

ENGLISH HERITAGE

Conversion of traditional farm buildings

REVISION NOTE

June 2012

On 27 March 2012, the Government published the [National Planning Policy Framework](#) (NPPF). This document contains references to [Planning Policy Statement 1: Delivering Sustainable Development](#); [Planning Policy Statement 7: Sustainable Development in Rural Areas](#); and [Planning Policy Guidance 15: Planning and the Historic Environment](#) (PPG15) (which was subsequently replaced by [Planning Policy Statement 5: Planning for the Historic Environment](#) (PPS5) in 2010). The NPPF supersedes these as Government Policy on the management of change to the Natural and Historic Environment in England.

Whilst some of the references in this document may now be out-of-date, English Heritage believes that it does still contain useful advice, guidance and case studies.

For further enquiries, please email policy@english-heritage.org.uk

www.english-heritage.org.uk



The Conversion of Traditional Farm Buildings: A guide to good practice



ENGLISH HERITAGE

Traditional farm buildings are among the most ubiquitous of historic building types in the countryside. They are not only fundamental to its sense of place and local distinctiveness, but also represent a major economic asset in terms of their capacity to accommodate new uses. The restructuring of farming and other economic and demographic changes in the countryside provide both threats and opportunities in terms of retaining the historic interest of this building stock and its contribution to the wider landscape.

English Heritage and the Countryside Agency* have developed a policy on the traditional farm building stock, set out in our joint statement **Living Buildings in a Living Landscape**, available at www.helm.org.uk. This explores options for the future use of traditional farm buildings, ranging from their repair or adaptation to encourage continued use in agriculture, to their conversion to wholly new functions. It emphasises the need to have regard to the historic and landscape significance of traditional farm buildings when taking decisions about their future use, and to ensure that, where conversion to a new use is agreed to be an appropriate option, design and implementation are carried out to a high standard.

This guidance provides more detailed advice by English Heritage on good practice in conversion projects for owners, designers, local authority conservation officers and others involved in projects of this type. An appendix is included which provides a decision-making framework to help inform options for sustainable reuse.

Further research and advice on traditional farm buildings is available at the Historic Environment Local Management website www.helm.org.uk/ruraldevelopment

CONTENTS

	page		page
INTRODUCTION	2	APPENDIX: A GUIDE TO UNDERSTANDING TRADITIONAL FARM BUILDINGS AND THEIR CAPACITY FOR CHANGE	37
THE CHARACTER OF TRADITIONAL FARM BUILDINGS AND THEIR CONTEXT	3	Issues	38
Understanding farm buildings	3	Character	39
Landscape and historical context	4	Context and significance	40
Farmstead character	5	Sensitivity to change	40
Types of farm buildings and their character	7	GLOSSARY OF TERMS	41
Materials	9		
ADAPTING AND REPAIRING TRADITIONAL FARM BUILDINGS	10	FURTHER SOURCES OF INFORMATION	43
General principles and design issues	10	Further reading	44
The treatment of the external walling	12		
Roofing	21		
Internal spaces	23		
Incorporating services and insulation	23		
Outbuildings and extensions	29		
Setting and surroundings	29		
AUTHORISATION OF WORKS	31		
Planning	31		
Consents for designated buildings and areas	33		
Other consents	33		
SUMMARY OF GOOD PRACTICE FOR THE CONVERSION OF TRADITIONAL FARM BUILDINGS	35		

1 Dereliction is a significant and increasing problem facing the traditional farm building stock: derelict barn, Cheshire. © Jen Deadman

2 In the Yorkshire Dales, field barns such as these in Swaledale make up a fundamental component of landscape. © Jen Deadman

3 Farmsteads such as this timber-framed and brick group in Arden need to be understood and appreciated as a whole. © Peter Gaskell

4 Traditional buildings remain an important asset for farm businesses: this 18th-century barn is now in use as a farm shop (Low Sizergh Barn, Kendal, Cumbria). © English Heritage



INTRODUCTION

Historic farmsteads and their buildings make a fundamental contribution to the richly varied character of the English countryside. They illustrate the long history of farming and settlement in the landscape and exemplify the crafts and skills associated with local building materials and techniques.

The best option for retaining the overall historic and landscape integrity of traditional farming landscapes is, wherever possible, to keep buildings in active agricultural use or related low-key usage. Increasingly, however, this is not possible. Where a local authority is satisfied that a traditional farm building* no longer has a viable mainstream or low-key agricultural use, it may be prepared to grant permission for conversion to a new use.

Reuse is inherently sustainable. These buildings represent a historical investment in materials and energy, and contribute to environmentally benign and sustainable rural development. The concept of reuse is not a new one. Farm buildings have often been adapted over a long period to accommodate developing farming practices and technologies. Some have a greater capacity to accommodate change or a new use than others, and a small number are such historically or architecturally significant elements of our heritage that they should be conserved with minimal or no intervention.

The purpose of the present guidance is to act as an aid to understanding traditional farm buildings to help inform change, as well as to provide practical technical and design advice so that farm buildings *capable of conversion* can be repaired and adapted for new uses in a sensitive way, while preserving their character, significance and landscape setting for the enjoyment of this and future generations. If uses and buildings are paired sensitively and if changes are planned so as to preserve the buildings, their features of interest and their setting, then these buildings can go on to tell the story of our past and present.

* 'Traditional' is a term often used to describe farm buildings pre-dating 1940, after which modern building materials and revolutions in farming technology and farmstead planning marked a sharp divide with previous practice.

THE CHARACTER OF TRADITIONAL FARM BUILDINGS AND THEIR CONTEXT

UNDERSTANDING FARM BUILDINGS

Farmsteads and their buildings were typically designed to serve one or more purposes, which are clearly expressed in their siting, scale, arrangement and features. When significant changes to a building are envisaged it is important to come to an early understanding of its landscape setting, character and significance, including the value of its constituent parts. This will help to establish the degree to which the building as a whole is capable of absorbing change without substantial and lasting damage to its character and interest.

A small proportion of buildings – whether protected through listing, unlisted but set within designated landscapes or simply unlisted buildings – will not be capable of adaptive reuse, because their scale precludes this and/or they are of such intrinsic importance that new use cannot be absorbed without serious compromise to their fabric or the wider landscape setting. If adaptive reuse is the most sustainable option it will help to determine which elements of the building are most worthy of retention, and which may be lost with little or no detriment – sometimes indeed with beneficial effect. Such understanding will also help to inform pre-application discussions for the various consents that may be required (some of the key issues for consideration are set out in the Appendix).

Farmsteads and their buildings must be understood in terms of the function or functions they were intended to house. Their scale and form are directly related to the historic land use of the area, which is also reflected in the wider landscape (see sections on farmstead character and types of farm building below). Buildings may in addition need to be understood as reflections of a particular vernacular building tradition or as expressions of a wider architectural or landscape design embracing a whole farmstead or perhaps an entire estate.

