings still retain their “temporary” roof covering due to the cost of replacement. Reinstating thatch will require Listed Building Consent and the applicant will be expected to provide physical or photographic evidence of the type of thatch and the detailing of the ridge and dormers. Where there is no photographic or physical evidence the local thatching style may provide an indication. The presence of a reed fleeking will not necessarily indicate that the roof was once thatched in water reed but where a fleeking exists it should be retained as part of the historic character of the roof. Existing thatch ties (plant material, twisted tarred or untarred cord) should be retained as evidence of a historic method of longstraw thatching.

13.11 Reinstating thatch may require strengthening of the roof. Thatch is one of the lightest roofing materials and rafters are often no more than thin poles. When reinstating thatch existing historic roof structures should be retained and if required new timbers placed alongside the original. New timbers should be of a similar size and section to the existing. Listed Building Consent may be required if the repairs are extensive and will alter the character of the roof.

13.12 Re-thatching roofs that have lost their thatch will be subject to the requirements of the Building Regulations, which recognise that thatched roofs (and also roofs covered in wood shingles) provide a potential risk of fire spread between properties.

- 13.13 Buildings with these materials are therefore required to be isolated from one another and generally need to be at least 12 metres away from the property boundaries. The repair or replacement of an existing thatched roof would not normally be required to comply with the Building Regulations requirements for isolation. However, the installation of thatch on a corrugated iron / asbestos covered roof, which had previously been thatched, would be expected to meet the requirements for a new thatch roof in terms of isolation from boundaries. Where a property is closer than 12 metres from a boundary an application for a relaxation of the Building Regulations may be made, possibly using the guidance contained in “The Dorset Model” – *Thatched buildings, new properties and extensions*, Published by West Dorset District Council.
- 13.14 In the 1970s “combed wheat reed” was introduced from the West Country and has been replacing the traditional longstraw thatch. Combed wheat reed is wheat straw but it is prepared and applied to the roof in a different manner, resulting in a crisper finish, similar to that of water reed and consequently is a change in the character and appearance from traditional longstraw thatch.
- 13.15 The following guidance is offered to assist with the achievement of best practice in implementing repairs to a thatched property:
- The Council will recommend that a detailed survey of the roof be undertaken to identify appropriate techniques, the extent of any surviving historic material, and inform the specification for any proposed repairs, prior to commencing work on the roof.
 - In order to ensure that locally characteristic features are not lost the Council will encourage the employment of experienced thatchers who work in accordance with local tradition.
 - Complete stripping is rarely needed on a longstraw thatch roof; therefore the Council will aim to ensure that only defective thatch is removed to a sound base. The Council will therefore encourage the tradition of small-localised repair and would normally resist total rethatching on Listed Buildings when repairs may be more appropriate.
 - Localised repairs should always match the topcoat in method and material.
 - Where a “reed fleeking” exists (the woven mat visible between the rafters of early roofs) it should be retained.
 - Detailed justification will be required for timber repair or strengthening of a historic roof structure, retaining original timbers in situ. New timbers, where necessary, should be of a similar size and section and normally placed alongside the existing. Listed Building Consent will be required if extensive timber replacement will alter the form or character of the roof.

