

AGRICULTURAL BUILDING DESIGN GUIDE



SHROPSHIRE HILLS AREA OF OUTSTANDING NATURAL BEAUTY

Agricultural Building Design Guide

October 2010

Contents

1. INTRODUCTION

1.1 What this Guide does	3
1.2. The Shropshire Hills AONB	3
1.3 The need for and use of the Guide	4
1.4 Sustainability	5

2. RETAINING TRADITIONAL FARM BUILDINGS

2.1 Continued Agricultural Use	9
2.2 New Economic Use	10
2.3 Making Buildings Fit For Use	11
2.4 Grant Sources	12

3. CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

3.1 The Setting of Buildings	16
3.2 The Design of New Buildings	22
3.3 Materials and Detailing	29
3.4 Ground-works	36
3.5 Landscape Planting	37
3.6 Lighting	38
3.7 Ancillary Development	39

APPENDIX A: Sources of local materials & skills	42
--	----

List of Figures

1. Map of the Shropshire Hills AONB
2. Traditional farm buildings in the AONB
3. Green roof, Shropshire Hills Discovery Centre, Craven Arms
4. New Dutch barn constructed from timber
5. Reed-bed filtration system
6. Bull Pen and calving shed restored with grant aid
7. Farm buildings restored to economic use
8. Repair work to a traditional farm building
9. Restoration of traditional farm building (*image, T Phillips Natural England*)
10. Avoid sites where buildings will be visible on the skyline
11. Place new buildings on the same frontage as existing ones
12. Small local quarry site
13. Hollow-way, an ancient routeway incised into the land surface
14. Set new buildings so that they do not obscure existing buildings
15. Existing roadside hedges or walls should be maintained or restored
16. Small open-sided byres are preferred to closed byres
17. Example of a large metal clad elevations machine store
18. Open sided hay barns sited next to closed sided building reducing visual impact
19. Example of horizontal timber, lapped feather-board cladding
20. Small stable building
21. Fibre cement roofs are the least reflective roof material
22. Example showing overlapping eaves
23. Conspicuous plinths walls should be clad in timber or stone
24. The upper wall cladding should cast a shadow line over the lower plinth
25. Example of building showing contrasting colours used on elevations to break up building profile
26. Example showing recessed machine and pedestrian doors in large building
27. Traditional building terraced into hillslope
28. Hedging and trees can be used to help screen buildings
29. Lighting should be set low down on buildings to reduce light scatter
30. Example of an in-situ silage clamp
31. Access trackway screened by mature hedge

1. INTRODUCTION

1.1 What this Guide does

This document has been produced by the Shropshire Hills Area of Outstanding Natural Beauty (AONB) Partnership. It gives guidance on the continued use of farm buildings and shows how the construction of new buildings can be carried out in sympathy with the purposes of AONB designation. Whilst the principles apply to all farm buildings, the treatment of **listed buildings should be discussed with the Conservation Officer from the relevant Local Authority.**

1.2. The Shropshire Hills AONB

Area of Outstanding Natural Beauty (AONB) is a national designation with the primary purpose of conserving and enhancing the natural beauty of the landscape. In doing this, regard must be paid to the needs of agriculture, forestry and the social and economic needs of local communities. AONBs have secondary purposes to promote sustainable development and meet the demand for recreation