Documents such as estate surveys and sale particulars can sometimes identify the function of individual buildings at different periods in their history. Historic

RESPONDING TO THE CHALLENGE

English Heritage believes that traditional farm buildings are more at risk from pressures on the countryside than any other type of historic building. A better understanding of this building stock is essential if the response to this challenge is to be effective.

It has been recognised that the evidence base for historic farmsteads is poorly developed and co-ordinated at a local level. To address this problem English Heritage, the Countryside Agency and the University of Gloucestershire recently published *Historic Farm Buildings: Constructing the Evidence Base* (Gaskell and Owen 2005), the first national survey of the state of the traditional farm building resource, which examines current pressures on, and policy towards, historic farm buildings.

This evidence has informed the development of the joint English Heritage and Countryside Agency statement *Living Buildings in a Living Landscape: Finding a Future for Traditional Farm Buildings* (EH product code 51215). This statement is supported by a series of eight web-based documents that relate the character and development of historic farmsteads in each government region to a national framework (www.helm.org.uk/ruraldevelopment).

Guidance has also been published for owners and managers of traditional farm buildings to encourage better maintenance and care of their buildings. *Farming the Historic Landscape: Caring for Farm Buildings* (EH product code 50911) is part of a wider set of publications designed to offer advice on the historic environment to farmers and other land managers.

maps provide a quick and generally reliable aid to dating buildings approximately, though large-scale maps from before the mid-19th century are relatively scarce. But in most cases looking carefully at the buildings themselves will yield a greater range of information much more quickly.

Careful inspection will also reveal how in many cases buildings have altered over time, often in response to important developments in agricultural practice or the shifting emphases of agricultural regions, and sometimes their function has changed altogether. Successive layers of alteration can make the original and subsequent uses of a building harder to identify. In these cases a forensic approach is generally helpful, examining a building for indications that some features are original elements of the fabric, while others are alterations. Where a building exhibits a particularly complex pattern of development it may be advisable to call on the services of a historic buildings specialist.

HISTORIC LANDSCAPE CHARACTERISATION

New approaches towards the understanding and management of landscape character, now brigaded under the heading of characterisation, have developed into multi-disciplinary tools for describing and mapping the whole rural environment, focusing on what gives each area its own particular sense of place, its sensitivity to change and its links to community values and needs. The appearance in 2005 of the new Agri-Environment Schemes, which fund farmers for the delivery of environmental benefits (historic as well as natural), has further driven the need for land management and the targeting of grant aid (including farm buildings) to be based on sound knowledge and an integrated understanding of the environmental, social and economic characteristics within an area. The 159 Joint Character Areas are being increasingly used as the framework for the delivery of advice and the targeting of resources for many aspects of the rural environment, most notably through the Agri-Environment Schemes, and this has been extended by local authorities to cover Landscape Character Assessments at a finer scale. They each result from the mapping of a combination of factors such as land cover, geology, soils, topography and settlement and field patterns (www.countryside.gov.uk/lar/landscape).

Historic Landscape Characterisation (HLC) is using the techniques of Geographical Information Systems (GIS) mapping to map change and time-depth in the present landscape, through the analysis and identification of field patterns and other features, and the identification of distinct landscape types, such as ancient woodland, and ancient or parliamentary enclosure (www.english-heritage.org.uk/characterisation).

LANDSCAPE AND HISTORIC CONTEXT

Patterns of land use reflect cultural factors, climatic conditions and the physical structure of the landscape. The distribution of farmsteads and their dates of foundation are intimately linked to historical field and settlement patterns in the landscape. Nucleated villages, concentrated in a central band running from Northumberland into Somerset and Dorset, were associated with extensive communally farmed townfields (open fields). These were subject to amalgamation and enclosure by tenants and landlords at varying rates from the 14th century onwards. New farmsteads were often created within the new enclosures. In areas of dispersed settlement, characteristic of western and parts of eastern and south-eastern England, farmsteads are either isolated or grouped in hamlets and surrounded by originally smaller townfields associated with more ancient patterns

of enclosure and more extensive areas of common pasture. Between the two extremes are areas that contain both nucleated and dispersed settlement to varying degrees.

Agricultural development in England can be divided into the following major periods.

Before 1750

Economic boom in the 12th and 13th centuries, including the development of large farms on monastic and secular estates, was followed by contraction of settlement and the leasing out of estates after the famines and plagues of the 14th century. From the 15th century there was a general increase in agricultural incomes and productivity and the emergence – particularly from 1660 – of increasingly market-based and specialised regional economies. Substantially complete farm buildings of this period are rare: typically only the farmhouse and barn survive, although in upland areas there are many late 17th- and 18th-century farmsteads with farm buildings attached to their farmhouse.

1750-1880

The vast majority of building stock dates from this period, particularly from the mid 19th century. Increased agricultural productivity, encouraged by rising grain prices and the demands of an increasingly urban population, was enabled by the expansion of the cultivated area (especially from the 1790s to 1815), the continued reorganisation and enlargement of holdings, and the final phase of the enclosure, concentrated in the Midlands and the uplands of northern England. Substantial improvements in animal husbandry were made with the development of improved breeds and better housing for cattle. This improved the quality and efficient redistribution of farmyard manure, so increasing agricultural productivity. The high-input/high-output systems of the 'High Farming' years of the 1840s to 1870s were based on the availability of imported artificial fertilisers, manures and feeds.

1880-1940

There was little fresh investment because of the long farming depression in this period, notable exceptions being some estates and continuing developments in dairying areas. Hygiene regulations in the inter-war period resulted in new forms of cow house and dairy, with concrete floors and stalls and metal roofs and fittings, replacing earlier forms of housing. Intensive rearing of pigs and poultry required new buildings.

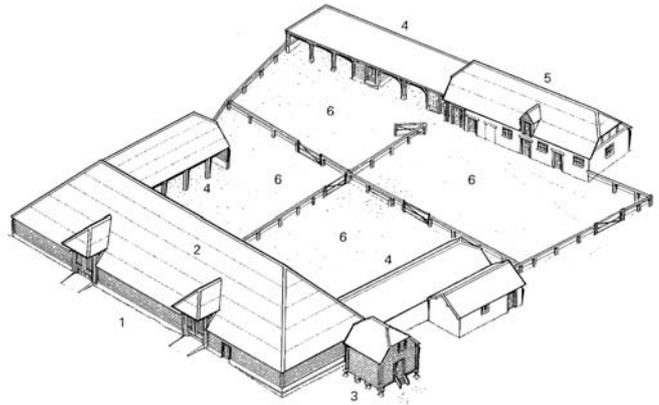
5 This reconstruction (not to scale) shows the flow of processes in the arable cycle from the stackyard (1), through the barn (2) to the granary (3), shelter shed (4), stable (5) and yard (6). © English Heritage (RCHME)

6 This drawing (not to scale) shows an upland linear farmstead which has a small barn (2) in the centre of the range as well as a stable (1) and a byre (3). The hemmel (4) may have been used for cattle or sheep. There is a detached hay barn/implement store (5). © English Heritage (RCHME)

7 The flow of processes in a Cornish farmstead is shown here (not to scale). The buildings are grouped around a large yard. The proximity between the farmhouse and the pigsties and calf house is evident in this farmstead.