- 13.16 The practice of water reed thatching today normally involves the entire replacement of the existing thatch and consequently a water reed roof is almost never repaired (other than reroofing). However, a form of redressing has been carried out in the past by traditional thatchers and is occasionally carried out today in addition to localised repairs.
- 13.17 Localised repair by patching is a tradition in longstraw thatches and can substantially extend the life of the main coat. Until as recently as the 1950s, thatchers spent more of their time undertaking such repair rather than recoating. Ridges will need to be replaced on all thatches after approximately 15 years; other areas prone to decay are valleys, chimney abutments and dormers.
- 13.18 The actions of birds and rodents, or casual damage can also provide opportunities for decay. In such cases the same material and method should be adopted to repair a localised area.
- 13.19 Replacement ridges should normally be carried out in the same material as the existing. Where the existing ridge on a longstraw thatch is blockcut, encouragement will be given for the reinstatement of a traditional flush ridge.
- 13.20 The stripping of eaves and barges during recoating of a longstraw thatch is not considered to be necessary and will result in the loss of archaeological evidence. The underlayers of thatch may be of considerable age due to the practice of stripping only the decayed material from the surface prior to repair, but this will not be visible at the eaves and barges if they are stripped out and consistently replaced.
- 13.21 Rethatching may occasionally involve major repair / strengthening of the roof structure. Where this is necessary the existing historic roof structure should be retained and new timbers placed alongside the original. New timbers should be of a similar size and section to the existing. Listed Building Consent will be required if the repairs are extensive and will alter the character of the roof.
- 13.22 Occasionally a build up of moss occurs under the surface netting and it can be gently removed if desired. However research is inconclusive as to whether the moss does more damage by retaining moisture than it does by forming an extra coat on the thatch but water will shed much quicker if moss is removed. Performance is not always linked to appearance and a roof can present a varied appearance without being inferior to a much neater new thatch.
- 13.23 Overhanging trees may create a damp environment causing premature decay and should be regularly cut back. In some circumstances permission may be required for these works.
- 13.24 As with all building repairs, works should be based on an informed specification and a schedule of works relevant to the particular thatched building. For example there will be many occasions where a relatively small repair is better for the

building than complete stripping, and if there are problems with the supply of materials these are likely to be less for a minor repair than a recoating.

Longstraw

- 13.25 Longstraw is threshed wheat straw (traditional varieties are Maris Huntsman or Maris Widgeon) although in recent years the use of "Triticale", a cross between wheat and rye, has increased. As the name suggests the length is crucial and it is generally thought essential for this material to be at least 750mm (30inches) long. It is also recognised that the strength and texture of the straw will be greatly improved if the crop is cut whilst the stalk is still partially green and threshing is done carefully when the corn has ripened, to avoid damage to the stem.
- 13.26 Longstraw thatch is distinguished readily from other thatching techniques, by the amount of preparation it receives and the method of application to the roof. The straw is laid on the ground in layers to form a bed without regard to the alignment of the stems. It is then wetted, in order to make it more pliable and to enable it to be compressed when applied to the roof. The damp straw is then drawn from the bed by hand and formed into yealms that are then applied to the roof. Both butt ends and ears should be visible.
- 13.27 Longstraw, when applied directly to an existing roof, is fixed on top of the existing thatch, which has earlier been raked down to a firm base. It is not fixed to the rafters as other forms of thatching material. Under-layers of thatch can, therefore, be of considerable age and several examples of mediaeval smoke-blackened thatch exist in the district.
- 13.28 Yealms are laid on the roof in vertical courses, held in place with hazel spars and finished with external fixing at the eaves, verges and ridge. The open composition of the yealms means that it is not necessary to dress the material in place and, therefore, it has a softer, more rounded and "poured on" appearance than, for example, combed wheat reed. The appearance is neatened by raking out and by cutting the eaves and verges with a long eaves-knife.
- 13.29 With proper maintenance the topcoat or 'wearing course' of a longstraw thatch roof (possibly overlaying a medieval base layer) would be expected to last from 25 – 30 years.

Water Reed

- 13.30 Water reed (*Phragmites australis*), is recognised by its brown feathery seed head growing on a single stem with broad spear like leaves and it varies in length from 1 – 2.5 m (3 – 8 feet). From the marshes and fens and often known as "Norfolk Reed", demand has now outstripped supply and, it is estimated, that three-quarters of the water reed used in Britain today is purchased from Europe. "Mixed" reed is occasionally used, being reed mixed with shoof grass and other plants, which grow

in company with it. Harvesting takes place in winter when the reed is cut and formed into bundles ready for thatching.

