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50 In this stable conversion new entrance screens have been incorporated behind the stable joinery. © Peter Yiangou Associates

54 Steel casements have been incorporated in front and independent of the timber framing. © Geoff Pyle

51 Sensitive repairs have been carried out to this early 19th-century small farm range at Ashburton, Devon. © Paul Glendell

55 The door to this Grade II listed granary in Oxfordshire, now in use as a farm office, has been retained, with a new glass door inserted behind. © Barker Evans

52 The owl holes and ventilation slits have been directly glazed in this residential conversion. © Peter King

56 A glazed owl hole with curved reveals can add significant light to an interior. © Peter King

53 A variety of opening sizes have been incorporated into this barn in Suffolk without being overtly domestic in character. © Geoff Pyle

57 To avoid domestic references frameless glazed units that slide in simple steel frames have been used on this Norfolk barn conversion, now holiday accommodation. © Mark Luscombe-Whyte/Hudson Architects



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WINDOWS AND DOORS

Where original joinery exists such as window frames and doors, these should be repaired rather than renewed wherever possible. Farm building doors are usually solidly constructed with external vertical planks, applied to a stout frame with iron strap hinges. Some doors such as those for buildings housing cattle were slatted for ventilation. The hanging arrangement of doors is also an important aspect of their character. They may incorporate pintle hinges set in stone blocks or pegged heavy wood frames.



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Inevitably for habitable accommodation new doors and windows will be required. For new joinery 'off the peg' standard units are unlikely to be suitable. Frame sections used in farm buildings were traditionally large and robust, and the thinner sections used in standard joinery will never look suitable; nor will their standard 'domestic' proportions. Standard 'domestic style' windows can have a very adverse impact on the majority of farm buildings, and unless the building already has such windows they should be avoided. When having new joinery made it is worth considering matching the timber species to the existing joinery of the building, as this will help blend new and existing work. As an alternative to timber, the use of steel window sections can look appropriate in certain instances and have a close affiliation with the industrial aesthetic of many farm buildings.



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The glazing of every door opening to introduce light should be avoided – there should be a balance of glazing to solid in the treatment of the elevation.

58, 59, 61 Garish colours and white should be avoided in preference to dark grey/red, pale green and grey green. **58, 59** © Peter Yiangou Associates Architects
61 © Peter Gaskell

60 Well-executed pointing is a crucial part of repairing a traditional farm building. © Van der Steen Hall Architects

62 Using a colour which blends with the surrounding material can help to reduce the impact of new joinery on the exterior. © Peter King



GLAZING DESIGN

The glazing of openings is a particularly subtle aspect of design in farm building conversion work. In masonry structures setting glazing deep in the reveal of existing openings (which were rarely glazed) creates shadow lines and minimises reflections and impact. The glazing might be inserted as a frameless piece of glass bedded directly into the masonry reveals. In weatherboarded farm buildings glazing is best positioned well forward for minimal impact.

EXTERNAL WALL FINISHES

It may be the case that some repointing will be required as part of the repairs. Poor and inappropriate repointing can have a significant impact on the character of farm buildings and can ultimately be damaging to the fabric. Always use soft lime based mortars and look for evidence of the aggregate and sands used in the past, which may well have local significance and will enable a close visual match.

When considering external finishes as part of a farm building conversion it is well worth trying to establish previous layers of construction that may have existed. For instance has the building remnants of a lime render coating that was limewashed? Lime-render and limewash create an authentic and protective external finish for many traditional farm buildings and are especially appropriate where there is surviving evidence of previous use.

Softwood joinery that needs to be finished, as opposed to hardwood joinery that can be left to weather naturally (such as oak or elm), should generally have



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63 Corrugated iron sheeting has become part of the farm building vernacular and has saved many roofs from decay. © *English Heritage*

67 When repairing roofs of farm buildings it is important to maintain their character. The repair of this Grade II listed barn in Henley-on-Thames has carefully retained the undulations in the roof as well as 25% of the original hand made roof tiles. © *JJP Conservation*

64 Major repairs have been carried out to this fine raised cruck roof, part of a Grade II* listed medieval tithe barn near Bristol. Great care has been taken to retain historic fabric with minimal intervention. The repairs were all carried out *in situ*. © *Simon Doling*

68 Where farm buildings are thatched then thatch should be reinstated. The local planning authority may well have a policy concerning which type of thatch is appropriate. © *English Heritage*

65 Farm buildings are generally characterised by a simple verge. The way roofs have been detailed is a vital part of their character. © *English Heritage*

69 A curved stainless-steel angle has been used to restrain the outward thrust of the roof prior to inserting a new oak wall-plate to house the rafter feet. © *Chris Balme Acanthus Ferguson Mann Architects*

66 The continued use of corrugated iron sheeting can be justified for ancillary buildings on the farmstead. © *Van der Steen Hall Architects*

70 Steel struts have been used to support sagging purlins at this Grade II* medieval barn in Suffolk, allowing the retention of as much historic fabric as possible. © *English Heritage*



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a paint finish rather than a stain finish. Staining timber joinery can be less successful especially if standard wood stains are used which have an inappropriate orange/light brown tone. Paint colours need to be carefully chosen. Garish colours and white should be avoided in preference to dark grey/red, pale grey, grey green or colours to match adjacent stonework. Historically, external wood colours often denoted to which estate the building belonged. Using a recessive paint colour that blends with the adjacent walling material can significantly reduce the impact of new joinery. Wide ranges of suitable colours are now available.

Weatherboarded farm buildings were traditionally finished with a tar or sometimes a paint finish. If it is tar then this can still be obtained from specialist suppliers, but more often weatherboarding is now stained black to emulate the tar finish that had previously been used.

Stone or brick cleaning is unlikely to be necessary in a rural environment and could be damaging, resulting in the loss of patina and lichen.

ROOFING

ROOF CHARACTER/FEATURES

The roofs of farm buildings are often highly visible in the landscape and represent a very significant aspect of their character. Farm buildings are often characterised by long unbroken roof profiles with undulating ridges across the various bays of the building. It is vital to be sensitive to this historical and dominant characteristic.

The roof finish displays a strong local and regional variation depending on the materials used and their constructional forms of gables, hips and half hips. Corrugated iron sheeting (usually steel sheeting) has been widely used on roofs of farm buildings (particularly Dutch barns) since the middle of the 19th century, and often has been used as a cheap replacement for thatch or tiles. Its use has saved many farm buildings from dereliction and its continued use can be justified for ancillary buildings on the farmstead.

The way these roofs are detailed is also a vital part of their character and needs to be respected. Generally the roofs of farm buildings are characterised by a simple verge with a slight oversail and no bargeboard. The eaves rarely have much of an overhang or any soffit board.

REPAIRING ROOF FINISHES

It is often quite possible to salvage a large proportion of the roof finish when clay tiles, pantiles or slates have been used, providing that the material is still sound. The need to repair a roof will most frequently arise from the deterioration of the nails or pegs used to fix the roofing material, along with the decay to the laths or battens. Where new material is needed this can be positioned on less prominent roof slopes. It is important when replacing roof finishes to match the existing characteristics such as diminishing courses, size and colour.

When renewing roof coverings use new rather than second-hand material. The trade in second-hand roof materials inevitably leads to the unnecessary destruction of roofs, particularly in rural areas. For stone slate roofs in particular, using second-hand material undermines the viability of quarries producing new slates.

If the farm building is thatched then thatch should be reinstated or repaired as appropriate. The local planning authority may well have a policy concerning which type of thatch is appropriate.

REPAIRING EXISTING ROOF STRUCTURES

The structural weakness and decay of roofs can result from long years of redundancy or adaptations to house farm machinery. When repairing such roofs the aim should always be to retain as much of the historic roof timbers as possible and to retain character by working with the existing roof structure. Roof structures should not be drastically altered to create extra headroom.