(1) stackyard; (2) chall barn; (3) granary; (4) shippons ;(5) farmyard and midden; (6) calf house; (7) pigsties; (8) house and dairy. © English Heritage (RCHME)

5



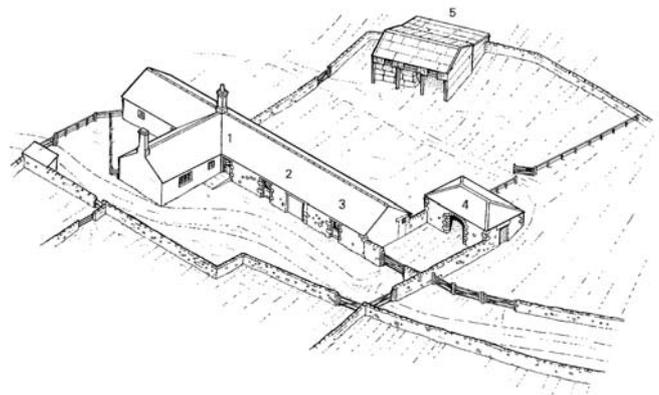
1940 to the present

The Second World War witnessed a 60 per cent rise in productivity, a growth in livestock numbers, increasing scientific and government control and guidance, more specialised systems of management and the conversion to arable of permanent pasture. The Agriculture Act of 1947 heralded the intensification and increased specialisation of farming accompanied by the development of government and industry research and guidance. Government grants assisting with the capital cost of new building under the Farm Improvement Scheme (introduced in 1957) met increasing requirements for machinery, the environmental control of livestock and on-farm production, particularly of milk.

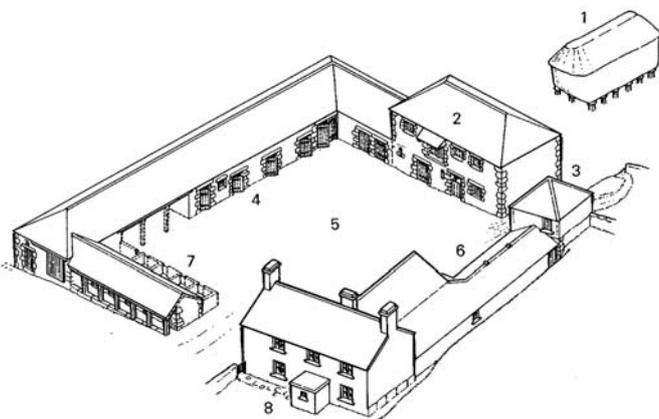
FARMSTEAD CHARACTER

The function of the farmstead was to provide shelter for farming families and the management and accommodation of livestock, the housing and processing of crops, and the storage of vehicles, implements and fodder. These functions were located in either specialist or combination structures or ranges. In many areas of the country, farmsteads did not mature into their present-day forms until after the 1790s, and especially in the years of the 1840s to 1870s, when agricultural productivity was boosted by good manure from livestock increasingly wintered in yards or buildings.

6



7





8

8 Massed oast houses at Whitbread Hop Farm, Paddock Wood, Kent. © English Heritage

11 A fine early 16th-century barn in Suffolk with stables at one end. © Mike Williams/ English Heritage



9



10

9 A field barn in the Yorkshire dales which has recently been repaired. © English Heritage

12 A reconstruction of flail threshing viewed through a typical cart door entrance with porch canopy and threshold. © English Heritage (RCHME)

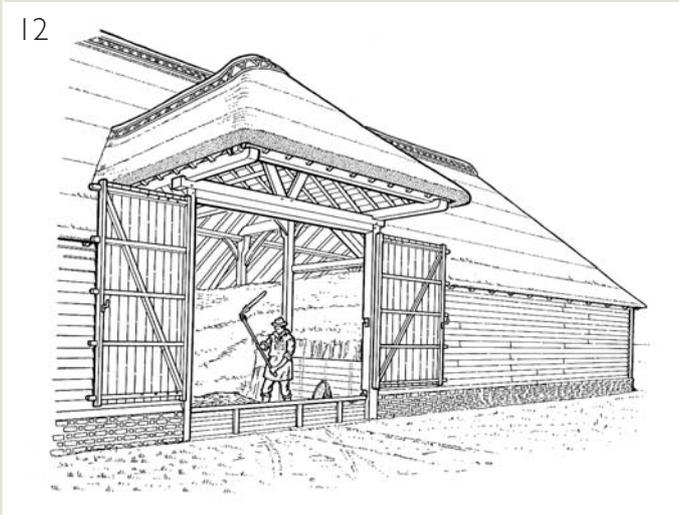
10 An 18th-century granary in West Sussex with staddle stones and tarred weatherboarding. © Daniel Eugenio LRPS Images of England



The scale and form of farmstead plan types are subject to much variation and are closely related to farm size and status, terrain and land use – specifically in the way in which they served farms of either mixed, arable or pastoral types. It was far more common for the houses on farms in northern and parts of western England to be attached to the farm buildings. By contrast, even small farms in the South-East and East Anglia were characterised by detached houses and separate buildings, often loosely arranged around the sides of a yard.

Farmstead plan types can be divided into four categories:

- *Linear plans*, where houses and farm buildings are attached, were ideally suited to small farms (usually stock rearing and dairying), especially in northern pastoral areas with little corn and longer winters, where there was an obvious advantage in having cattle and their fodder (primarily hay) in one enclosed building. They display a wide range in scale, from the large farmstead of independent Pennine yeoman-farmers to the smallholdings of minor farmers.
- *Dispersed plans* comprise clusters and unplanned groupings of separate buildings, sometimes intermixed with those of other farms. They are more widespread, and range from those of hamlets where the buildings of different owners can be intermixed, to large-scale individual farmsteads. Some can be large scale and high status.
- *Loose courtyard plans*, where the buildings are built around a yard with or without scatters of other farm buildings close by, became most strongly associated with large and/or arable farms.



12

- *Regular courtyard plans*, where the various functions were carefully placed in relation to one another in order to minimise the waste of labour, and where the manure could be conserved, were built – at first on large estates – from the later 18th century.

TYPES OF FARM BUILDING AND THEIR CHARACTER

Buildings, or parts of buildings, specialised in either crop storage and processing (barns, hay barns, cider houses, oast houses and farm maltings, granaries) or the accommodation of animals (cow houses and shelter sheds, ox houses, stables, pigsties) and birds (dovecotes and poultry houses). They all display significant variation both over time and regionally, and are closely related to the overall plan of the farmstead.