- 13.31 Little preparation is required on site other than butting each bundle to align the stems and grading the bundles according to length and quality. The bundles are applied to the roof in horizontal courses from the eaves to the ridge and are fixed directly to the timber structure of the roof with lateral metal rods (sways) and iron hooks hammered into the rafters. In this region it is usually a single layer material with one coat replacing another when worn. This requires the entire thatch to be removed, which means that there is unlikely to be any underlying historic thatch. If a fleeking exists this should be retained.
- 13.32 The reed is pushed up into position with a leggett with the butt ends facing downwards to create an even surface, which results in a uniform, crisp, sharp appearance across the body of the roof. The reed coat is rarely as thick as in the straw styles and faithfully follows the lines of the roof structure, emphasising features such as dormer windows. There are no visible fixings on the eaves or verges, the reed being secured by its own concealed fixings and by its own tension against the roof structure, which provides a “kick” from the eaves.
- 13.33 A newly rethatched roof in water reed would be expected to last in excess of 60 years, before requiring complete stripping and rethatching with new material.

Combed wheat reed

- 13.34 Combed wheat reed, Devon reed, virtually undamaged straw and flail threshed long thatching straw are all names which are given to a “hybrid” which is not a traditional method of thatching in South Cambridgeshire. This form of thatch covering, which is traditional on the shallower roofs of the West Country, uses wheat straw, the same raw material as longstraw but it is produced by passing the straw through a reed comber, which removes the grain without crushing the stems and binds the straw into bundles with the stems all lying in the same direction.
- 13.35 In its application on roofs in East Anglia existing thatch is not normally stripped beyond the decayed upper layer and the bundles are applied to the roof in a similar technique to water reed, with the butts of the straw facing downwards. The bundles are loosened on the roof and the straw is dressed into place with a leggett. The final appearance is achieved by driving the material up as with water reed. When weathered a combed wheat reed thatch may resemble the precision and crisp nature of a water reed thatch, although the build-up of layers gives a more rounded appearance and the clipping of the eaves and verges creates a softer appearance.
- 13.36 Given appropriate maintenance a combed wheat reed thatch will last between 25 – 40 years.

Ridges

- 13.37 Ridge details vary according to the region and are often very local in origin. Historically in South Cambridgeshire, ridges on longstraw roofs were formed flush with the main coat, of the same material, and finished with a simple pattern of liggers. Ornamental blockcut ridges were introduced in the 1950s and although of straw they lack the simplicity of a traditional flush ridge. Detailing at the end of the ridge varies depending on whether the roof is hipped or gabled and also on the style of work created by the individual thatcher.
- 13.38 Reed is not a pliable material and ridges on water reed roofs were historically of sedge (*Cladium mariscus*) but more recently created from straw. They are always “block cut”, sometimes with decorative patterns of liggers, although traditionally a straight cut ridge was usual until the 1950s when ornamental cut patterns became popular. Fixings are visible in the form of hazel liggers and pattern rods.
- 13.39 Ridges on combed wheat reed are formed from straw and therefore a flush ridge is most appropriate and will normally be required.

Dormers

- 13.40 Due to the greater thickness of thatch that is often found on longstraw roofs, features such as dormers can be swept over. Although this is not always the case, this type of dormer is characteristic of South Cambridgeshire and is generally referred to as an eyebrow. Some longstraw roofs have gabled dormers and these are normally thatched in longstraw with a straw ridge to match the main roof.
- 13.41 The application of water reed and trimming to the material for dormers in water reed roofs creates a more angular appearance. Tiles and slates were often used on gabled dormers on both longstraw and water reed roofs and photographic evidence suggests that some of the tiled dormers in this district date from at least the 19th century. Where historic tile or slate dormers exist they should be retained and not replaced with thatch.

Verges

- 13.42 In South Cambridgeshire it is traditional to cut the verges on a longstraw thatch almost flush with the gable using a long eaves-knife. Wrap around verges, which are seen in longstraw thatch in other counties, are not a traditional local feature and consequently would not be encouraged in this district.

Abutments

- 13.43 The usual detail employed at abutments with chimneys or parapet gables is the mortar fillet. Lime mortar is recommended as it is more flexible and less prone to cracking than cement and is less damaging to historic brickwork. Lead flashing is

not a traditional detail and as it is often visually intrusive would not normally be encouraged in rethatching or reroofing works.