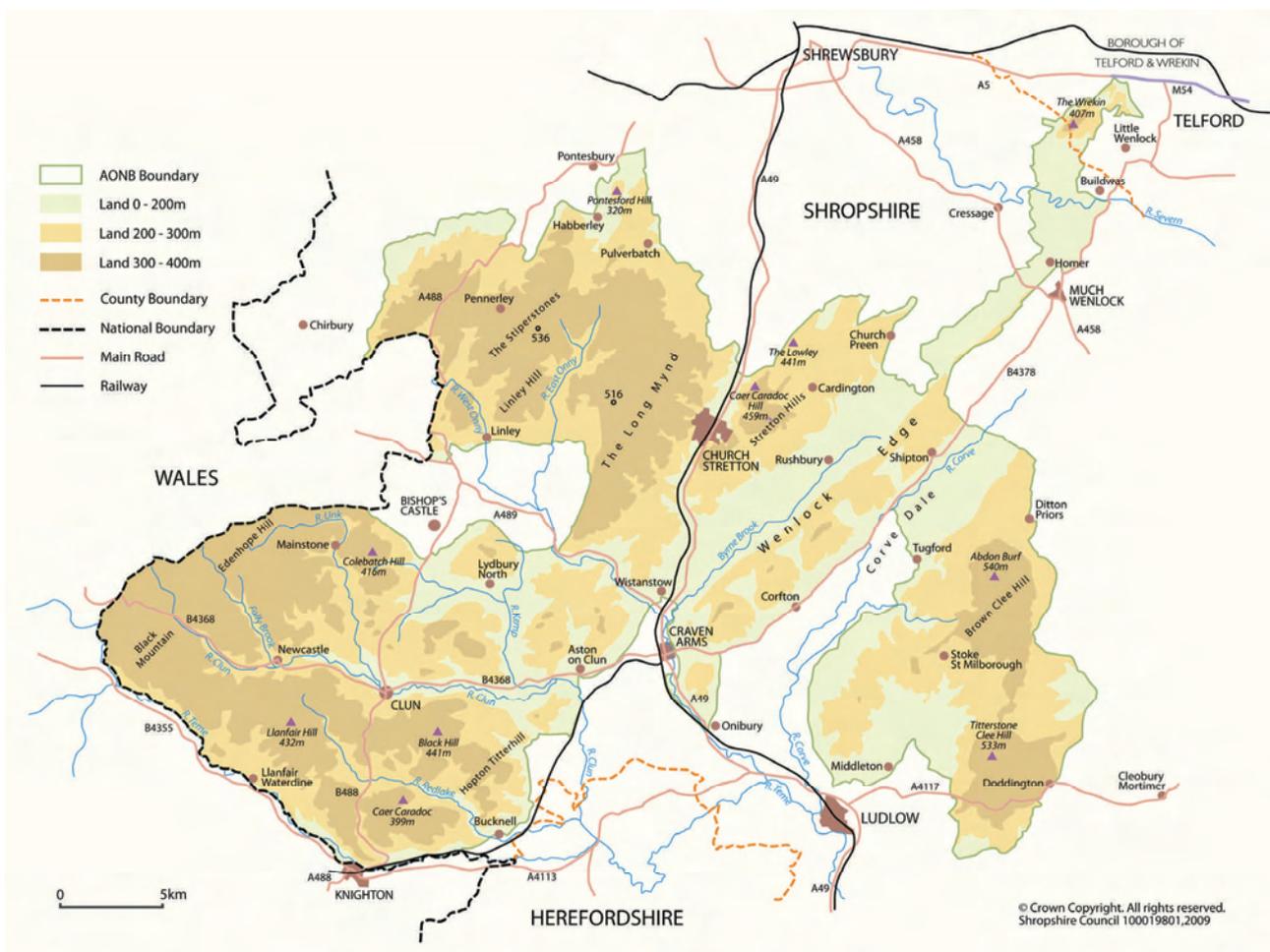


Figure 1: Map of the Shropshire Hills AONB

The responsibility for AONBs lies with those Local Authorities whose areas they cover. For the Shropshire Hills this is the two unitary authorities of Shropshire Council and the Borough of Telford and Wrekin. The two councils act jointly through the Shropshire Hills AONB Partnership. This has a current membership of 38, representing farming, forestry, recreation, wildlife and heritage interests as well as parish and community councils. Natural England (formerly the Countryside Agency) and the councils provide financial support. Activity is guided by the Shropshire Hills AONB Management Plan and implemented by a small staff team.

The Shropshire Hills AONB covers 804km² (approx. 23% of Shropshire) from the Wrekin to the Clun Forest and the Stiperstones to the Cleve Hills. It has a special and varied landscape of hills and river valleys, rolling pastoral farmland and a rich tapestry of fields, hedges, trees and woodland. The area has a wealth of historic settlements, buildings, hillforts and monuments as well as a rich industrial heritage.

1.3 The need for and use of the Guide



Figure 2: Traditional farm buildings in the AONB

Agriculture employs one quarter of the workforce and covers three quarters of the land area within the Shropshire Hills AONB. Farming and farm buildings are key features within the area, making a fundamental contribution to this nationally valued landscape.

The agricultural industry has witnessed large scale change over the last 50 years. There has been a general trend toward larger farm sizes, increased mechanisation and the use of larger farm machinery. **Within the Shropshire Hills, dairy and mixed farming has declined, whilst there has been an increase in more specialised cereal cropping and the production of pigs and poultry.**

Such changes have brought about the need for new, often large scale buildings to suit a wide range of agricultural requirements. Reform of the Common Agricultural Policy involving a move away from subsidised production toward support for the wider rural economy is also bringing about more change and currently much uncertainty.

These changes mean that the older buildings associated with traditional farming methods are often redundant, whilst new buildings are needed to accommodate modern practices and standards. This is relevant to the AONB's remit in a number of ways and this guidance aims to:

- support the sensitive maintenance and where possible, the continued use of existing agricultural buildings especially those with historic character and value
- encourage standards and approaches of design which ensure that new agricultural buildings are sensitive to the high quality of the AONB landscape
- reduce the environmental impact of agricultural buildings in relation to energy, resources and ecological processes.
- Support other businesses which provide natural and sustainable materials that can be used in agricultural buildings

This document is aimed at farmers, landowners and their agents wishing to keep existing farm buildings in agricultural use, or to build new ones. The general principles will also be useful for the construction of other, large buildings in the AONB. The Guide will also be a resource for local authority development management officers.

Changes to the planning system mean that the Guide cannot currently be adopted as a Supplementary Planning Document, although this may be possible in the future. However, the Shropshire Hills AONB Partnership hopes that the recommendations will be taken into consideration when determining applications for agricultural buildings or those of a similar nature affecting the AONB.