Barns are often the oldest and largest buildings to be found on farms. The harvested corn crop needed to be kept dry in well ventilated conditions. In England the grain was beaten from the crop by flails and then separated from the husks by winnowing, both operations taking place on a threshing floor sited between opposed doors. The form and plan of *threshing barns* remained comparatively unaltered between the 12th and early 19th centuries: they typically had blank exteriors, with provision for ventilation to the storage bays and doors opening into the threshing floor. Such barns could vary in scale from small in dairying or stock-rearing areas to very large in arable areas where farms were typically much larger. The doors were either large enough to drive a loaded wagon through or can be small and flanked by openings into which the crop was pitched. Smaller doors were sometimes provided to allow for the sorting of sheep and other stock in the spring and summer.

Combination barns accommodated – at one or both ends or in a split-level structure – additional functions such as the housing of cattle, horses, grain, farm carts and implements. They are found throughout England, especially in areas of pastoral farming.

Split-level *mixing barns* developed from the later 18th century as a result of the widespread introduction of machinery for processing corn and fodder. Threshing machines were most commonly powered by horses accommodated in a projecting wheelhouse, these being particularly common in the North-East and

South-West. Water power and rarely wind power was also used, and by the 1830s steam power was introduced in areas such as Northumberland with easy access to coal supplies. The introduction of the portable steam engine and threshing machine in the 1850s heralded the end of the traditional barn as a storage and processing building.

Barn interiors are generally open and plain, but inspection may reveal evidence for reused timbers, former floors, partitions, doors and windows. The latter may indicate that a present open space may have been a multifunctional building. Conversely, many barns were converted into cow houses and fodder processing and storage buildings after the 1880s. Eighteenth-century alterations such as the expansion of barn space by taking down divisions, extending the building, adding porches or building an entirely new barn are all changes which are part of the farm's history. Threshing floors, often of wood and sometimes of stone flags, brick or earth, are now very uncommon. Horse-engines, as found in wheelhouses, and original threshing or winnowing machines are exceptionally rare.

Field barns were built in areas where farmsteads and fields were sited at a long distance from each other, and where holdings were intermixed. They can be simply threshing barns, or – increasingly from the 18th century in upland areas – incorporate or specialise in the housing of cattle and sheep and their fodder (usually hay or roots). Outfarms, typically with shelter sheds for cattle flanking the barn and yard, were built in some areas from the late 18th century.

Detached *hay barns* or *Dutch barns* are usually open sided with roofs supported on high brick, stone, timber or iron piers. The gable wall may be brick but perforated by ventilation slits or honeycomb brickwork. Most examples date from the late 19th century.

After the barn, the **stable** is often the oldest building on the farmstead. The value of horses as draught animals meant that stables were well built and often placed near the house and given a certain level of architectural and decorative treatment. Stables needed to be well ventilated and provided with plenty of light for grooming and harnessing. Free-standing stables began to be built from the 16th century. They are normally two-storey buildings with a hayloft above. The floors were cobbled, and later of brick, with drainage channels laid across the floors. High-status examples could have plastered ceilings

to prevent dust falling through into the horses' eyes. Complete interiors – with stalls, mangers and feed racks – of the 19th century and earlier are rare.

Detached **granaries** are generally of 18th- and 19th-century date, any earlier examples being of great rarity. Grain needed to be kept in dry, secure and well ventilated conditions. Granaries were often built over stables and cart-sheds, and combined cart-shed/granary ranges are found from the 18th and even the late 17th centuries in parts of the south and east. Complete granary interiors, with plastered walls and wooden partitioning to grain bins, are very rare. **Cart-sheds** often face away from the farmyard and may be found close to the stables and roadways, giving direct access to the fields. They are characterised by being open fronted and sometimes open at each end.

Cattle housing was well documented in the medieval period. *Longhouses*, where the family and animals used the same entry and the cattle were stalled at the lower end, survive in parts of the north and west of England and are usually the only evidence for cattle housing before the 17th century. Any evidence for cattle housing before the late 18th century is exceptionally rare.

Cow houses, either free-standing or situated beneath or at one end of the threshing and storage area in a combination barn, were typically built for dairy cattle. The earliest examples – of the 18th century or earlier – survive in the South-West (particularly Devon), parts of the Shropshire and Cheshire plain, the Welsh borders, parts of Suffolk, the Pennines and Cumbria. Very few cow-house interiors of the 19th century or earlier have survived unaltered because hygiene regulations for the production of milk have resulted in new floors, windows and stall arrangements being inserted.

Shelter sheds, open-fronted structures facing onto cattle yards, mostly date from the late 18th century. The folding of stock in strawed-down *yards* and feeding them with root crops became more general in the 19th century, together with the subdivision of yards into smaller areas and the construction of *loose boxes* (identified by multiple doorways to small individual cubicles) and other distinctive building types, including bullpens, associated with more intensive fattening and management.

The most significant examples of *covered yards* – developed to house cattle and conserve their manure – are on the most expensively designed planned and model farms of the 1850s to 1870s. It became increasingly common from the 1880s to roof over former open yards with timber or metal-framed superstructures.

Purpose-built **dairies** where milk products were made and stored, as opposed to examples integrated into the planning of the farmhouse (often in a rear wing or out-shut), are very rare. From the late 18th century, and particularly on gentry and aristocratic estates, dairies could be highly ornamental, with tile work depicting rural scenes.

Pigs were undoubtedly kept on most farms, and particularly on dairying establishments where there would have been whey to feed them on. However, little evidence for **pigsties** survives as pigs were often left to run in yards among the cattle.

Dovecotes were built to house pigeons, which provided variety to the diets of high-status households and a rich source of manure. Examples survive from the medieval period. They are traditionally relatively tall shelters lined internally with nesting boxes and sometimes with a fixed 'potence' ladder. Dove holes are often found incorporated into the gable walls or under the eaves of farm buildings.

Root and fodder stores were usually located close to where the cattle were stalled. On smaller farmsteads the root store may be a separate building and often forms part of a combination building. Some areas of the country developed a specialisation in the production of particular crops such as hops or fruit. In some cases these crops required the construction of particular buildings that are regionally characteristic, such as the oast houses or hop kilns of the South-East and West Midlands (especially Herefordshire and Worcestershire) and the cider houses of parts of the West Midlands and the South-West. Small kilns for drying corn (in the wetter northern uplands) and malt for brewing are extremely rare.

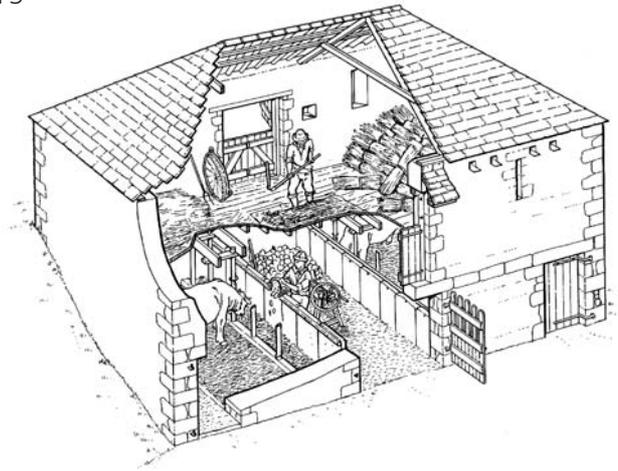
Other, smaller, buildings are also found in farmsteads, including boil houses for animal feed, smithies or dog kennels incorporated beneath granary steps.