Decisions need to be made as to whether principal members might be repaired, strengthened, paired up or replaced. The head and feet of rafters are often particularly vulnerable but can relatively easily be repaired using simple scarf joints. Stainless steel angles may be needed at the junction of the rafter feet with the wall plate to prevent spreading. The collars of roofs can also be relatively easily repaired. Ridge repairs may also need to be carried out, as this is one of the most vulnerable parts of the roof structure. Joints should be formed from traditional carpentry techniques but sometimes it may be possible to retain important historic fabric by using a steel fitch-plate to strengthen rather than to replace a timber member.

There should be compatibility of materials and moisture content within the repaired roof structure and an assessment of loading carried out as part of the change of use. Additional strength can be added by the use of a stressed plywood skin on top of the rafters without adding visible additional structure.

NEW ROOFS

Sometimes masonry or timber-framed farm buildings have completely lost their historic roof structure as a result of fire or years of neglect. In many instances the historic roof has been replaced with lightweight softwood or metal trusses supporting corrugated iron.

It is often worthwhile and beneficial to carry out some investigation of the remaining structure for clues to the original form of roof structure. For instance, pockets in the masonry can indicate the spacing of the trusses, and gable walls can show evidence of a previous roof pitch that can in turn give clues to the material used as a covering.

With conversion a new roof will often be required and a decision will need to be taken whether to recover the form of the previous roof structure or construct a modern roof structure.

ADDING NEW ELEMENTS TO THE ROOF

As the roof forms such a sensitive part of the character of most farm buildings, interventions to the roof itself need to be particularly carefully considered.

One of the most sensitive issues with any farm building conversion is the insertion of roof lights. Farm buildings rarely had any form of glazing at roof level, though sometimes glazed tiles/slates were used. Roof lights can have an intrusive impact on the character of farm building roofs, particularly those where the roof is the dominant characteristic and is steeply pitched. Many designers go to great lengths to introduce light by other means rather than resort to the introduction of roof lights, such as the careful insertion of new openings and the use of borrowed light. A farm-building roof with roof lights spaced regularly or in different positions can undermine the original simplicity of form so fundamental to these buildings. The need for a large number of roof lights suggests the use has over-pressurised the space available or light levels are unnecessarily high. If roof lights are to be added it is

71 If a roof light is to be added it should be carefully positioned on the least prominent roof-slope when viewed from a public vantage point. © Bob Edwards

72, 73, 74 A single area of patent glazing can often have more of an affinity with the semi-industrial character of some farm buildings than a number of roof lights. **72** © Rex Critchlow Pye Critchlow Architects **73** © Hufton & Crow/VIEW **74** © English Heritage

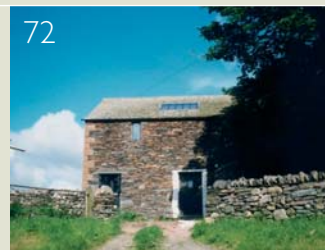
75 Roof lights are available that match the characteristics of the traditional cast-iron type. Such roof lights have a low profile and slim glazing bars. © Peter King

76 Glazed pantiles can still be sourced and should be considered for pantiled roofs. © Mark Luscombe-Whyte/Hudson Architects

77 A new roof in green oak has replaced a modern steel roof to this large stone Grade II listed barn in Devon. The barn had lost its original roof long ago. Pockets in the granite masonry gave clues to the original form of construction. © Cameron Scott timberdesign

often better to locate them on the least prominent roof-slope when viewed from a public vantage point. It is always preferable to use the flush 'conservation type' roof lights as these have less impact on the roof surface, particularly if non-reflective glass is used.

The introduction of new dormer windows is generally inappropriate in all farm-building conversions except where there is already evidence of their use.



ROOF VENTILATION AND ROOFING FELT

Few agricultural or estate buildings made use of roofing felt in their original construction but with a conversion this may be required as part of the roof upgrading. It is important when upgrading roofs and adding insulation that adequate ventilation is provided (see page 27 on roof insulation).

Roof ventilation can be introduced into gables, at the eaves, at the ridge or within the roof slope. Proprietary eaves vents are usually unobtrusive but may require adjustment of the eaves tilt to ensure the roof finish lies properly. With careful design it is perfectly possible to avoid intrusive and prominent means of ventilation.

RAINWATER GOODS

In many cases farm buildings would not have had any rainwater gutters at eaves level. The roofs simply oversailed the eaves, and water drained away from the base of the wall. Where rainwater goods existed previously, reinstatement should be carried out to match the original profile and material. Existing fittings capable of reuse should be retained. Where none previously existed and a decision has been made to add these, then cast iron or extruded aluminium is recommended with simple half-round sections for the gutter and circular section for the downpipes. Plastic looks insubstantial in the simple semi-industrial context of farm buildings. Where farm buildings do have gutters these are usually fixed by means of rafter brackets or wall spikes (rise-and-fall type) as farm buildings rarely have any fascia board. Try to retain fittings that are still serviceable. Where the farm building is retained without the addition of gutters, then special attention needs to be paid to how water drains away at the base of the wall. Equally if gutters are added then consideration needs to be given to how these will be drained.

INTERNAL SPACES

SUBDIVISION/VOLUME

Internal planning and daylighting are interlinked issues that will have an impact on the external form of the structure. It follows that the intensity of use must be informed by an understanding of the development and present character of the building in question. Many farm buildings, particularly threshing barns, have a special open quality with an uncluttered volume open to the roof. This open aspect derives from the need to store produce, the result being few external openings. Careful examination of the structure can reveal whether the interior was open or subdivided from the outset. It is important to retain the open aspect of barn interiors, whether they were open from the ground or upper floors, and to identify existing outbuildings with multiple openings or – informed by an understanding of the plan form of the steading – new areas for new extensions that can unlock this problem by providing space for domestic ancillary uses. (See page 29 on Outbuildings and Extensions.) In all cases the solution must be to introduce light to the interior and retain the threshing bay open to the roof and as many adjacent bays as possible which may give the opportunity to provide a staircase, gallery and circulation/living area. The architectural quality and importance of the interior is a key consideration here and it can be such that no subdivision can be permitted. Where a degree of subdivision is acceptable then the positioning of the subdivision should respect structural bay divisions, whether these bays are defined by cross-walls, framed partitions or masonry nibs.

When a space is subdivided consideration should be given to the possibility of borrowed light to avoid the need for new external openings. This may, however, have implications for fire separation as part of the Building Regulation requirements. Light levels can also be significantly increased by simply splaying or rounding the internal reveals of openings and by using light reflective finishes.

Narrow-span buildings can be difficult to subdivide while providing independent circulation, and it is often better for rooms to open directly into each other.

ADDING FLOORS

Inserted floors should generally be kept to the minimum and care should be taken to how these are supported. New floors should not engage or span across full-height threshing door openings. For timber structures, floors should be supported independently of the timber frame. Certainly no part of the main structural fabric should be removed or altered in an attempt to accommodate new floors. If new structures are kept separate from the existing structure it allows for relatively easy reversal of the intervention at some stage in the future.

INTERNAL FINISHES

The interiors of most working farm buildings are very plain, reflecting their purely functional nature. The walls are often rough and unplastered, the floors bare with some bricks, stone flags or setts still in place, perhaps from its agricultural use as a threshing floor. Stables and granaries may still retain their characteristic internal plasterwork and lining out with vertical beaded boarding. These 'raw' finishes contribute much to the character of traditional farm buildings and any adaptation should try to retain these finishes wherever possible. This may conflict with the need to upgrade the structure for insulation requirements under the Building Regulations, but it is often possible to leave some surfaces exposed. (See page 33, Building Regulations.)