1.4 Sustainability

Sustainability lies at the heart of the modern planning system and is a fundamental part of the remit of the Shropshire Hills AONB Partnership. To this end, it is important that any changes to agricultural buildings respect the principles of sustainability. These include:

- Design for energy efficiency
- Use of sustainable materials
- Efficient use of water

1.4.1 Incorporating sustainability principles into agricultural buildings

The following guidelines are especially relevant to new agricultural buildings but also may be incorporated where changes are made to existing buildings. They are intended to be used in conjunction with the more detailed guidance in the rest of the document.

1.4.2 Energy

The energy considerations for agricultural buildings depend on their use. Most however will be unheated, so the main considerations are optimising natural and low energy means of temperature regulation and lighting, and considering on-site generation of energy from renewable sources. Site and orientate buildings to achieve the most suitable climate.

This may mean maximising passive solar gain (see below) and shelter from chilling winds, or for example where stock are housed in summer avoiding overheating and encouraging shading and ventilation.

Energy Guidelines

- If heat loss in cold weather is an issue, incorporate insulation in roofs or walls.
- Make the best use of natural light. Incorporate adequate transparent or translucent roof panels, and in existing buildings make sure these are cleaned of algae or moss to work efficiently.
- Use low energy lighting. Traditional fluorescent tubes are good but there are newer, (thinner) designs on the market which use even less energy. In existing buildings with old fittings it can make sense financially to replace older lights with more efficient modern ones.
- Consider a green roof to regulate temperature, provide a filter for rainwater and reduce the speed and amount of run-off, whilst increasing wildlife value.



Figure 3: Green roof Shropshire Hills Discovery Centre, Craven Arms

- Renewable energy generation should be considered in the context of the whole farm and in conjunction with measures to conserve energy. Farm buildings may offer suitable locations for solar hot water or photovoltaic (electricity) panels.

For a more in depth approach see the Country Land and Business Association's Carbon Accounting for Land Managers (CALM) tool at http://www.cla.org.uk/Policy_Work/CALM_Calculator/

Key design principles for optimising passive solar gain include:

- Align the building on an east-west axis.
- The building's south face should receive sunlight between the hours of 9 am and 3pm during summer.
- Interior spaces requiring the most light, heating and cooling should be placed along the south face of the building. Less used spaces should be located on the north.
- An open floor plan allows maximum air circulation and so is more effective.
- Use shading to prevent summer sun entering the interior.

1.4.3 Materials

The aim is to use materials that use the least energy to produce, last longer and have travelled the shortest distance. Chapter 3 contains detailed guidance on materials for particular types of agricultural buildings, but the principles below should also be followed.

Materials Guidelines

- Aim to use materials from a sustainable source e.g. the Forest Stewardship Council's Trademark is a label on timber and wood products which indicates that the wood comes from sustainably managed forests.
- Materials that require low levels of energy in their manufacture and transport are preferred. Examples are timber, perforated clay bricks, rammed earth, straw bale and industrial hemp.
- Keep chemical treatments to a minimum
- Natural paints or finishes are preferred
- Source materials as locally as possible
- Use homogeneous rather than composite materials
- Use layered instead of glued components.
- Specify small, easily-handled components



Figure 4: New Dutch barn constructed from timber

1.4.4 Water

The aims are to make efficient use of water resources and minimise the risk of flooding.

Water Guidelines

- Collect rainwater from the building for use elsewhere on the farm.
- Incorporate dual water supplies wherever possible, so as not to utilise valuable drinking water for tasks which do not require it.
- Conserve run-off through soft landscaping and the use of permeable surfaces around the building such as porous pavements and filter drains.
- Consider the potential for including reed-bed treatment or other water purification systems on site to deal with effluents.



Figure 5: Reed-bed filtration system on a farm

2. RETAINING TRADITIONAL FARM BUILDINGS

Keeping traditional buildings in agricultural use or finding sensitive new economic uses for such buildings offers the best solution to both maintaining landscape character and supporting the rural economy in the Shropshire Hills AONB. The Shropshire Hills AONB Partnership strongly recommends that continued agricultural use be considered as the first option for traditional farm buildings..

The potential uses for traditional farm buildings are dealt with in the first part of this chapter. The second part of this chapter covers the activities necessary to ensure such uses take place sensitively. Grant opportunities are outlined in the third section.

2.1 Continued agricultural use

The practical aspects of older buildings such as their size and accessibility may limit the options for continued agricultural use. Even in these cases, some options may remain such as:

- Low-grade storage of materials or machinery
- Occasional uses such as lambing or calving
- Stabling



Figure 6:

Bull pen and calving shed restored with a grant from the Environmentally Sensitive Area scheme

Where no agricultural use can be identified, there is the option of maintaining the condition of a traditional farm building but leaving it empty. Although not the most desirable course of action in the long term, this has the advantage of preserving the building stock for potential future use – perhaps in storing or producing farm products under added value activities.