13 A Cornish chall barn: chall barns vary in size but conform in their chief characteristics, having a first-floor barn over ground-floor shippons. Many were built into a hillside to permit easy access to the barn. © English Heritage (RCHME)

14 A dovecote at Athelhampton, Dorset, displaying a rich variety of materials. © Bob Edwards

15 A typical threshing barn on the Sussex Downs constructed of flint and brick. © English Heritage

13



14



15



MATERIALS

Most traditional farm buildings are comparatively simple functional structures built from locally available materials with a minimum of decoration. England displays a huge diversity in geology, with a greater variety in small areas than anywhere else in Europe. This has contributed to great contrasts and variety in traditional walling and roofing materials and forms of construction.

Long-rooted traditions, such as earth walling in Devon and the Solway Plain and timber framing, survived much longer on working farm buildings than farmhouses. Climate and patterns of land use and ownership have also affected the availability of timber, and together with cultural factors have influenced the appearance of distinct traditions in timber framing and the framing of roof trusses for mass-walled buildings. The survival of thatch – predominantly wheat straw and water reed – is now mainly concentrated in southern England and East Anglia.

Buildings in stone and brick, roofed with tile or slate, increasingly replaced buildings in clay, timber and thatch from the later 18th century. The arrival of first canals and then railways allowed the easier transportation of building materials. Metal roofs were used from the 1850s for covered yards and other buildings on expensive planned farmsteads, but did not come into general use – mainly for covered yards – until the end of the 19th century. Prefabricated buildings in iron were manufactured and exported from the 1840s, the most well known on the farmstead being the Dutch barn, popular from the 1880s.

ADAPTING AND REPAIRING TRADITIONAL FARM BUILDINGS

GENERAL PRINCIPLES AND DESIGN ISSUES

GENERAL PRINCIPLES

- **Understanding character, significance and context:** this must inform the adaptation of any farmstead or building. It involves understanding the essential features of the building, its relationship to the wider landscape setting and its sensitivity to change. Only then should a designer start to address the issues associated with adapting the building for a new use. (The previous chapter outlined how this type of information can be gathered to inform the conversion work: this is further developed in the Appendix.)
- **Understanding how the building is constructed and its condition:** a thorough understanding is also needed of how the building is constructed and the condition of its various elements. Survey drawings and a schedule of condition will need to be prepared to establish the extent and nature of the repairs required and the associated costs. (The local planning authority may require some form of recording to be carried out as part of any planning consent. Such work can help to inform options for reuse. See information on Recording on page 32.)
- **Respecting the architectural and historic interest of the building and its setting:** pairing 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 and its setting. These potential conflicts require careful and thoughtful design and often innovative solutions need to be found. Users may have to accept that the building imposes constraints that require some degree of compromise if its character and significance is to be retained. For example, in some cases headroom may be restricted and daylight levels may be lower than those ideally desired.

- **Achieving high standards of design and craftsmanship:** matching the new use to the building, assessing the impact of changes and carrying out sensitive and appropriate repairs require the skill and knowledge of those qualified and experienced in conserving historic buildings.
- **Minimising loss of and intervention in significant historic fabric:** usually the fabric of the building will embody its character and interest. Retention of as much historic fabric as possible is therefore a fundamental part of any good conversion, together with the use of appropriate materials and methods of repair.

DESIGN ISSUES

While there is widespread regional variation in the function, design and materials used for farm buildings, there are a number of design issues common to most farm building conversions.

- **Daylight:** perhaps the most significant problem in any conversion is how to maximise daylight without compromising character. Light was not important for many farmstead functions such as storing hay or corn or the accommodation of cattle. These requirements changed as farm buildings developed (see previous section). The configuration and orientation of many farmsteads also resulted in many farm buildings being single aspect, with farmyards facing east and south to catch the sun. The challenge for the designer is how to introduce light while minimising alterations to the external envelope.
- **Subdivision:** the other difficult aspect of farm building conversion is how to incorporate various functions that require subdivision or compartmentation, particularly if a building is characterised and is significant for its open interior, impressive proportions and long sight lines. This is especially the case with threshing barns, including the upper floors of combination barns and loft areas.
- **Retaining features:** historic farm buildings invariably retain key features that provide evidence of their former use and contribute to their significance. These features may simply be a series of ventilation slits formed in the masonry structure, or vertically boarded doors to a cart door entrance. An informed approach to the retention of such features is vital to a successful conversion.

16, 17, 18 As much as possible about the way the building is constructed and its condition should be understood before significant works of repair/alteration are undertaken. Loss of historic fabric should be minimised and repairs should be carried out using appropriate materials. **16** © English Heritage **17** © English Heritage **18** © Spratley and Woodfield Architects

16



- **Setting:** a good understanding of the building's relationship with its immediate surroundings and landscape character will help to ensure that the new works conserve the relationship with the landscape. This understanding can then inform detailed design decisions about spaces, curtilage, access, visual impact and enclosure, as well as details of materials, surfaces, boundary treatment and planting.
- **Incorporating services and adding insulation:** most new uses have some service requirement and will need to comply with Building Regulations for adequate levels of energy conservation. These need to be incorporated discreetly so as not to damage historic fabric or features of interest.



The end use does to some extent influence how well the building can be adapted to overcome these issues without losing character and significance. For instance, a commercial scheme may require less subdivision than a residential scheme, but equally such a new use can have a greater impact on the setting through the need to provide adequate car parking. A commercial use may also require good road access for service vehicles that could also have a significant impact on the setting.

The following sections describe ways these issues can be tackled without destroying the essential features that give the building or its setting interest. The guidance is not intended to be highly prescriptive, and many successful conversions may incorporate elements not listed here.



19



20

19 External lintels take many different forms in farm buildings. They should be retained and repaired where necessary. © English Heritage

20 Masonry structures often show signs of movement at eaves level from thrusts of the roof structure. © English Heritage

21 In timber-framed structures damp problems are usually associated with ground levels being too high. © English Heritage

22 Consider the need for first-aid repairs where there is likely to be a significant gap before the commencement of the main conversion works. © Dennis Gilbert/VIEW

23 Longitudinal racking is a common problem with timber-framed structures. © English Heritage

24, 25 Cracks in masonry structures indicate some movement has occurred which could be the result of a number of different defects. © English Heritage



21



22

THE TREATMENT OF THE EXTERNAL WALLING

Materials used for the construction of the main external walls were generally materials that were available locally. This was often the case well into the 19th century and even later, and was a response to the limitations of cost, transport and local construction skills.

All materials require their own appropriate repair techniques, and compatible materials should be used when these are needed for repair. Natural materials acquire a patina from weathering and such character can very easily be lost by overzealous replacement, rebuilding or cleaning.