78 This aisled barn of 16th-century origins in Lancashire has had new free-standing elements added as part of its use as a visitor centre. Although contained within the structure they have very minimal impact on the historic fabric. © Max Alexander/Hakes Associates

79 New elements have been inserted that work around the timber structure of this 17th-century listed threshing barn in Kent, thereby preserving its open interior. © Chris Gascoigne/VEW

80 This residential conversion in Suffolk has maintained the open aspect of the roof structure. © Philip Bier/VEW

81 A galleried link with staircase has been incorporated into this barn, thus maintaining its open roof structure. © Huw Thomas

82 This Grade II* listed barn in Hampshire has found a new use as the headquarters for a car owners club. The dramatic interior space has been retained as a display area. © Jonathan Moore/architecture plb

MACHINERY AND FITTINGS

Machinery and internal fittings provide important evidence of a building's former use and some are now very rare. Most can with some degree of ingenuity be retained as part of the conversion work. These include stable and cow-house stalls and fittings, granary bins, hoists and cranes, belt drives for steam engines, hop kilns, and the mills and presses found in cider houses. Where fittings need to be removed, and in the case of listed buildings this will require listed building consent, they should be carefully recorded. (See page, 32 Recording.)



83 It is often possible to incorporate some existing wall finishes into a conversion while meeting requirements for thermal upgrading. © Mark Luscombe-Whyte/Hudson Architects

84 The interior walls of this medieval barn, which is to have a new use as a community resource, have been finished with a lime plaster prior to lime-washing. © Simon Doling

85 A horse gin, installed around the 1840s, housed in the engine house attached to the barn. Such fittings are becoming increasingly rare. © Mike Williams/English Heritage

86 The original stable-floor finish has been retained in this barn in Henley-on-Thames now used as a tourist information office. © JJP Conservation

87 A typical stable interior in Norfolk with a stall divider; and on the wall a hay rack and manger. With some ingenuity such fittings can be incorporated into conversion proposals. © Mike Williams/English Heritage

88 An axle shaft with pulley wheels to drive belts was retained *in situ* at this Grade II listed 18th-century barn in the New Forest which has been converted into a multi-purpose arts centre. © Western Design Architects

89 This conversion of a listed granary to a farm office has retained granary grain bins at the upper level as a form of subdivision. © Barker Evans

90 This barn in Cumbria now converted to a farm shop has retained many internal fittings from the shippens at the lower level. © English Heritage



INCORPORATING SERVICES AND INSULATION

Most new uses will require some degree of servicing. For most commercial uses and certainly for domestic habitation the building will need to be upgraded thermally as well. However, incorporating building services and insulation into a historic farm building requires careful planning to ensure that the proposed work will be effective and beneficial while not compromising the building's character and equilibrium. These are structures that throughout their working life have had no vapour barriers, heating or insulation. Such interventions can have a profound effect on the way they perform and can give rise to problems and defects that previously did not exist.

Most farmsteads are in isolated rural locations without access to mains drainage or gas, which often provides the opportunity to incorporate renewable energy supplies and alternative forms of drainage into a conversion project.

91 Careful consideration needs to be given to how insulation is added to previously uninsulated roofs.
© Spratley and Woodfield Architects

92 Domestic conversions invariably incorporate a solid fuel stove that requires a flue. Care needs to be taken with the positioning of flues.
© Geoff Pyle

93 Insulation and storage have been incorporated behind a plywood lining to the side walls. The gable end by contrast has been left with a stone finish.
© Chris Gascoigne/VIEW

94, 95 A carefully positioned and detailed masonry chimney which incorporates a number of flues has been added in this residential conversion. This avoided several metal flues being visible in the roofscape. The circular internal shaft also acts as a vertical services route.
© Huw Thomas

ADDING NEW INCOMING AND OUTGOING SERVICES

New incoming services such as electrical and telecommunication supplies should wherever possible be accommodated below ground.

The site drainage and the disposal of soil, rainwater and surface water must be assessed. In the absence of mains drainage septic tanks will need to be incorporated. Alternatively the use of reed beds might be considered, along with a rainwater-harvesting system.

Storage of oil/gas for heating installations needs to be carefully sited. If possible it should be buried below ground or carefully screened. If there is no mains water supply, holding tanks may be required which will need to be located below ground. Special attention should be given to the siting of meter boxes. (With any significant excavation for services the local authority may require an archaeological investigation or 'watching brief': see page 32, Recording.)

ADDING HEATING

The vast majority of farm buildings will have had no heating throughout their lifetime. Heating buildings that have previously never been heated can have a significant effect on the fabric of the building, which needs to be monitored.

With high open spaces the use of conventional central heating systems with radiators is not particularly effective as heat rises and is lost in the upper parts of the space. Underfloor heating can often be a more efficient solution, with minimal impact on the fabric of the building.

Consider the positioning of boiler flues so that they have minimal impact on the external appearance. Boilers with balanced flues can avoid the need for a projection through the roof slope. Domestic conversions invariably incorporate an open fire or a solid fuel stove, which requires a flue. A single flue carefully positioned can have a minimal impact, especially if it is painted so that it doesn't reflect sunlight. Masonry chimneys may be appropriate in some farm building conversions providing they are appropriately designed. In the 19th century chimneys were sometimes added with boiler rooms to provide power for farm processes.



INCORPORATING SERVICE DUCTS AND PIPEWORK

Careful thought needs to be given to how services are distributed within the conversion so that they have minimal impact on the building, and unnecessary intervention is kept to a minimum. Detailed design is essential to improve planning and appearance, particularly if masonry is exposed internally and there are no ceilings to conceal services.

New, solid ground floors can accommodate perimeter service ducts, and it may be possible to utilise existing floor drainage gulleys if these exist. Space at wall plate level can also be useful for services distribution.

Waste pipework should be run and terminated internally wherever possible. A single badly placed vent pipe can have a significant impact on a large expanse of roof.

ADDING INSULATION

The material science of insulation is constantly evolving and insulation is now available in thinner sections while maintaining the same level of performance. This makes its incorporation into existing fabric less problematic. However, care needs to be taken when adding insulation to an old building. It is important that new insulation does not disturb the moisture balance significantly. The use of breather membranes can control problems such as interstitial condensation while allowing the fabric to 'breathe'. The use of hygroscopic materials, such as sheep's wool insulation and cellulose fibre, can help to absorb excess moisture without condensation and decay.

Wall insulation

For farm buildings of masonry construction, consideration will need to be given to the thermal upgrading of the external wall construction. This is probably most easily achieved with the use of insulated plasterboard dry lining (in the case of listed farm buildings such work may require consent). This method does again have the potential problem of interstitial condensation occurring against the original masonry structure, so a vapour check should be considered, providing it does not significantly inhibit the ability of the external wall to evaporate moisture. Alternatively the walls can be battened out with the insulation being incorporated behind a new wall finish. If the area is ventilated this could avoid the need for a vapour

barrier. It may be possible to leave some walls, such as gable ends, uninsulated if adequate overall provision has been made.

With timber frame structures that have an external finish of weatherboarding it is usually possible to add naturally hygroscopic insulation to the voids between the timber frames. This can then be covered with a vapour-permeable membrane and an external cladding of tongue-and-groove wood fibreboard to reduce draughts to the outer side before the weatherboarding is replaced. Where timber frames are infilled with panels of wattle and daub or brick noggin, it is often possible to introduce insulation (preferably an insulation that can absorb moisture), the depth being dependent on the frame size.

Roof insulation

With exposed roof trusses and purlins, the insulation has to be placed either between the common rafters or above all the rafters. In the latter case this has the effect of raising the roofline, as counter battens are needed to accommodate the insulation and an eaves-to-ridge ventilation path. In modern practice a breathable membrane is added over the counter battens before the roof finish is added. Many designers use an insulation that has a finished surface to the underside and incorporates a vapour barrier. This avoids the need to plaster around the exposed rafters. Alternatively a material such as reedboard can be added with a lime plaster finish below a hygroscopic insulation material. This construction would act as a series of 'breathable' layers.