2.2 New economic use

In situations where continued agricultural use for a traditional farm building is not possible, then new economic uses may be considered. Farm related businesses should be considered first:

- farm offices
- farm workshops
- farm shops
- bed and breakfast accommodation or other farm-related tourism
- farm diversification initiatives related to agriculture or forestry



Figure 7: Farm buildings restored to economic use

If the opportunities for farm related economic use are limited, then the following activities may be considered.

1. storage
2. workshops
3. light industrial
4. office
5. retail

2.3 Making buildings fit for use

The continued use of farm buildings requires that they be fit for that use. Traditional farm buildings have value from a wide variety of cultural, economic and environmental factors including:

- The original fabric as a physical record
- The aesthetic qualities of the building and its relationship to its environment
- Associations with past events or people or with other social activities

2.3.1 Principles for carrying out work to traditional farm buildings

- As much of the original material as is practically possible should be retained
- Materials should be locally sourced

Matching of the original materials should be used. The sourcing of local stone has in many cases been made possible by the re-opening of quarries. [Appendix 1 lists sources of local materials.](#)

There are three types of work that may be needed to make an existing farm building suitable for modern use. These are (in order of desirability):

- Repair
- Renovation
- Adaption or conversion

When making a building fit for use, both the condition and the setting of such buildings should be respected. For historic buildings the ideal is for minimum change i.e. repairs in preference to renovation. There is a preference for continued original use rather than adaptation or conversion.

2.3.2 Repair work

Repairs should be carried out with the aim of restoring traditional farm buildings to a healthy or sound state. However, repair work is no substitute for regular upkeep – the costs of major repairs far exceed the costs of regular maintenance. (Figure 8 over page: Repair work to a traditional farm building)

Where it can be demonstrated that 'like-for-like' repairs are not possible, the approach should favour the appearance of the building. [The exception is for Listed Buildings where the Local Authority Conservation Officer's advice should always be sought.](#)



Figure 8 Repair work to a traditional farm building

2.3.3 Renovation

Renovations should be undertaken with the aim of restoring a building to a better state. This may involve undoing past repairs or alterations, or restoring items that are missing.

Past repairs or alterations should always be assessed before the decision to remove them is taken, in case they themselves are of special interest.

The restoration of lost items should be confined to those that are essential to the proper maintenance or aesthetic value of the building. Restoration should never be attempted unless the design of the missing item is known.

While any repairs, alteration or restoration must be sympathetic to the building's special interest, no attempt should be made to pretend that new fabric is original. This should avoid any unnecessary confusion relating to the history of the building's construction in the future.

2.3.4 Adaption or conversion

The adaption or conversion of a traditional farm building involves making it fit for a similar or new use. The general principles are to minimise the amount of work needed and to retain as much of the original fabric and character as possible



Figure 9 Restoration of a traditional farm building (*Picture, Tony Phillips, Natural England*)

- The materials used should be as close as possible in colour, texture and size (for brick or stonework) to the original.
- Adapted or converted building should retain an agricultural character - including robustness and simplicity of design.
- The character of other existing traditional farm buildings should be respected
- The relationship (including orientation) of the building to other farm buildings and its setting in the landscape setting should be respected.
- The proportions and relationships between doors, windows and other wall piercing in the original building should be retained or replicated.
- External access doors should be minimised through careful design of internal spaces.
- Additional lighting or wall furnishings should be kept to a minimum and designs that are agricultural in character should be used.
- The scale and mass of any new work should be similar to the scale and mass of existing buildings on the site or in the surrounding area.
- Hard and soft landscaping should be included.
- The spaces created by the work – the imaginative use of glazed links for example can show where a change has been made.

2.4 Grant sources

There are three main sources of grants for the preservation and conservation of farm buildings within the Shropshire Hills AONB. These are described below.

2.4.1 DEFRA grant schemes

Defra's agri-environment grant schemes administered by Natural England provide funding to farmers and other land managers in England who deliver effective environmental management on their land. The primary objectives of the schemes are wildlife conservation, landscape protection / enhancement, protection of the historic environment including archaeological features and traditional farm buildings, promotion of public access to the countryside and protection of our natural resources (soil and water).

Four agri-environment schemes currently operate within the Shropshire Hills AONB: Countryside Stewardship Scheme (CSS), Shropshire Hills AND Clun Environmentally Sensitive Areas Scheme (ESA), Entry Level / Organic Entry Level Environmental Stewardship and Higher Level Environmental Stewardship.

The CSS and ESA schemes are now closed to new applicants, however those farms currently signed up to such schemes may qualify for grant aid towards the restoration of traditional farm buildings. The eligibility criteria and levels of grant aid are as per the Higher Level Environmental Stewardship scheme described below:

Entry Level / Organic Entry level Environmental Stewardship

Acceptance into the Entry Level Stewardship Scheme is determined by a simple points per hectare calculation. A set payment per hectare is awarded for carrying out a variety of management options e.g. hedgerow management, providing wild bird cover and creating buffer strips etc. to gain the required points. There are over 50 such options to choose from.