Netting

- 13.44 Thatch, particularly new longstraw thatch, is attractive to vermin and birds as a source of food and also as a nest or nesting material. To prevent damage, galvanised wire netting is normally provided, lightly fixed in order to provide speedy removal in the event of fire. Netting is laid from ridge to eaves and the edges of the sheets are not overlapped. The sheets are joined at the ridge and fixed with clenched nails, wire hooks or spars at eaves and barge.
- 13.45 Netting is not normally considered necessary on water reed although where straw or sedge has been used on the ridge this area alone may be netted.

Longstraw thatch outline specification

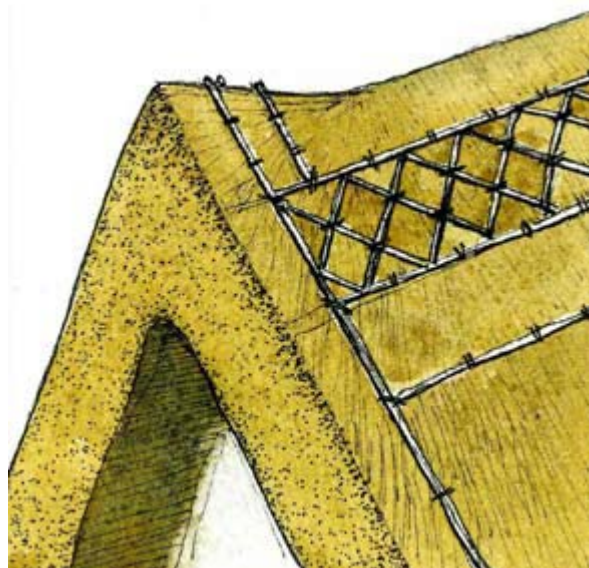
- 13.46 The following is a general specification for Longstraw thatching:
- Prior to rethatching a full survey of the roof should be carried out to enable the preparation of an informed specification and schedule of works relevant to the particular building.
 - All old wire shall be removed. All decayed thatch shall be removed to a sound base, but there should be a presumption in favour of preserving old thatch where this is practicable.
 - The roof shall be thatched in good quality drum or flail threshed longstraw, normally a hollow stemmed, winter grown wheat cut to a minimum length of 750mm (30 inches). It shall be as little bruised and broken as possible, with a certain amount of flag (dried leaf) mixed in with the stems, and retaining the ears. It should not be discoloured and should be strong and supple and able to resist or even defy efforts to break it by twisting a handful continuously.
 - Straw shall be uncombed material, dampened and shaken into a bed with the butts and ears thoroughly mixed and yealmed on site, unless agreed with the Council. The yealms shall be laid to a depth of not less than 250mm (10 inches) with both the butt ends and the ears visible.
 - The material shall be tightly packed and of an even density and securely fastened with hazel or willow spars of adequate length to secure the new coat to the old.
 - The use of dry bundles of combed straw (combed wheat reed, virtually undamaged thatching straw, flail threshed combed long thatching straw, Devon Reed) dressed into place with a leggett driven against the butt ends is not acceptable

- Unless otherwise agreed the ridge shall be a flush ridge set in pitch with the main roof and detailed to the satisfaction of the Council.
- Gables shall be cut so that there is an adequate overhang to protect the gable and all verges, eaves and the ridge shall be securely fastened with liggers and spars in a traditional style.
- The thatch shall be securely finished at the chimney abutments and sealed with a lime mortar fillet.
- The roof shall be covered with 20 / 22 gauge 19mm (maximum) galvanised wire netting. Netting shall conform closely to the roof contours and be fixed in such a way that it can be easily removed in the event of fire.