Floor insulation

Floor finishes in many farm buildings, particularly barns, are rudimentary and many are simply well compacted earth or clay, which may have built up over many years. Some farm buildings, such as stables, were often cobbled or laid with setts or bricks. Barns had threshing floors of beaten earth, bricks, stone flags or raised wooden platforms. Most farm buildings have had new floors added during their lifespan. Invariably concrete, they offered the farmer a cheap and easily maintained finish: they are rarely suitable to be retained in a conversion. It may be the case that the historic floor finish (such as stable bricks, stone setts or brickwork) lies beneath and could be salvaged and relaid on the

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96 In order to maintain as much as possible of the dramatic open interior of this 14th-century barn, kitchen and toilet facilities have been housed in a modern extension located adjacent to the barn © Jonathan Moore/architecture plb

97 The extension to this Norfolk barn has been designed as a clearly modern addition avoiding domestic references. © Mark Luscombe-Whyte/Hudson Architects

98 Two roadside barns have been linked by a new extension designed in a sympathetic style as part of the residential conversion of this group of farm buildings in Oxfordshire. © Danks Badnell LLP Architects

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new floor structure. Alternatively it may be possible to lay a new finish over a historic floor with a layer of sand blinding so the historic floor would not be damaged.

Placing rigid polystyrene insulation below a new concrete ground slab laid on a damp-proof membrane (DPM) is perhaps the most common method of incorporating new insulation. Care needs to be taken not to excavate too much material such that the base of the foundations becomes exposed and there is a risk of structural failure. A trial hole would establish this information.

Other forms of insulation are available for floors such as lightweight expanded clay aggregate which can be used unbound or bound with a high-strength lime mortar to provide a solid slab. This form of construction allows a greater degree of permeability in the construction compared to a concrete slab with a DPM, and avoids the risk of channelling damp into the masonry walls.

FIRE PREVENTION SERVICES

It is always advisable to install a fire alarm system (preferably a radio system to avoid wiring) into historic farm buildings. Conversions can often trigger the need for special measures to be taken to safeguard the integrity of the building while accommodating the new use. The use of sprinkler or water mist systems can sometimes be used to avoid fire compartmentation and the internal subdivision of barns, particularly if there is a second floor level.

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INCORPORATING OTHER SERVICES

External lighting can be fixed to the building rather than free-standing for minimal impact on the setting. Lighting should be discreet for safety and security. The use of infrared activation can be used, but there is always the chance that passing wildlife can activate this unless the sensitivity is adjusted.

The rural, often remote location of many farm buildings may offer the opportunity to incorporate renewable forms of energy supply. Solar panels, photovoltaic cells and wind turbines may be possible if carefully sited. Internal east/south-facing roof slopes may be particularly suitable (check with the local planning authority as to whether consent is required).

OUTBUILDINGS AND EXTENSIONS

CONVERTING EXISTING ADDITIONS

Outbuildings such as cart-sheds and pigsties provide important evidence of how a farmstead has evolved over time. As the farmstead developed additional buildings were often constructed against the wall of an existing building as a lean-to providing a cheap and practical solution to a functional requirement (lean-to shelter sheds for cattle or cart-sheds were often added to barns).

It is important to assess the value of and consider the retention of these structures to maintain a coherent picture of how the farmstead has evolved. Outbuildings can be put to good use (garages, storage or new services) with minimal alteration (avoiding any infilling), even if they do not form an integral part of the main conversion works. They add significantly to the quality of the setting and with some modest repair and consolidation will be a resource for years to come.

There may be a case for converting outbuildings rather than adding new extensions, but some outbuildings defy conversion without major change, particularly small-scale examples such as calf houses and pigsties. Outbuildings with potential for reuse could be left as areas of possible future expansion, avoiding the need to introduce new structures in the future.

CONSTRUCTING NEW ADDITIONS

There may be a good case for adding an extension to a historic farm building where this can safeguard the significance of the main building to be converted. An extension which houses ancillary functions requiring a high degree of partition can leave an undivided space free from subdivision, thus protecting its character. Extensions for other uses such as garages can have less justification particularly if there are existing outbuildings that can usefully serve the purpose. Overtly domestic extensions such as porches and usually conservatories are alien in character and can rarely work successfully within the context of historic farm buildings.

New extensions, be they a contemporary design or one based on an existing outbuilding, should be subordinate in scale and relate to the character of the farmstead group. They should not compromise the setting, so careful thought needs to be given to their siting.

The demolition of modern makeshift structures that have no real significance or contribution to the character of the farmstead can allow space for a new extension, particularly if their removal enhances the group value.

SETTING AND SURROUNDINGS

With any type of conversion the impact on the setting is a vital aspect of a successful project. A sensitive conversion respects the ties the building has with its landscape setting and avoids imposing alien features. This often requires a light touch and an understanding of what features characterise the setting and their relationship to the landscape. Attention to detail is a key aspect and a consideration of public views of the farmstead is particularly important in areas of high landscape value.

RESPECTING THE FARMSTEAD SETTING AND GROUPING

Within and around the many different forms of farmsteads were trackways to surrounding fields and local markets, ponds and cart washes, areas for the movement of vehicles and animals, the accommodation of animals and the spaces where hay and sometimes corn would be stacked. Nearly all farmsteads, therefore, have some form of enclosure either by the buildings themselves in the form of a courtyard or by connecting



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A sensitive conversion respects ties the building has with its landscape setting and avoids imposing alien features. This involves an understanding of what features characterise the setting and their relationship to the landscape. **99** © Peter Gaskell **100** © English Heritage **101** © Huw Thomas **102** © Van der Steen Hall Architects **103** © Mark Luscombe-Whyte/Hudson Architects

104 New fencing and gates need careful and appropriate design that follows the local vernacular. © Huw Thomas

105 The farmyard setting has been retained at this farm in Oxfordshire where some of the buildings have been converted into offices. © Spratley and Woodfield Architects

106 The curtilage landscape works have been sensitively handled at this range of farm buildings near Taunton recently converted to office suites. © HFFB Ltd

structures such as walls and gates. The other key characteristic of farmsteads is the way the landscape around a farmstead often flows up to the immediate edge of the buildings without any form of curtilage definition.

These two key characteristics need to be respected whilst meeting the needs of the new use. Ideally the curtilage needs to be kept as minimal as possible. Any enclosed private areas need to be carefully sited and contained, particularly in relation to public views and the surrounding landscape. Extending gardens into what has been farming land requires planning permission and should be avoided if possible. New walls or planting, which can be used to screen parking and garden areas, must follow the local vocabulary. In particularly sensitive landscape settings a ha-ha may be the most discreet form of definition.

In conversions involving multiple units, fields are often subdivided into a series of small paddocks which subsequently become gardens. Field pattern makes an important contribution to landscape character; and any field subdivision should respect the local characteristic field sizes and shapes.

Conversions can create problems of how to delineate shared space or space occupied by part of the farmstead which still acts as a working farm. Subdivision of fold-yards or removal of boundary walls should be avoided.

With any conversion and in particular domestic conversions, care needs to be given to the siting of paraphernalia such as refuse bins, oil tanks and sheds.

LANDSCAPE WORKS

A sensitive conversion avoids formal drives, tarmac surfacing and edging materials. The upgrading of tracks, gateways and yards can have a detrimental effect on the setting of the building. New fencing, gates and boundary walls need careful and appropriate design that follows the local vernacular. Where historically significant hard landscape features still exist, such as setts and cobbles, these should be retained and incorporated into the landscape works; otherwise the use of bonded aggregate to soften hard landscaped areas can be very successful. Careful landscape works around farmsteads, including the reinstatement of ponds, lost orchards or simply areas of unmown grass where these respect local landscape character can provide valuable and important new habitats for wildlife. (See page 34, Wildlife legislation.)

VEHICULAR ACCESS AND PARKING

Vehicular access and parking can have minimal impact when the farm building is converted to a single dwelling with careful landscaping. Farm tracks can be retained and parking can be accommodated within cart-sheds or other outbuildings if they exist. Commercial uses and multiple dwellings can have greater impact, and the increase in vehicle numbers can trigger the involvement of the local authority highways department and the need to upgrade the access. The local highways authority may require adoptable standards unless the track can be privately maintained and left unadopted. Highway standards such as large visibility splays, turning circles and street lighting should be avoided if at all possible.