The local planning authority should be consulted during the development of any scheme for the repair of a farm building structure especially if it is listed, or there is to be a change in appearance or a significant amount of replacement as opposed to repair. Detailed discussion may be required.



23

COMMON STRUCTURAL ISSUES

Masonry and earth structures

Farm buildings constructed from masonry bonded with lime mortar generally have substantial walls often up to 600mm thick or more, but foundations are often minimal and quite shallow. Rubble walls would often have been coated in a lime render with a limewash finish renewed on a regular basis. Gradually as limewashing buildings ceased to be common practice the lime renders eroded and were never replaced. Reinstatement of missing lime renders can add a layer of protection to the building fabric.



24



25

Walls made of cob, earth mortars or walls with rubble cores are all highly vulnerable to water penetration. Water needs to be kept out of the top of the wall as well as the base, otherwise the wall core will decompose. Water should discharge away from the wall surface to avoid damage to the lighter elements of the wall core. Traditionally these types of wall stand off the ground on a base such as flint or stone and the roof has a good overhang at the eaves. If water penetrates the rubble core of a stone wall and then freezes, the resultant expansion will damage the outer faces of the wall. Erosion of the core material can also lead to the facing stones bulging or moving apart.

Cracks in masonry structures usually indicate some movement has occurred. The movement could be the result of a number of different defects: thrusts from the roof forcing walls outward, difficulties with the foundations which may be due to concentrations of groundwater from leaking gutters, downpipes or below-ground drainage problems, or the spread of tree roots. The problem may also be a result of decay in timber lintels or wall plates. Such defects need to be analysed and appropriately repaired. Climbing plants such as ivy can often conceal such defects and further weaken structures if left unattended.

Outward leaning walls are a common defect in farm buildings. Often this is due to the outward thrust of the roofs, and ties may be needed. Creeping deflection of the roof over a long period can have a similar effect. Purlins tend to sag and no longer support the rafters over their full span, resulting in thrusts on the wall plates. Similarly gable ends may be unstable through slenderness or lack of ties. Sagging purlins can also induce outward thrusts on gables. Buttresses have often been added to support such walls, but on poor ground they can subside and pull the wall further out.

With masonry buildings it is important to establish that the building is acting as a cohesive structure. There may be a variance between walls and a degree of uncertainty as to how the structure is bonded together. Random masonry and sometimes brick walls were constructed in a form that precluded cross-bonding of the two outer leaves. The core of a random or even a coursed stone wall is often loose and friable. With slow degradation often due to moisture the finer elements of the core migrate down and exert pressures on the exterior skin of the wall, resulting in delamination. Special care needs to be taken when

adapting or altering rubble wall construction for new openings, as the structure can easily become unstable and may require extensive rebuilding.

It is important also to see the structure in relation to external ground levels to establish whether the masonry is acting as a retaining wall or whether the 'earth cover' to the foundations has been eroded. The mass of random stone or other masonry can be more severely affected by these problems than a timber frame construction. Timber lintels were often used in masonry structures in the form of a series of boards to span wall thicknesses. These need to be checked for decay and stability.

Timber frame structures

It is probably easier to diagnose problems in the open structure of a timber frame building compared with a masonry structure. Close observation of the structure should tell you if something is awry.

A common problem with timber structures is longitudinal racking. This occurs when the whole structure leans in one direction because of the roof being inadequately tied or braced from one end to the other. There are very often problems around the sole-plates in that either the ground has been allowed to rise above the plate/dwarf-walls or totally inundate them. Barns that may have been used for stalling cattle could have sleeper walls that have been distorted or destroyed by many years of 'mucking out', aided and abetted by vermin.

Partition walling often provides support for inserted floors as well as providing lateral stability to the structure at the 'bay positions' along its length. Partitions, bracing and the tie beams to roof trusses often get abused in the reuse of agricultural buildings, cut through without thought as to what purpose they served in the structural integrity of the building. If braces are missing this evidence can be established from looking for their empty mortises on posts or plates and tie beams.

Joints that are to be repaired and timber that is to be replaced should be marked up on site so that the extent of repair/replacement proposed is clear to all.

Repairs should be executed using traditional carpentry with as much material retained *in situ* as possible. This may entail supporting the structure at tie level with the posts left hanging to facilitate repairs to post bases and plates offered up from the underside. Such methods are preferable to dismantling large parts of the structure.

26



26 Ventilation holes in the gable end of this Cotswolds stone barn form a significant part of its character. © Peter King

29 Consider what existing joinery can be retained and repaired. © English Heritage

27 Some features are of a very high quality such as the detailing and surround to these ventilation holes in a Cambridgeshire barn. © English Heritage

30 Forms of construction can often be an important distinctive feature of farm buildings, as at this Norfolk farm partly constructed from unfired clay lump. © Mike Williams/English Heritage

28 Stone steps on the parapet gable of this Cumbrian barn are a distinctive roof feature. © English Heritage

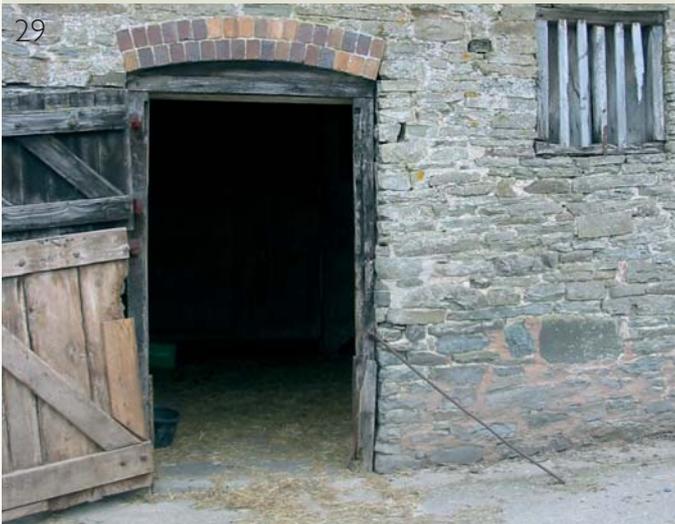
27



28



29



To carry out effective repairs to timber frames, infill panels sometimes have to be disturbed or removed. With brick infill panels original material should be replaced or kept *in situ* during the repair if at all possible. Stripping the whole building back to the timber frame should be avoided wherever possible as this can result in a very significant loss of historic fabric. Where weatherboarding has been used, try to retain as much of this as possible where sound. Replacement boarding should be matched to the existing.

It may well be worth considering temporary repairs if there is likely to be a significant time gap before the commencement of the works. Cheap and simple first-aid repairs can delay deterioration to historic fabric and reduce the extent of work in the long run. The information sheet *First Aid Repair to Traditional Farm Buildings* produced by the Society for the Protection of Ancient Buildings gives useful guidance.

30



DAMP IN EXTERNAL WALLS

Invariably farm buildings were constructed on the driest ground available to the builder. However, many years of poor maintenance can result in severe damp problems. Often these are due to either inadequate dispersal of water from the roof or external ground levels rising too high over a long period. Masonry structures can take a long time to dry out, even once the cause of damp has been remedied.