One option available gives points for the maintenance of traditional buildings. Eligible buildings must have been constructed before 1940 for an agricultural use and must have been built using traditional methods and materials. They must be in sound and weatherproof condition and either still be in agricultural use (even if this is different from the original intended use) or they may be unused and empty. Farmhouses or buildings converted to residential or commercial use are not eligible.

Higher Level Environmental Stewardship

The Higher Level Environmental Stewardship Scheme is a ten year scheme which is normally combined with Entry Level / Organic Entry level Environmental Stewardship options to form an individually tailored agreement aimed at delivering a wide range of environmental benefits. HLS is discretionary and competitive. In addition to payments for land management funding is also available through the scheme for a wide range of capital works such as hedging, tree planting and pond creation etc.

There are two grants available through the Higher Level Scheme in relation to traditional farm buildings. A maintenance payment of £2 per square metre of floor space can be claimed as a reward for maintaining traditional farm buildings in a weatherproof condition. To qualify for this option buildings must be in good condition at the start of the agreement and not require restoration.

- Capital payments are also potentially available through the Higher Level Scheme for the restoration of traditional farm buildings. Building restoration projects can qualify for an 80% grant and are targeted at the most vulnerable and historically important agricultural buildings.
- Funding will not be given to assist with the conversion of buildings or where changes would be made that affect the character or interest of the building.
- Building restoration projects need to be part of a wider HLS agreement and cannot be undertaken as 'stand alone' agreements.
- Any buildings restored through the scheme must remain in agricultural use and be maintained in good condition for the period of the agreement.
- More information regarding the above agri-environment schemes can be obtained from the following website: www.naturalengland.org.uk

2.4.2 English Heritage

English Heritage runs an Historic Buildings, Monuments and Designed Landscapes scheme. This is aimed at features of national significance such as Grade I or II* listed buildings. Exceptionally, grants are available for Grade II listed buildings or unlisted buildings of significant historic or architectural merit within Conservation Areas.

More information is available at www.english-heritage.org.uk/server/show/nav.

3. CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

Ongoing changes in farm economics and in methods of production continue to drive a need for new farm buildings. Government economic support for farming witnessed fundamental change in 2004 and 2005. In order to be eligible for payments, farms are required to meet a range of conditions. Whilst many of these conditions were already covered by existing regulations and legislation, cross compliance has given added incentive to farmers to meet regulatory requirements. Considerations such as the need to avoid poaching may lead some farmers to construct new buildings for housing stock in winter for example. This section sets out guidelines for the construction of new farm buildings.

3.1 The setting of buildings

There are three aspects to the setting of new agricultural buildings: setting in relation to the landscape; setting in relation to existing farm buildings and setting in relation to highways and other rights of way.

3.1.1 Setting in relation to landscape

i) Visual aspects

The potential visual impact of a new building should be assessed from key viewpoints in the nearby area, such as footpaths, roads and settlements. The Shropshire Hills landscape is characterised by hills and valleys. Large farm buildings are frequently seen from above, and here the 'roof-scape' of buildings is important. When buildings are viewed from lower levels in the valleys, the side elevations of buildings and their position relative to the skyline are important.

The choice of sites for new farm buildings in the Shropshire Hills AONB is often limited by topography, in particular, steep slopes. The layout of the farm may also be visible for quite some distance from surrounding hills and slopes. A series of portal frame buildings on the same axis along a hillside can increase their visual impact.

Visual Aspect Guidelines

- Avoid sites where new buildings will be visible on the skyline (Fig. 10 next page)
- Sites within hollows or valleys are generally preferable on visual grounds but consider ecological factors too (below).
- Where possible, place buildings so that they are seen against a field boundary or woodland when viewed from below.
- Careful consideration should be given to the choice of roof materials when buildings will be viewed from above (see section 3.3.1)
- Do not rely on existing farm buildings to conceal a new one.
- On steep slopes new buildings should be set parallel on terraces.
- Place new buildings on the same frontage as existing ones (Fig. 11 next page)