Parking requirements are generally determined by the local authority and for residential use this may be up to two spaces per dwelling. With commercial use car parking can become a much more serious threat to the setting. Although outbuildings may provide some garaging, it is likely that the majority of parking will need to be screened from view.

AUTHORISATION OF WORKS

Planning permission and listed building consent are authorised by the local planning authority, which is therefore best placed to provide advice concerning work on all types of traditional farm buildings.

Local planning authorities often produce their own guidance (supplementary planning documents), which usually offer detailed recommendations about design features of proposed conversions. Such guidance can offer a regional perspective on the key characteristics and local distinctiveness of farmstead types and their immediate settings, as well as examples of good practice.

Before submitting proposals to the local authority for consent, consider having a pre-application discussion with the key stakeholders in the process, particularly the conservation officer if the building is listed and the building control officer. Pre-application consultation reduces potential confrontation later in the project and can address problems and help establish outline costs early on in the design process.

A pre-application meeting can also be useful in establishing what the local planning authority's information requirements might be to support any future application. Such discussions could determine whether the significance of the site, its sensitivity and capacity to accommodate change should be guided by an initial rapid appraisal or, for more complex sites, a conservation statement or plan to help the planning authority assess the impact of the proposals.

PLANNING

PLANNING POLICY

The acceptability of conversion proposals is determined according to the local planning authority's Local Development Framework, which generally takes into account the historical significance, character, layout and location of buildings and their contribution to the landscape. National planning policy also guides local authorities in determining the suitability of buildings for conversion.

RECORDING

The significance and complexity of a building will demand different levels of recording. For buildings undergoing a change of use it is the last opportunity to record them in their original agricultural form. Features of interest that would be lost should be adequately recorded in accordance with guidance provided in Planning Policy Guidance Note 15 (*Planning and the Historic Environment*).

English Heritage has recently published *Understanding Historic Buildings: A Guide to Good Recording Practice* (English Heritage 2006, product code 51125). This guidance considers a range of approaches that are available for the assessment, interpretation and recording of a historic building and provides guidance on when they are applicable. These include forms and levels of recording, the role of documentary research, measured survey and drawings, photography and preparing a report.

English Heritage will also publish *Understanding Historic Buildings: Policy and Guidance for Local Authorities*. This policy statement and guidance sets out the English Heritage position on the investigation and recording of historic buildings within the English planning framework. It provides advice on how a specialist understanding of the significance of a historic building can inform a proposal and assist in the decision-making process, and identifies the need to record evidence that may not merit preservation. Guidance is given on the circumstances when this work is appropriate and how it should be undertaken, with case studies providing practical examples.

Planning Policy Guidance Note 15, published by the Department of the Environment and Department of National Heritage, covers issues relating to new uses of historic buildings:

3.9 'Judging the best use is one of the most important and sensitive assessments that local planning authorities and other bodies involved in conservation have to make. It requires balancing the economic viability of possible uses against the effect of any changes they entail in the special architectural and historic interest of the building or area in question. In principle the aim should be to identify the optimum viable use that is compatible with the fabric, interior and setting of the historic building. ...'

3.10 ... 'Policies for development and listed building controls should recognise the need for flexibility where new uses have to be considered to secure a building's survival.'

Planning Policy Statement 7 (Office of the Deputy Prime Minister, 2004a) also gives local authorities guidance on the conversion of farm buildings. The statement encourages a wide range of economic activity in rural areas, particularly where traditional rural-based industries are in decline. Productive reuse is considered preferable to buildings being underused, vacant or derelict:

"The Government's policy is to support the re-use of appropriately located and suitably constructed existing buildings in the countryside where this would meet sustainable development objectives. Re-use for economic development purposes will usually be preferable, but residential conversions may be appropriate in some locations, and for some types of building. Planning authorities should therefore set out in Local Development Documents their policy criteria for permitting the conversion and re-use of buildings in the countryside for economic, residential and any other purposes, including mixed uses."

There is also a need to recognise and design for local distinctiveness. Planning Policy Statement 1 (ODPM 2005) paragraph 34: 'Design which is inappropriate in its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions, should not be accepted.'

Local Development Documents should include the 'need to preserve, or the desirability of preserving, buildings of historical or architectural importance or interest, or which otherwise contribute to local character' (PPS7, paragraph 17).

PLANNING APPLICATION AND PERMISSION

Change of use of any traditional farm building requires planning permission. The planning authority may attach several conditions to the planning consent to control the quality of the design throughout construction. The planning authority may require some building recording to be carried out, together with a programme of archaeological investigation to take place when excavations are carried out. Where archaeological remains are likely to be encountered, advice should be sought from the local authority archaeological officer. An ecological survey to establish nature conservation interest may also be required. (See page 34, Wildlife legislation.)

The planning authority may also seek to control post-conversion works by the withdrawal of permitted development rights and the use of Article 4 directions to control any curtilage development and to protect the setting.

CONSENTS FOR DESIGNATED BUILDINGS AND AREAS

LISTED BUILDINGS

There are over 60,000 farmstead buildings judged to be of special architectural or historic interest that are protected by statutory listing. The great majority of these buildings are listed Grade II, and comprise the older and more visually impressive structures, particularly farmhouses and barns, rather than the full range of farmstead building types.

Listed buildings are protected under the Planning (Listed Buildings and Conservation Areas) Act 1990 because they are considered to have special architectural or historic interest. Copies of the lists of buildings of special architectural or historic interest are available at the offices of local planning authorities.

Works that affect the character or interest of an individual or group of listed buildings or a building erected within the curtilage of a listed building prior to 1948 will require listed building consent. The application drawings should make clear to what extent existing fabric is being repaired and what parts of the farm building are being renewed. Such a report could be based on survey drawings that are annotated to show the extent of repair/replacement.

General maintenance and like-for-like repairs do not require permission, but local planning authorities may require a consent application for larger programmes of work, such as re-roofing. If there is uncertainty as to whether listed building consent is required or not, contact the local authority conservation officer.

SCHEDULED MONUMENTS

Some more important farm buildings are scheduled under the Ancient Monuments and Archaeological Areas Act 1979, and anyone wishing to do work likely to affect the monument must obtain scheduled monument consent (SMC) in writing from the Department for Culture, Media and Sport before commencing.

CONSERVATION AREAS

Conservation areas are normally centred on historic settlements, so many villages and market towns include conservation areas but comparatively few areas of open countryside are designated.

Designation of an area as a conservation area will influence the way in which the local planning authority deals with planning applications that may affect the area. These controls extend to unlisted as well as listed structures, and may be required, for example, for the erection of fences, or alterations to windows and doors. Other features that contribute to the character of the conservation area such as trees may also be protected. Local planning authorities can advise on the location of conservation areas and the implications of development within them.

OTHER CONSENTS

BUILDING REGULATIONS

The repair of farm buildings is unlikely to require Building Regulation approval. However, a conversion to a new use may require consent under various parts of the Building Regulations, which cover issues such as heat loss, structural stability and fire regulations. If the conversion involves some form of use which requires public access then adequate access provision will need to be considered.

Early involvement of the building control officer can result in sympathetic and flexible ways of achieving the necessary standards, particularly for listed farm buildings. It may also raise issues that would make any form of conversion an unrealistic proposition.

THE ROLE OF ENGLISH HERITAGE

English Heritage is the government's advisor on the historic environment. We are consulted by local authorities and other bodies on a wide range of policy and development activities. Central to our role in the planning system is the advice we give to local planning authorities and government departments on development proposals affecting listed buildings, conservation areas, scheduled monuments and registered parks and gardens.

We have a network of staff across England who have a wide range of skills, but it is neither possible nor necessary for us to engage with every planning issue. We will usually get involved only in schemes which include proposals with the potential for major change or damage to nationally important heritage assets.