Traditionally farm buildings were built as 'breathable' structures with plenty of ventilation so that moisture was able to evaporate easily without detriment to the structure. Often hard cement-based materials have been used in modern times to stabilise a rubble wall structure

or provide a new floor. Such changes can damage brick or stone because they inhibit the building's ability to 'breathe', resulting in damp being trapped in or even driven up external walls. The introduction of damp proofing by chemicals into the masonry walls of farm buildings is often unnecessary and usually ineffective. It is essential to first correctly diagnose the cause of any damp and wherever possible to solve the problem at its source. The SPAB technical leaflet *How to Deal with Damp* covers these issues in detail.

In timber-framed structures damp problems are usually associated with ground levels being too close to the sole-plates, together with poor maintenance and problems with rainwater disposal. Timber posts can sink, and decay can set into the bases.

RETAINING DISTINCTIVE FEATURES

The external walls of farm buildings often retain distinctive features that should be retained in any conversion. Perhaps most numerous are ventilation holes or slits which come in a wide range of forms – cruciform, vertical or diamond slits, diaper honeycomb patterns. These openings were left open and unglazed; some may have had simple wooden shutters. Such openings can be either blocked on the inside face or glazed deep in the aperture so that there is no change in appearance externally.

Farm buildings often incorporate numerous other features such as nesting holes for pigeons (often grouped in a regular pattern on an east-facing wall), owl holes and date stones. Buttresses may have been added at some stage to masonry structures to restrain outward leaning walls. Buildings such as granaries, which used an upper floor, often incorporate stone steps. The retention of these types of feature is vital and should not pose a significant problem in any type of conversion.

The ground floors for farm buildings may retain brick, thick clay tile or stone paving, sometimes with drainage channels. Every effort should be made to retain these types of floor feature even if the floor is to be upgraded thermally.

OPENINGS

The historic pattern of openings is a direct product of the function of the building over time, and its present mass and character. It has been noted that ventilation was a more important consideration in determining the external form of most farm buildings than light. Consequently farm buildings are characterised by few external openings. But those that do exist form a fundamental element of a farm building's character and give legibility to the original form and function of the building. There should always be a presumption in favour of maximising the use of these existing openings without changing their size, and limiting the formation of new ones. Where new openings are added or new windows inserted within existing door openings, great care needs to be given to their placing and design.

If a new opening is to be inserted the correct proportions and detailing are a crucial aspect of the design. In many cases it is probably best to follow existing patterns on the building or other similar farm buildings. New openings can be expressed as modern interventions without resorting to making them appear 'historic'. This, however, requires some skill on behalf of the designer. With any new opening in a masonry structure the design of the lintel and sill need some careful consideration.

The large doors common to the threshing bays of barns, which are invariably the focal point of the building, pose a particular challenge in conversion schemes. The problem is one of scale and the reflection of a large area of glazing. Crucially important are the retention and repair of the cart doors, if they still survive, which can be retained in their open position. Often threshing barns have large porches, and their door surrounds may preserve key details such as the retaining slots for the 'leap'-planking that kept grain within the threshing area while being beaten from the crop. The design of new screens should have a simple framed vertical emphasis and be recessed as far as possible. Alternatively this bay can be left unconverted, with an ancillary use such as storage or garaging accessed externally. This allows the large doors and the space behind, which may still retain its original floor finish, to be left unaltered.

31 This existing gable opening has been retained and simply glazed deep in the reveal. © *English Heritage*

32 This residential conversion of an unlisted farm building near Durham has retained all the existing openings. Some have been changed from doorways to windows, but the door lintels and sills have been retained. © *Jen Deadman*

33 This stock-building in the Dartmoor National Park, now in residential use, has made sensitive use of existing openings. © *Philip White*

34 A variety of window sizes rather than a series of regular openings can work well with the plain, rather austere elevations of many farm buildings, as at this unlisted farm building in Northamptonshire. © *English Heritage*

35 The ventilation slits have been slightly widened in this office conversion near Witney in Oxfordshire, but the overall character has been maintained. © *Peter King*

36 These carefully designed new openings with simple robust dark frames have been deeply recessed in the masonry for minimal impact. © *Huw Thomas*

37, 40 Timber louvres and shutters can help to minimise the impact of new openings on the exterior; particularly in weatherboarded structures. **37** © *Nigel Hetherington Circus Architects* **40** © *Jonathan Moore/ Architecture plb*

38 Small new openings can add significantly to light levels with minimal change to the exterior. © *Geoff Pyle*

39 The use of large timber sections with a vertical emphasis can help to reduce the impact of glazing within the cart door opening. Large timber sections can also have an affinity with the structure of the building. © *Philip Bier/VIEW*

41 Long horizontal glazed openings have been incorporated in weatherboarding for minimal disturbance on the elevation. © *Nigel Hetherington Circus Architects*



42 This cart door entrance has been carefully designed with a mixture of solid and void. © *Van der Steen Hall Architects*

43 Threshing doors should be retained where these still exist. Their retention helps to reduce the impact of a new glazed screen. © *Bob Edwards*

44 A new cart door entrance which has been designed with closely spaced vertical timbers gives the impression of more solid than void when seen obliquely. © *English Heritage*

45 This cart door entrance has been infilled with a modern steel frame and panels of glass and timber which create an interesting juxtaposition of solid and void. © *English Heritage*

46 This L-shaped run of Grade II listed shippens in the Peak District National Park has been converted into two houses. The spaces behind the cart door entrances have been excluded from the consents. © *John Sewell*

47 A wicket entrance has been incorporated into fully boarded doors within the cart door entrance. © *English Heritage*

48, 49 Openings high in gable walls of framed structures can be an effective way of introducing light without significantly altering the character of the building's external appearance. **48** © *Huw Thomas*

49 © *Rolf Richardson Images of England*





50

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



51



52



53



54



55



56



57

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.

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.

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



63

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*



64



65



66



67



68



69



70

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

96



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

97



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.

98



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



99, 100, 101, 102, 103

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.