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

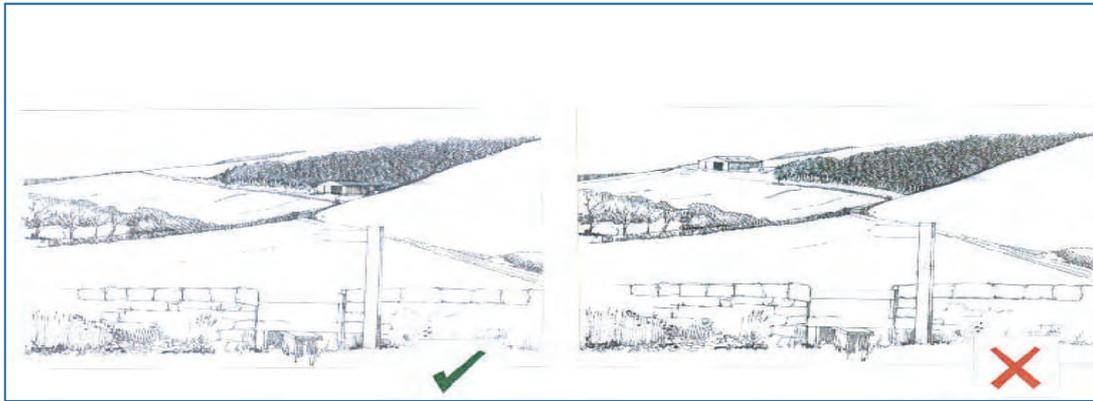


Fig: 10 Avoid sites where buildings will be visible on the skyline

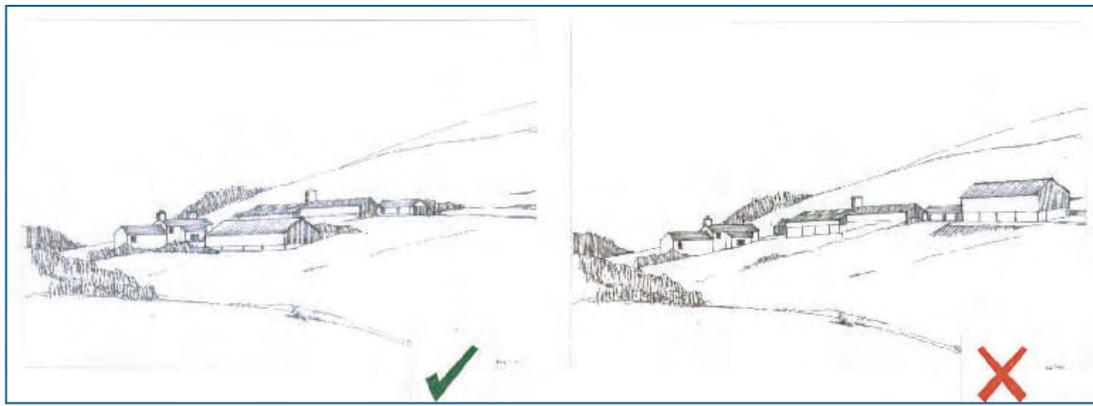


Figure 11: Place new buildings on the same frontage as existing ones

ii) Ecological and geological features

The construction of new agricultural buildings must not impact on legally protected sites or species. Efforts should also be made to avoid the loss of any other habitat, including trees, hedges, scrub, grassland, ponds and ditches. Landscaping should be appropriate ecologically as well as visually e.g. planting with native species. The Farming and Wildlife Advisory Group (FWAG), other conservation bodies, farm land agents and a variety of independent consultants all offer farm conservation advice. [Appendix A has a list of useful contacts.](#)

Small disused quarries reflect local geology and together with stone walls, stone gateposts and bridges, contribute to local distinctiveness. They should be retained wherever possible. (Figure 12, over page: Small local stone quarry)

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS



Figure 12: Small local quarry site

Ecological & Geological Guidelines

- The siting and construction of new farm buildings, groundworks, access roads and ancillary development should always avoid damage to ecological or geological features
- Opportunities should be sought to provide benefits to wildlife and to enhance geological features through the design of the development (see section 3.2)

iii) Archaeological, historic and cultural features

The Shropshire Hills contain a rich variety of historic features. The most important have legal protection but there are many more which make an important contribution to landscape character. Walls, hedges, ditches, gateways, tracks and embankments may have formed part of the original historic layout of the farm whilst veteran trees, ancient woodlands and green lanes represent previous cultural interactions with the landscape (see figure 13, hollow-way over page).

Cultural Heritage Guidelines

- The construction of new farm buildings must not damage legally protected features of historic or archaeological interest.
- Development should avoid damaging features that are part of the historic fabric of the landscape.
- Opportunities should be taken to restore historic, archaeological or cultural features in the course of developing new farm buildings.



Figure 13: Hollow-way, an ancient route incised into the land surface

3.1.2 Setting in relation to existing farm buildings

The setting of new farm buildings in relation to the existing farmstead is a key aspect of any development. In particular, the setting of any Listed Buildings is a material planning consideration.

Existing Farm Buildings Guidelines

- New buildings must not adversely affect the setting of Listed Buildings
- Ridge and eave heights should relate to and be in scale with existing farm buildings
- New buildings should be arranged so as not to obscure existing the existing farm buildings from key viewpoints (Figure 14 over page)