Broadly speaking, English Heritage must be consulted on:

- listed building consent applications relating to a Grade I or II* listed building, or for demolition or partial demolition of a Grade II listed building

- applications for planning permission for development which affects the setting of a Grade I or II* listed building and (in some circumstances) for development which affects the character or appearance of a conservation area or registered park or garden

- all applications for scheduled monument consent.

English Heritage welcomes initial or pre-application advice for the above types of application. In order to be able to offer detailed advice we need a full understanding of the proposed works so that we can assess their impact. In some circumstances we also need to understand why the changes are proposed. Providing us with as much relevant information as possible at the earliest stage in the development process saves everyone time and money.

A full range of the information that we may ask for is listed in our leaflet *Planning and Development in the Historic Environment: A Charter for English Heritage Advisory Services* (product code 50904).

WILDLIFE LEGISLATION

Many species of wildlife live in or gain benefits from farm buildings and may be adversely affected by works of repair and conversion. An ecological survey should be carried out right at the beginning to establish whether there are protected species present. Where there are positive sightings of protected species or evidence of their occupation, advice should be sought from the local English Nature* office and any necessary licences obtained before the project is approved, as certain species using a building may be protected under the Wildlife and Countryside Act 1981. A licence for the works may require mitigation measures to prevent disturbance of the species or its habitat, particularly during nesting and breeding seasons.

HIGHWAYS

Some types of farm building conversion, particularly those involving commercial uses, can require existing accesses upgraded for vehicles. In some cases a new access may be required. Application of 'highways department standards' to farm building conversions can often be damaging to the setting as they relate to suburban housing schemes.

*Following passing of the Natural Environment and Rural Communities Act, English Nature, the Rural Development Service and the Countryside Agency's Landscape, Access and Recreation division are working towards integration as a single body, Natural England, by October 2006.

SUMMARY OF GOOD PRACTICE FOR THE CONVERSION OF TRADITIONAL FARM BUILDINGS

Understand the character and significance of the farm building and its landscape setting. What distinctive features need to be preserved in any conversion proposal such that the building can still be read as a farm building?

A thorough understanding of the farm building's historical, structural and spatial attributes is needed to inform the possible future use of the farm building and subsequent design work.

Try to understand as much as possible about the way the building is constructed and its condition before undertaking significant works of repair/alteration.

A comprehensive measured survey in plan section and elevation together with an accurate survey of condition is essential before embarking on the works. A detailed investigation should be undertaken covering issues such as damp, structural condition above and below ground, and timber decay. Site conditions need to be assessed with regard to drainage and provision of incoming services. An ecological survey should also not be overlooked. All this information helps in the preparation of initial costings and avoids unexpected problems during the works.

Respect the architectural and historic interest of the building and its setting – pair uses and buildings sensitively.

With any conversion or adaptation there is a balance to be struck between incorporating the practical requirements of a new use and protecting the special character and significance of the farm building. New uses need to be appropriate to the locality and need to fit the building. This may require some imaginative planning of openings and spaces.

Achieve high standards of design and craftsmanship for conversion work and use appropriate materials and methods of repair.

Matching the new use to the building, assessing the impact of changes, and carrying out sensitive and appropriate repairs requires skill and knowledge from those qualified and experienced in conserving historic buildings. Traditional materials should be used which take account of local characteristics and methods of repair. The use of non-traditional materials can be appropriate in some circumstances where a post-war structure is to be converted or a particular material is not available.

Minimise loss of and intervention in significant historic fabric during repair and conversion.

The repair works and works of alteration should be considered together with the overall aim of retaining as much important historic fabric as possible. Reuse materials wherever possible.

Obtain relevant consents and wherever possible have pre-application discussions with the local authority planning/conservation/building control officers.

Early consultation with the local authority can avoid potential confrontation later in the project and can address problems early on in the design process.

Respect the open character of many farm building interiors when considering conversion proposals.

Minimise subdivision of spaces and maintain the open structure of roofs where these exist.

Use existing openings in their original form wherever possible and minimise the formation of new openings. Avoid the use of 'domestic' window styles and standard 'off the peg' joinery.

This is probably one of the most important aspects of conversion work. The use of domestic style windows can have a dramatic effect on many farm buildings, which are essentially semi-industrial in character.

Give careful consideration to the choice of colour for joinery. Use colours that blend with and complement the surrounding external walls of the building.

The use of recessive colour can greatly enhance many conversion schemes.

Retain the character of the roof form and minimise new insertions such as roof lights in prominent roof pitches.

In many types of farm building the roof form is the highly dominant feature by nature of its expanse and plainness. Roof profiles should remain unaltered. Even quite small interventions can have a large impact, particularly on 'public' elevations.

Ensure that new landscape works and boundary treatment are appropriate to the setting.

The impact of the conversion work on the landscape should be as minimal as possible. Many conversions are marred by inappropriate landscaping which has an adverse impact on the setting. Minimise the extent of curtilage and give careful consideration to the way walls and enclosures are formed.

Avoid the construction of extensions that compromise the character and setting of the farm building. Consider extensions as a way of working with and enhancing the existing plan, form and context of the steading and as a way of safeguarding the significance of farm buildings whose character could be compromised by internal subdivision.

New work should be sensitive in scale and use of materials, and careful thought needs to be given to the siting of new buildings.

Retain existing outbuildings wherever possible for uses such as car parking, storage, new services.

Outbuildings provide important evidence of how a farmstead has evolved over time and can be put to good use.

Think carefully before installing new services that might have a detrimental impact on the building. Consider in particular the position of flues and vent pipes.

A single badly placed pipe can have a significant impact in an open rural setting. All services should be hidden wherever possible.

Retain and encourage wildlife habitats.

Establish what wildlife live in or gain benefit from the farm buildings to be repaired or converted, particularly if there are any protected species. Explore opportunities for creating wildlife habitats that are in keeping with local landscape character and Biodiversity Action Plans.

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APPENDIX: A GUIDE TO UNDERSTANDING TRADITIONAL FARM BUILDINGS AND THEIR CAPACITY FOR CHANGE

A designer should not start to address the issues associated with adapting a building for a new use until it is determined whether a building and its landscape have the capacity to accept change. Some buildings, or parts of buildings with significant interior fabric or fittings, will have little or no capacity for adaptive reuse, on account of their scale, location or degree of interest. They may, however, form part of a group where other buildings have potential for adaptive reuse.

The broad range of options for a building comprise:

- dereliction, or demolition and salvage of materials
- minimal intervention/holding repair
- full repair with minimal intervention
- adaptive reuse.

The purpose of this guidance is to identify the issues for consideration when adaptive reuse is considered the most sustainable means of securing a future for a farm building. An application for change of use or listed building consent will have a greater chance of success if the key issues are considered and identified at the pre-application stage, and it is well prepared and justified. Also vital are early consultation with local authorities, and with neighbours potentially affected by the proposals.

Presented below is a framework, applicable on the point of need, which will enable the user to make decisions about the options for sustainable reuse at the building, farmstead and landscape scale, informed by an understanding of character, context and sensitivity to change. All decisions must be open to challenge and support, and be presented in a clear and transparent manner.

The prime consideration will always be the impact of any proposed change on the historic character and significance of the building and/or farmstead and its wider setting. Understanding practical issues, character and context are key to determining the sensitivity of a steading and its associated landscape to the type and intensity of change proposed. This, and consideration of the associated infrastructure of access and services, will help determine whether and to what degree it has the capacity to accommodate change.

ISSUES

What are the key issues to be considered at the outset of any scheme for reuse or diversification?