CONTACTING US IN THE REGIONS

ENGLISH HERITAGE REGIONAL OFFICES

NORTH-EAST

Bessie Surtees House
41-44 Sandhill
Newcastle upon Tyne NE1 3JF
Tel: 0191 269 1200
northeast@english-heritage.org.uk

NORTH-WEST

Suites 3.3 and 3.4
Canada House
3 Chepstow Street
Manchester M1 5FW
Tel: 0161 242 1400
northwest@english-heritage.org.uk

YORKSHIRE AND THE HUMBER

37 Tanner Row
York YO1 6WP
Tel: 01904 601901
yorkshire@english-heritage.org.uk

WEST MIDLANDS

112 Colmore Row
Birmingham B3 3AG
Tel: 0121 625 6820
westmidlands@english-heritage.org.uk

EAST MIDLANDS

44 Derngate
Northampton NN1 1UH
Tel: 01604 735400
eastmidlands@english-heritage.org.uk

EAST OF ENGLAND

Brooklands
24 Brooklands Avenue
Cambridge CB2 2BU
Tel: 01223 582700
eastofengland@english-heritage.org.uk

LONDON

1 Waterhouse Square
138-142 Holborn
London EC1N 2ST
london@english-heritage.org.uk

SOUTH-EAST

Eastgate Court
195-205 High Street
Guildford GU1 3EH
Tel: 01483 252000
southeast@english-heritage.org.uk

SOUTH-WEST

29 Queen Square
Bristol BS1 4ND
Tel: 0117 975 0700
southwest@english-heritage.org.uk

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 is 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>

FURTHER READING

LEGISLATION AND GOVERNMENT GUIDANCE

Town and Country Planning Act 1990 London: HMSO

Planning (Listed Buildings and Conservation Areas) Act 1990 London: HMSO

Department of the Environment and Department of National Heritage 1994 *Planning and the Historic Environment*. Planning Policy Guidance Note 15 (PPG15). London: HMSO

Department of the Environment 1990 *Archaeology and Planning*. Planning Policy Guidance 16. London: HMSO

Office of the Deputy Prime Minister 2004 *Sustainable Development in Rural Areas*. Planning Policy Statement 7, ODPM. London: HMSO

Office of the Deputy Prime Minister 2005 *Delivering Sustainable Development*. Planning Policy Statement 1, ODPM. London: TSO

ENGLISH HERITAGE AND OTHER GUIDANCE

British Standards Institute 1998 *Guide to the Principles of the Conservation of Historic Buildings* (BS 7913). London: BSI

Cadw and Monmouthshire County Council 2004 *Converting Historic Farm Buildings in Wales: A Guide to Good Practice*

Clark, K 2001 *Informed Conservation: Understanding Historic Buildings and Their Landscapes for Conservation*. London: English Heritage

Clark, J, Darlington, J and Fairclough, G 2004 *Using Historic Landscape Characterisation*. English Heritage/Lancashire County Council

English Heritage 1993 *The Conversion of Historic Farm Buildings: An English Heritage Statement*. London: English Heritage

English Heritage 2004a *Farming the Historic Landscape: An Introduction for Farm Advisers*. London: English Heritage

English Heritage 2004b *Farming the Historic Landscape: Caring for Archaeological Sites on Arable Land*. London: English Heritage

English Heritage 2004c *Farming the Historic Landscape: Caring for Farm Buildings*. London: English Heritage

English Heritage 2004d *Farming the Historic Landscape: Entry Level Stewardship*. London: English Heritage

English Heritage 2006 *Understanding Historic Buildings: A Guide To Good Recording Practice*. London: English Heritage

English Heritage [forthcoming] *Understanding Historic Buildings: Policy and Guidance for Local Planning Authorities*. London: English Heritage

English Heritage/Countryside Agency 2006 *Living Buildings in a Living Landscape: An English Heritage and Countryside Agency Statement on Traditional Farm Buildings*

Gaskell, P and Owen, S 2005 *Historic Farm Buildings: Constructing the Evidence Base*. University of Gloucestershire, English Heritage, and the Countryside Agency

Roberts, B K and Wrathmell, S 2002 *Region and Place: A study of English Rural Settlement*. London: English Heritage

Davey, A 2001 *The Conversion of Redundant Farm Steadings to Other Uses*. Scottish Executive Central Research Unit

THE HISTORY OF FARM BUILDINGS

Barnwell, P S and Giles, C 1997 *English Farmsteads, 1750-1914*. RCHME: Swindon

Brigden, R 1986 *Victorian Farms*. Crowood

Brunskill, R W 1978 *Illustrated Handbook of Vernacular Architecture*. Faber

Brunskill, R W 1982 *Traditional Farm Buildings of Britain*. London: Gollancz

Brunskill, R W 1999 *Traditional Farm Buildings of Britain and Their Conservation*, 3 edn. London: Gollancz

Darley, G 1981 *The National Trust Book of the Farm*. London: Weidenfeld & Nicolson

Harris, R 1978 *Discovering Timber-Framed Buildings*. Aylesbury: Shire

Harvey, N 1980 *The Industrial Archaeology of Farming in England and Wales*. London: Batsford

Harvey, N 1984 *A History of Farm Buildings in England and Wales*, 2 edn. Newton Abbot: David and Charles

Lake, J 1989 *Historic Farm Buildings: An Introduction and Guide*. London: Blandford

Peters, J E C 1981 *Discovering Traditional Farm Buildings*. Aylesbury: Shire

Wade Martins, S 1991 *Historic Farm Buildings*. Batsford

Wade Martins, S 2002 *The English Model Farm*. Macclesfield: Windgather

Wade Martins, S 2004 *Farmers, Landlords and Landscapes: Rural Britain, 1720-1870*. Macclesfield: Windgather

WILDLIFE

Barn Owl Trust 1995 *Barn Owls on Site: A Guide for Developers and Planners*

Bat Conservation Trust www.bats.org.uk

Mitchell-Jones, A J 2004 *Bat mitigation guidelines*. English Nature

National Trust 2001 *Wildlife and Buildings: Technical Guidance for Architects, Builders, Building Managers and Others*. National Trust

TECHNICAL GUIDANCE AND OTHER PUBLICATIONS

Boutwood, J 1991 *The Repair of Timber Frames and Roofs*. Technical Pamphlet 12. London: Society for the Protection of Ancient Buildings

Brockett, P and Wright, A *The Care and Repair of Thatched Roofs*. Technical Pamphlet 10. London: Society for the Protection of Ancient Buildings

Chartered Institution of Building Services Engineers 2002 *Guide to Building Services for Historic Buildings*. London: CIBSE

Darley, G 1988 *A Future for Farm Buildings*. SAVE

English Heritage 2005 *Stone Slate Roofing*. Technical Advice Note. London: English Heritage

Latham, D 2000 *The Creative Re-use of Buildings*, vols 1-2. Donhead: Shaftesbury

Reid, K 1989 *Panel Infillings to Timber-Framed Buildings*. Technical Pamphlet 11. London: Society for the Protection of Ancient Buildings

Society for the Protection of Ancient Buildings 1982 *Barns Book* London: SPAB

Society for the Protection of Ancient Buildings nd *First Aid Repair to Traditional Farm Buildings*. Information Sheet 7. London: SPAB

Society for the Protection of Ancient Buildings nd *The Need for Old Buildings to 'Breathe'*. Information Sheet 4. London: SPAB

Thomas, A, Williams, G and Ashurst, N 1992 *The Control of Damp in Old Buildings*. Technical Pamphlet 8. London: Society for the Protection of Ancient Buildings



Acknowledgements

The text of this booklet was prepared by David Pickles and Jeremy Lake with assistance from Steve Trow, Adam Menuge, Trevor Mitchell, Ann Bond, John Yates and Huw Thomas.

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