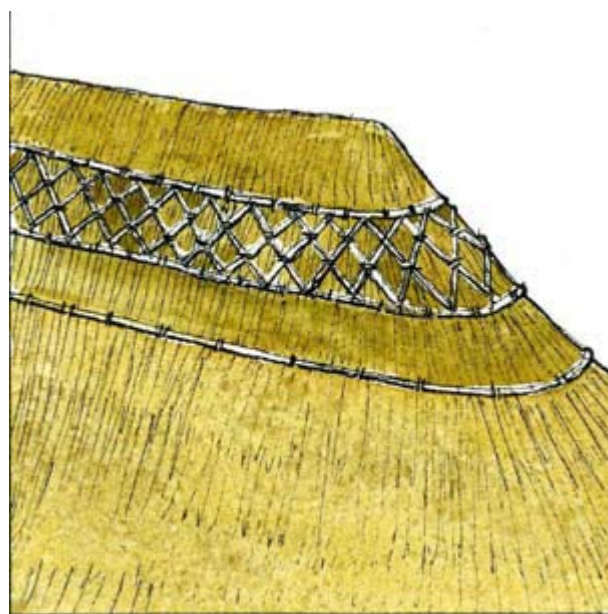
Notes

- Any change of thatch material or method of application of thatching materials on a Listed Building requires Listed Building Consent which must be obtained from the Council well in advance of work commencing. Consent is required to change from longstraw to water reed or longstraw to combed wheat reed or wheat straw prepared and laid in a different manner to traditional longstraw. No consent is required to rethatch roofs in a like manner providing that the materials and method of application exactly match the existing roofs in all details.
- Since it has now been established that a contractor can be held responsible for unauthorized alterations to a Listed Building (even if acting under direct instruction), it is advisable to ensure that Listed Building Consent has been obtained for any changes in thatching style or materials before work commence
- Any roof timbers, which are decayed, should be repaired on a like for like basis. Any additional timbers required for the structural integrity of the roof should be of similar size, type and section and should be laid alongside existing timbers. The Council must be consulted, as Listed Building Consent may be required.
- Normally decorative, blockcut ridges and ornamental features will not be eligible for grant aid and will require Listed Building Consent unless they already exist.

Long straw flush ridge on gabled roof



Long straw flush ridge on a hipped roof



Water reed outline specification

13.47 The following is a general specification for Water Reed thatching:

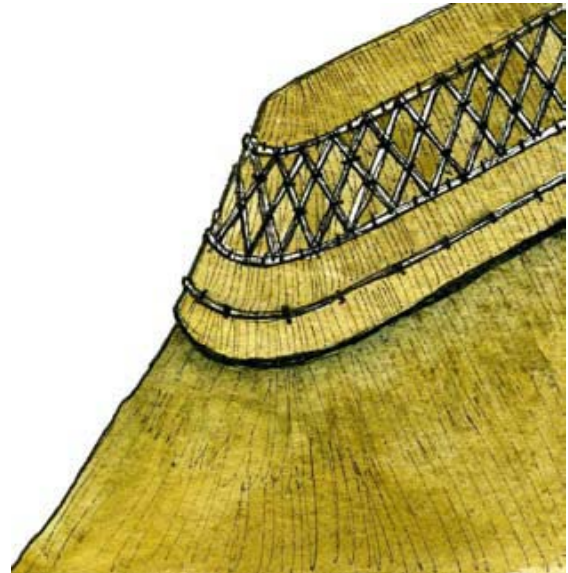
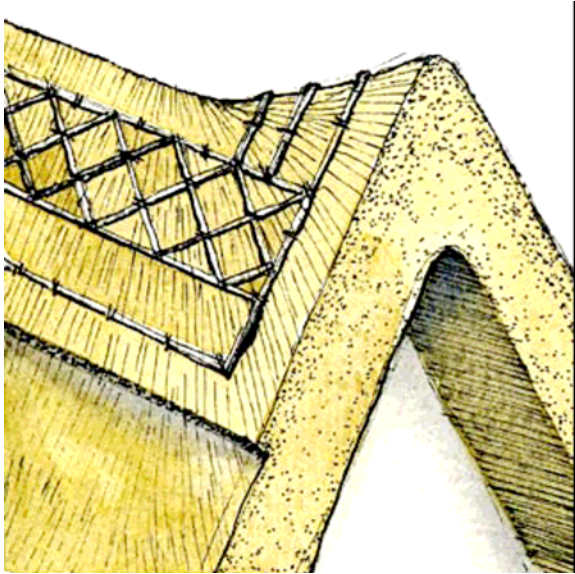
- Prior to rethatching a full survey of the roof should be carried out to enable the preparation of an informed specification and schedule of works relevant to the particular building.
- All old wire and thatch shall be removed. The roof shall be thatched in good quality water reed (*Phragmites australis*).
- The minimum depth over the batten or substrate from the surface of the thatch will not be less than 300 mm (12 inches) and the depth of the material over the fixings shall be a minimum of 125 mm (5 inches). The reed shall be secured by adequate fixings (normally steel hooks, 8mm steel rod and twine) to ensure that there is no slippage and each course should be fixed to each rafter.
- The water reed shall have a compact finish and even density and the surface of the reed must conform to the pitch of the rafter, which will normally be no less than 45 degrees.
- Eaves and barges will be applied in the angular "Suffolk style" and not "rounded off".
- Unless otherwise agreed the ridge shall be a straight, undecorated, block-cut ridge of longstraw or marsh sedge, detailed to the satisfaction of the Council and of a minimum thickness of 75 mm (3 inches).