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

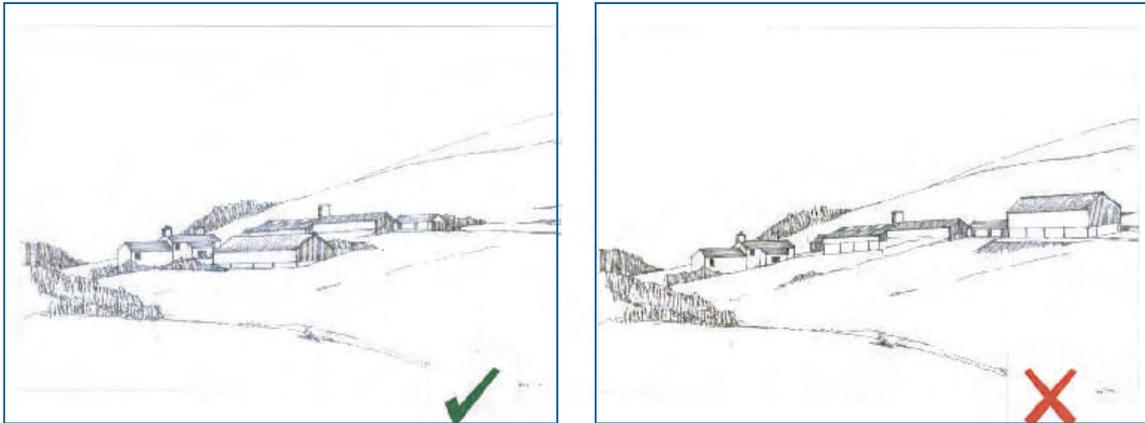


Figure 14 : Set new buildings back so that they do not obscure existing buildings

3.1.3 Setting in relation to highways and other rights of way

The setting of new buildings adjacent to highways and rights of way is important. Buildings may also need to be accessed from nearby roads or paths. New access points often need larger sight line splays or footways which can affect existing hedgerows or walls.

The boundary treatments and use of the land between the building and a highway or footpath can impact on the character and appearance of the farm. 'Left over' spaces around and to the side of buildings are often used for occasional storage. Problems can be caused if such areas become unsightly, or overspill onto roads or footpaths.

Setting & Rights of Way Guidelines

- Public highways and rights of way should not be obstructed by new buildings
- Where a development is likely to affect a highway or right of way the advice of the local authority highways officer should be sought
- Where possible, new buildings should be approached via existing points of access.
- There should be sufficient room between buildings and any adjacent roads, footpaths or bridleways to allow for appropriate landscape treatments.

(cont.)

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

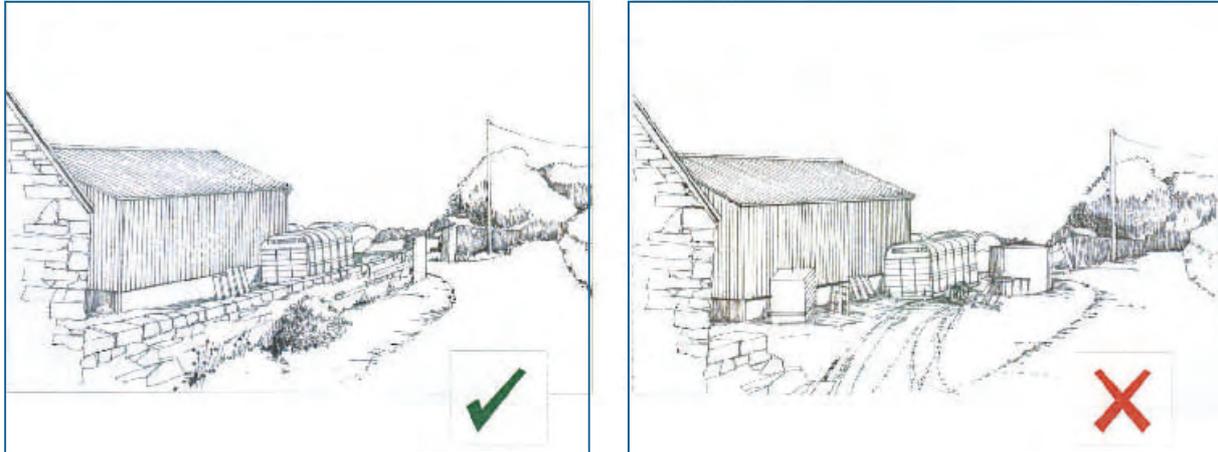


Figure 15 : Existing roadside hedges or walls should be maintained or restored

Setting & Rights of Way Guidelines (cont.)

- Existing mature roadside hedges, or walls and fences should be maintained and/or restored.
- Where existing mature hedges, walls or fences are breached or existing gateways need to be widened to enable access, then such features should be re-instated wherever possible.
- New gates and gateposts should be in keeping with those traditionally present in the surrounding area.
- The siting of new buildings should avoid creating ad-hoc storage areas between the building and adjacent roads or footpaths.

3.2 The design of new buildings

This section provides detailed guidance on the design of new buildings used for livestock, storage, poultry and pig rearing. In general, most new farm buildings involve portal frame structures with pre-fabricated steel frames. They tend to have profiled (corrugated) sheet roofing and timber or profiled sheet elevations and may or may not have a masonry lower plinth wall. All such farm buildings should meet the requirements of British Standard BS5502. Such structures can efficiently enclose space for a wide range of farming uses. Timber, especially where locally sourced, is considered the most sustainable material for the cladding and construction of buildings. It may also be the most visually acceptable.