<p>Condition</p>	<p><i>Condition is a key factor in determining the cost of repair and restoration, and the impact this will have on the fabric of the building. It ranges from</i></p> <ul style="list-style-type: none"> • <i>very poor (ongoing structural problems and damage to roof) high level of intervention required.</i> • <i>structural damage but stable</i> • <i>fair condition, to</i> • <i>well-maintained – minimal intervention required.</i>
<p>Location</p>	<p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>Is the farmstead or building located in a hamlet or village? If it is isolated, is it sited within an area of dispersed settlement close to other farmsteads and houses?</i> • <i>the tranquillity of the area</i> • <i>vehicular routes in/out of site</i> • <i>access to public highways</i> • <i>access to services including IT availability - the distance of broadband from an exchange being a key consideration for commercial or live-work proposals.</i>
<p>Social and economic structure of the area</p>	<p><i>Consider:</i></p> <ul style="list-style-type: none"> • <i>employment pressures (nearby markets/employment centres, trends, types of employment)</i> • <i>housing pressures</i> • <i>property prices (sale and rental).</i>
<p>Is the building or its wider curtilage protected through listing?</p>	<p><i>In summary, the criteria identify:</i></p> <ul style="list-style-type: none"> • <i>substantially complete pre-1750 farm buildings, which in some areas are exceptionally rare</i> • <i>pre-1840s farmstead groups, including in some areas complete examples of individual buildings</i> • <i>farmstead groups strongly representative of the character and development of regional farming and vernacular traditions</i> • <i>documented planned and model farmsteads designed by architects and engineers</i> • <i>important examples of the 1840-1940 period, including planned and some evolved farmsteads, in the forefront of technological and agricultural developments.</i>
<p>Other designations</p>	<p><i>Is the building in</i></p> <ul style="list-style-type: none"> • <i>a conservation area, National Park or Area of Outstanding Natural Beauty?</i> • <i>a habitat for protected species?</i>

I CHARACTER

Understanding character is the first critical step and will enable the essential characteristics of the farmstead, its date and its wider setting to be identified. It will be useful to work from consideration of predominant characteristics, and then to identify less obvious features that may reveal a more complex development.

Landscape	<ul style="list-style-type: none"> • What is the predominant physical character of the area? Consider geology and soils, landform and topography. • Is the farmstead located in a village, hamlet or the open countryside? • What is the pattern of fields and tracks around it? Fields range from small and irregular to large scale and regular; types of enclosure boundaries vary (hedges, wire fences, banks, walls and ditches). • Are there any archaeological remains indicating former land use (for example ridge and furrow) and settlement?
Farmstead plan	<ul style="list-style-type: none"> • Consider the overall plan form of the buildings and their relationship to working spaces such as cattle yards and rickyards where corn was stacked, and the entry points of routes and tracks. • Plan form can indicate the historical function of a farmstead – whether it is predominantly pastoral, mixed or arable in nature. • Different forms of plan provide various responses to landscape – inward-looking courtyard plans often provide blank exterior elevations, in contrast to the way that dispersed plans allow glimpses of the buildings within.
Materials, construction and style	<ul style="list-style-type: none"> • The type of construction will be a major factor in any conversion proposal. • What is the form of wall construction? The major distinction is between mass wall (brick and stone) and timber frame. • What is the roof covering (slate, thatch etc) and what is its form of construction? Is the constructional form original to the building? If not, what date do you think it is? • What is the overall form of the building? Consider dominance of walls and/or roof. • What is its architectural detail and treatment? Consider wall bonding and detail to lintels, arches, eaves and verges.
Building type	<p>Consider how the storage or accommodation requirements of corn, fodder and livestock translated into:</p> <ul style="list-style-type: none"> • external form and scale, and the patterning of doors and windows • the planning and arrangement of internal spaces and historic features, including exposed roof trusses and carpentry, grain bins, stalls, floor structure, machinery, floor surfaces. <p>Individual buildings, or ranges of buildings, can serve one function or be multifunctional in nature.</p>
Dating	<p>Is it one date, or are there two or more clear phases? Has the building been lengthened or heightened? This can be indicated through:</p> <ol style="list-style-type: none"> 1) maps and surveys 2) in masonry (brick and stone) structures, through: <ul style="list-style-type: none"> • structural joints in masonry walls, whether vertical (the most easy to spot), horizontal (indicating a later heightening of the wall) or diagonal (typically in the gable end, and again indicating a heightening) • changes in masonry techniques or brickwork bonding • blocked openings, which typically relate to a replanning of the interior • identifying inserted openings, as indicated by disturbance to the surrounding walling. 3) in timber-framed structures through void or lost mortises which indicate the positioning of lost studs, beams and braces.

2 CONTEXT AND SIGNIFICANCE

Reference to Joint Character Area statements, and to the regional web documents at www.helm.org.uk, will enable the farmstead or building to be placed within its area, regional and national context.

Landscape	<p><i>How does the building or farmstead contribute to:</i></p> <ul style="list-style-type: none"> • scenic interest, including its prominence, and the extent and importance of views • the historical development of the surrounding landscape and the broader area • associations with art, literature, people, events?
Materials, construction and style	<p><i>To what extent does the building/farmstead reflect</i></p> <ul style="list-style-type: none"> • the use of building materials and constructional techniques historically characteristic of the area? • national developments - for example as an architect- or engineer-designed farm?
Farmstead plan, buildings and dating	<p><i>Using historic maps and the evidence of the buildings:</i></p> <ul style="list-style-type: none"> • How complete or fragmentary is the farmstead as a whole? • How complete or altered are individual buildings? • Are there any rare examples of their date and type?
Contribution to nature conservation	<p><i>Is there any local/regional/national significance for wildlife/biodiversity in terms of</i></p> <ul style="list-style-type: none"> • habitat? • species?

3 SENSITIVITY TO CHANGE

What types of farmsteads, buildings and their component parts, and in what types of landscape, are most inherently vulnerable?

Buildings with more openings and internal subdivision, such as cart-sheds, cow houses, stabling and combination barns, are less sensitive to change than those with minimal external openings (some cow houses, threshing barns) or small-scale buildings such as detached granaries and dovecotes. Some buildings of national significance have more capacity for adaptive reuse than small structures such as pigsties, where options for adaptive use are limited or non-existent. This definition can be widened to include farmstead type and landscape setting, where a greater diversity of factors come into play – such as the screening of buildings by trees and hedges, or the exposure to view of steadings and field barns in open landscapes. These considerations must be set alongside the intrinsic, group or landscape significance of the building and/or steading.

Landscape	<p><i>Consider how the plan and immediate surroundings of the farmstead responds to its landscape.</i></p> <ul style="list-style-type: none"> • How does the site as a whole sit within and relate to the landscape? • What are the most/least prominent elevations in the landscape? • What are the most/least sensitive views from the landscape? • Are there any mitigating features – eg screening offered by landform, vegetation, other buildings? • Does the orientation of the main elevations (with openings) offer sensitive conversion opportunities/solar gain (for example in south-facing yards)?
Nature conservation	<ul style="list-style-type: none"> • Is the building or its surroundings a habitat for protected species, and what additional potential does it have? • Are there nesting areas/routes where any disturbance must be minimal?
Sensitivity of exterior to change	<p><i>Consider:</i></p> <ul style="list-style-type: none"> • size (large, medium, small) of building or steading • number of storeys • constructional form (mass wall or timber frame) • external form (numbers of openings – including doors, windows, ventilation holes and slits) • associated outbuildings and enclosures.
Sensitivity of interior to change	<p><i>Consider:</i></p> <ul style="list-style-type: none"> • existing floors and partitions • location of any lost floors or partitions • significant internal fittings (traditional stalling and surfaces, features such as grain bins and machinery) • exposed carpentry and roof trusses (timber and cruck framing, roof trusses).

GLOSSARY OF TERMS

Aisled barn A barn in which increased width was obtained through the use of aisles – narrow extensions along one or more sides or ends of the barn. A series of posts stand in the place where the walls of an un-aisled building would run. The roof is carried on beyond the line of the aisle posts so the height of the walls is reduced and the visual mass of the roof increased.