- The thatch shall be securely finished at the chimney abutments and sealed with a lime mortar fillet.
- The ridge, or where appropriate the whole roof shall be covered with 20 / 22 gauge 19mm (maximum) galvanised wire netting. If wire netting is fixed to the whole roof, it shall conform closely to the roof shape and be fixed in such a way that it can be easily removed in the event of fire.

Notes

- Any change of thatch material or method of application of thatching material on a Listed Building requires Listed Building Consent, which has to be obtained from the Council. Consent is required to change from water reed to longstraw or visa versa. No consent is required to rethatch in a like manner providing that the materials and method of application exactly match the existing.
- Since it has now been established that a contractor can be held responsible for unauthorized alterations to a Listed Building (even if acting under direct instruction), it is advisable to ensure that Listed Building Consent has been obtained for any changes in thatching style or materials before work commences.
- Any roof timbers, which are decayed, should be repaired on a like for like basis. Any additional timbers required for the structural integrity of the roof should be of similar size, type and section and should be laid alongside existing timbers. The Council must be consulted, as Listed Building Consent may be required.
- Normally ornamental, blockcut ridges and other features will not be eligible for grant aid and will require Listed Building Consent unless they already exist.

Water reed with straight blockcut ridge *Water reed straight blockcut ridge on a hipped roof*

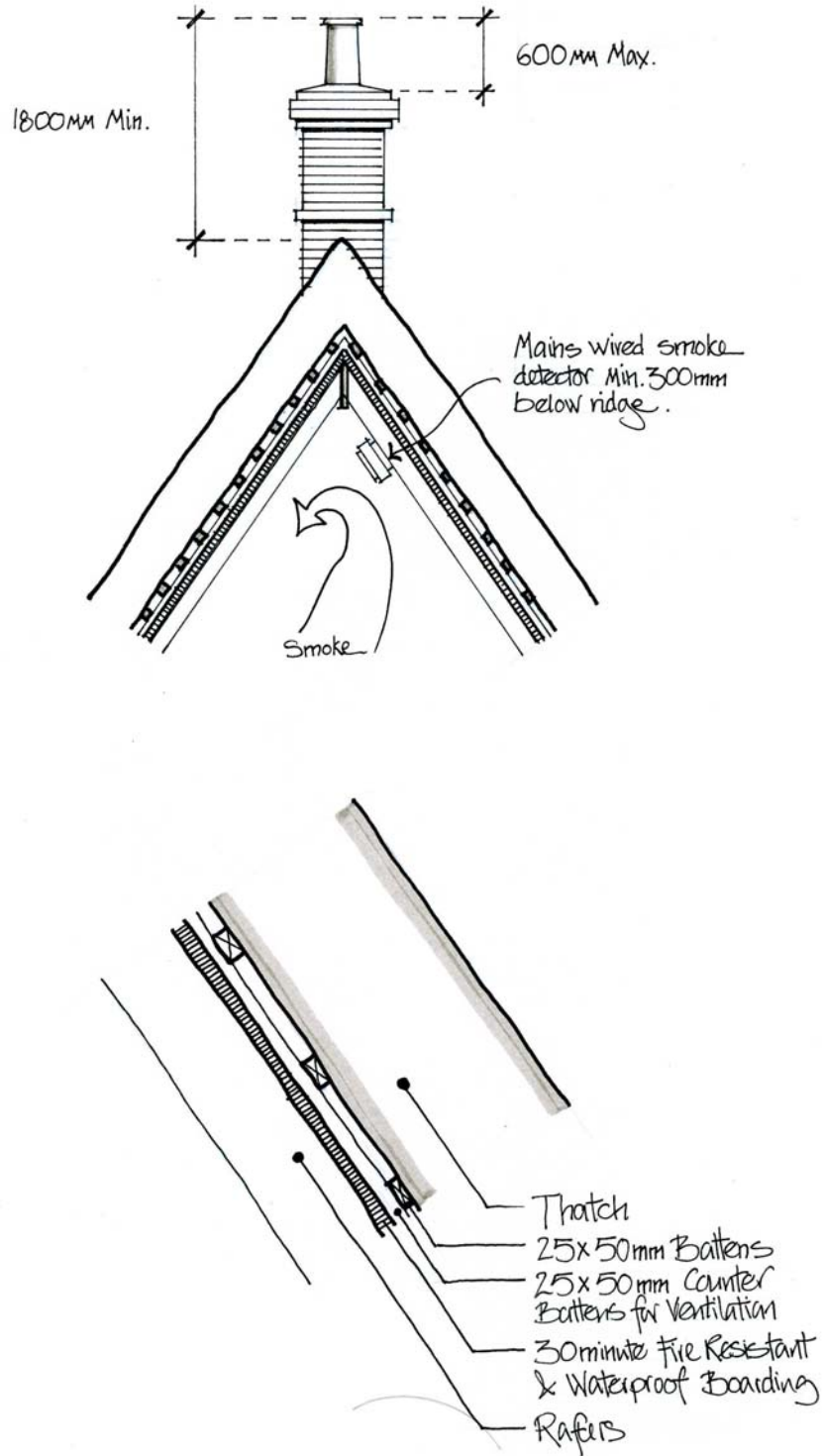


THE DORSET MODEL ON THATCHING

"THE DORSET MODEL" A GUIDE TO FIRE SAFETY IN THATCHED DWELLINGS

The Dorset Model was developed on the basis that evidence has shown that thatch can be sacrificed in the event of fire, and requires the following provisions to be included within the design:

- Rafters are to be overdrawn with a material providing 30 minutes fire resistance, which should also be water resisting. 50 x 25mm counter battens are recommended on a micro porous boarding to allow the thatch to breathe;
- Any chimney, including the pot, should terminate at least 1.8m above the height of the ridge. Due to the risk of condensation forming as hot gases cool, the chimney pot should be limited to a height of 600mm;
- A domestic mains and battery powered, interlinked smoke alarm system is to be installed, with one smoke alarm fitted within the roof void;
- A terrace may not consist of more than three thatched dwellings together.
- In considering an application for such a relaxation the Building Control authority will have to consult with adjacent neighbours and the Fire Authority, and this may add to time taken to determine the application. In addition, the Dorset Model also includes the following recommendations:
- A loft hatch 600 x 900mm (minimum) is recommended for fire fighting purposes;
- Effects from rodent damage and straw debris need to be taken into account when considering the wiring installation;
- It is NOT recommended to cut in recessed lighting into the ceiling below the thatch and any light fitting within the roof void should be in bulkhead type fittings. External lighting (especially floodlights) should not be located immediately below the thatch;
- Spark arrestors on flues are NOT recommended because they can clog and restrict the flow of flue gases;
- It is recommended that the proposal includes an external water tap, supplied from the rising main and fitted with a hose capable of reaching all parts of the roof;
- Any metal plumbing in the roof void should use compression joints so as to avoid the use of blowtorches.



Details of the Dorset Model