Bank barn A combination barn of usually two storeys. Through constructing the barn against a bank, both floors can be entered from ground level. Typically bank barns have a threshing barn, sometimes with a granary and hayloft, and over-housing for cattle. The ground floor may be open-fronted or enclosed. Bank barns are characteristic of the Lakeland area of the north-west region and parts of Devon, Somerset and Cornwall in the south-west region. They could be placed across the slope or along the slope, the latter having the lower floor often accessed from doors close to or in one gable end.

Barn A building for the storage and processing of grain crops, and for housing straw.

Byre See Cow house.

Cart-shed A building for housing carts and farm implements. Cart-sheds are usually open-fronted buildings sited close to a road or track into the farmstead. One bay of a cart-shed may be portioned off and provided with doors to create a secure storage area for smaller implements. In many areas cart-sheds are combined with first-floor granaries.

Cider house A building marked by a wide doorway, and a loft above an area for milling and pressing the apples. Usually incorporated into a range of buildings. Surviving mills and presses are now very rare.

Combination barn A barn that also housed cattle or horses, and sometimes functioned as cart-sheds and granaries. Combination barns can be two-storey or single-storey buildings. They include bank barns.

Covered yard A cattle yard that is fully covered by a roof – the aims of which were to protect the nutrients in the manure collecting in the yard from being washed away by the rain and to provide an environment where cattle would fatten more quickly.

Cow house A building in which cattle are tethered, either detached or part of a combination range. Dialect names include byre in north-eastern England, shippon in the North-West and South-West, and hovel in the Midlands.

Cruck A pair of curved timbers usually halved from the same tree trunk that form an A-frame extending from the ground to the apex of the roof. A *raised cruck* has the feet of the crucks raised off the ground, usually embedded in a masonry wall. *Jointed crucks* are individual cruck blades formed by two timbers joined together.

Dairy A building, or more often a room within the farmhouse, where milk was processed to make cheese and butter.

Dispersed settlement Settlement consisting of scattered, isolated farmsteads and small hamlets. Dispersed settlement is the predominant settlement form over much of western parts of England and an area extending from East Anglia to the South-East.

Dovecote A building or part of a building providing nest boxes for pigeons or doves.

Dutch barn A term commonly used to describe an iron-framed, open-fronted building for the shelter of hay or corn, although the posts could be made of timber, brick or stone. They typically date from the late 19th to the mid-20th centuries.

Enclosure Enclosed land. Enclosure of land may have occurred at an early date – possibly medieval and in a few rare cases in the prehistoric period. This is especially the case in areas of dispersed settlement, the predominant settlement form over much of western parts of England, and an area extending from East Anglia to the South-East. Open fields, concentrated around villages in a central zone extending from Dorset to Northumberland, were enclosed either by agreement or, in the 18th and 19th centuries, by act of parliament. Common grazing land was subject to the same processes of enclosure.

Farmstead The homestead of a farm where the farmhouse and some or all of the farm buildings are located.

Field barn A building set within the fields away from the main farmstead. Field barns are often combination buildings providing storage for hay or straw and shelter for animals.

Granary A building for storing threshed grain. Granaries could be free-standing structures or incorporated into other buildings, usually at first-floor level to prevent rodents and damp damaging the grain.

Hayloft Storage for hay, usually above stables.

Hemmel A small open-fronted cattle building with its own yard.

Hovel See Cow house.

Husbandry Farming, the management of the production of crops and animals.

Laithe house A linear range usually of one construction comprising a farmhouse with attached barn and usually a stable. There is no internal link between the house and the agricultural element of the range. Laithe houses are usually associated with small part-time farmers who were often involved in the textile industries of the Pennines.

Lean-to A building, usually a later addition, which is constructed against the side of a larger building. Lean-tos typically have a mono-pitch roof.

Linhay A two-storeyed building with open-fronted cattle shelter with an open-fronted hay loft or tallet above, characteristic of Devon and south Somerset. The tallet may be constructed as a conventional floor or simply created from poles. Historically the term linhay was used to refer to a wider range of buildings including field barns.

Longhouse A building that housed humans and cattle under one roof and in which there was direct access from the accommodation into the byre. The byre was always built down-slope from the accommodation. Originally animals and humans used the same entrance, but as living standards changed the animals were often provided with separate access.

Midstrey A term used in southern and eastern England and the midland counties for a projecting porch attached to a threshing floor of a barn.

Nucleated settlement A settlement pattern consisting mainly of villages with relatively few isolated farmsteads or hamlets.

Oast house A specialist building with kiln and stowage for the drying, pocketing and storage of hops.

Open-field system A system in which farmland was held in common, with the strips of individual farmers intermixed across several fields. Open-field systems rarely had hedges between strips or fields. Over time the strips were usually consolidated and eventually enclosed. Enclosure of open fields results in characteristic field patterns where the boundaries form an elongated reversed 'S'.

Outfarm A barn with animal accommodation either within the barn or separately, located away from the main farmstead, which avoided transporting straw and manure to and from distant fields.

Outshot See Lean-to.

Pigsty A small building for housing pigs.

Rickyard A yard, usually sited close to the barn, in which the sheaves of harvested corn could be stored in ricks to await threshing. The ricks would be built on raised platforms to protect the grain from rodents, and thatched to protect from rain.

Shippon See Cow house.

Stable A building for housing horses or working oxen.

Staddle barn A threshing barn, usually timber framed and raised on staddle-stones. Staddle barns date from the later 18th and early 19th centuries and may be an attempt to counter the greater predation of the brown rat.

Staddle-stone An arrangement usually of two stones – an upright column capped by a circular stone of larger diameter, typically with a rounded top, together forming a mushroom shape – designed to prevent rodents climbing up into granaries, ricks and staddle barns.

Stall A standing for a cow or horse within a cow house or stable. Stalls are usually divided by wooden or stone partitions to prevent animals eating their neighbour's food or biting and kicking each other.

Tithe A payment of a tenth of crops and produce paid to the rector of the church for his maintenance. Payment in kind was generally changed to a cash payment in the mid-19th century, though this occurred earlier in some parishes.

Wheelhouse A structure which housed a horse-engine for powering threshing machinery, and typically found projecting from barns. Also known as a gin gang in northern England.

FURTHER SOURCES OF INFORMATION

There are a number of sources that provide a good overview of agricultural history and the development of farm buildings. These are summarised in the regional web documents (www.helm.org.uk/ruraldevelopments).

SOURCE AND ORIGIN	APPLICATION
Ordnance Survey Maps	<i>Examination of these will allow the changing shape and scale of the farmstead to be examined from the first edition surveys of the mid- to late 19th century onwards. The most detailed 25 inch maps show individual buildings very clearly, including horse-engine houses and other features.</i>
Statutory lists of buildings of special architectural or historic interest (source: local planning authorities)	<i>Over 60,000 farmstead buildings, including houses, are now included on the national list of buildings of special architectural or historic interest. Over 95% of these are listed at Grade II, the remainder being listed at the highest grades of I or II*.</i>
Images of England (source: English Heritage www.imagesofengland.org.uk)	<i>Images of England aims to create a photographic record of England's listed buildings at the turn of the millennium. It is not an up-to-date record of all currently listed buildings.</i>
Tithe maps (source: National Archives, Kew, and county record offices)	<i>These remarkably detailed maps were compiled in the later 1830s and 1840s. They show farmsteads, landholdings, occupiers and landowners. They are particularly important at a basic level in showing plan form of farmsteads before the 'high farming' period.</i>
Finance Act 1909-10 (source: National Archives, Kew, IR 56)	<i>The valuers' field books recorded wall and roof materials, size of holdings and numbers of functions relating to each farmstead. Dimensions of buildings for insurance purposes were recorded, and some plans were drawn.</i>
National Farm Survey, 1941-3 (source: National Archives, Kew)	<i>This survey recorded the condition of buildings and their proximity to road and rail connections, as well as to water and power supplies.</i>

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Photograph: Large threshing barn in Hampshire converted to office use © *Huw Thomas*