There are a number of general principles that can be applied to all new modern buildings to help them fit into a traditional setting.

General design principles Guidelines

- Split up large ridge runs
- Use narrow rather than wide spans
- Use stepped down lean-to structures
- Put the supporting uprights outside the walls to break up long runs

3.2.1 Livestock buildings

Livestock buildings are usually either larger units or open byres. Larger units may be rectangular, 20 to 30m wide and of any length. A central aisle used for access, feeding and storage and is flanked by stalls for the livestock. The buildings are typically enclosed on 3 sides with the least exposed side open for ventilation. Ridge heights may rise to 12m or so and in some exceptional cases, barns are built to accommodate raised tipper trucks for unloading feed. Ventilation requirements frequently determine the choice of cladding materials.

The bulk and roof area of such large farm buildings are usually conspicuous. Large double pitch closed byre barns require particular care in respect of siting, ridge heights and materials. Open sided extensions to closed barns for machine, materials and hay storage can help break up the blank facades of side and gable end elevations.

Open byres are usually much smaller, 10m or so in width with a single (or one and a half) pitched roof and one side open for feeding and access. Byres are often arranged around two or more sides of a yard to give protection from the elements.

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

Livestock Buildings Guidelines

- Roofs should be single pitch
- Open byres are preferred to closed byres (Figure 16)
- A series of smaller buildings is more easily accommodated in the landscape than one large building.
- Avoid raising the roof and eave heights on closed barns any more than is strictly necessary for good livestock husbandry
- If extra storage space is needed consider open sided extensions or the construction of smaller additional buildings.



Figure 16: Small, open-sided byres are preferred to closed byres

3.2.2 Feed and Machine Stores

FEED STORES:

Feed storage buildings are increasingly built to be vermin proof with high concrete plinth walls able to withstand loads and knocks from loading machinery. Some stores can be high 12m to the ridge and built to accommodate raised tipper trucks bodies for unloading crops and/or incorporating drying or handling plant inside.

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

MACHINE STORES

Farm machinery is an expensive investment and a vital part of the farm infrastructure. Sheds for housing such machinery can range from small to large. A particular element of such buildings is often their height to eaves, dictated by the height of the equipment. Such buildings do not have to be ventilated in the same way as livestock buildings, but they do need to be reasonably secure. They may be built either with or without any kind of plinth wall.

Both types of building are sometimes entirely metal clad with large doorways to allow access for machinery. This creates an industrial appearance which integrates poorly with existing farm buildings and is inappropriate in landscapes such as the AONB. Figure 17 shows an example of such a metal clad machinery store. Where buildings are needed for these purposes, the guidelines below should be applied.



Figure 17: Example of a large metal clad machinery store where no consideration has been given to sympathy with its surroundings

Machine Store Guidelines

- Particular care should be given to the design and choice of materials (see section 3.3).
- If metal cladding and large doors are essential for functional purposes, then careful consideration should be given to the positioning of the new building to integrate with existing farm buildings

3.2.3 Hay Barns

The change from small hay bales to large silage bales has brought about a need for larger storage barns. Modern hay barns need to be able to accommodate up to 5 round bales of 2m diameter under the ridge and eave heights are thus around 8 – 10m. Enclosed sides are not necessary and they can be an impediment to loading or stacking. Livestock barns are sometimes designed to double-up for hay storage by being taller at the eaves. This can give rise to barns that appear excessively large and out of scale in the landscape

Hay Barns Guidelines

- Open-sided structures for hay storage are recommended wherever possible.
- Siting open-sided hay storage barns next to closed-sided structures can sometimes diminish the overall scale of buildings and soften the appearance of external walls. (Figure 18).
- Avoid making closed-sided structures higher to accommodate hay storage



Figure18: Open-sided hay barns positioned next to closed-sided structures to reduce visual impact

3.2.4 Poultry and Pig Buildings

Poultry and pig houses are specialist, often large scale, but low buildings which require level sites. They invariably and unavoidably have a negative impact within a sensitive landscape. The buildings themselves may be rendered less conspicuous by careful consideration of their setting and appropriate use of soft landscaping with appropriate tree and shrub plantings to breakup and mask building outlines.

In some cases earthwork bunds may be used or the buildings terraced into hill slopes to reduce visual impact. However such large scale earth moving may potentially have an impact on buried cultural remains. Where sites are in close proximity to existing long established farm buildings recent research has established that such farm settlements may have very long histories and material relating to early occupations of the site may lie buried. Where historical record searches demonstrate this possibility it may be necessary to consider an archaeological mitigation strategy as a part of any such earthmoving programme

Feed hoppers are often the most prominent elements of poultry farms. Buildings may be naturally vented or fan assisted. They can either have continuous roof vents, chimney vents or 'reverse flow' chimney intakes on the roof. Chimney intakes can be quite conspicuous. Metal cladding is not appropriate in the Shropshire Hills landscape nor are galvanised or highly reflective stainless steel feed hoppers. Light often reflects off the long low roofs of pig or poultry sheds from surrounding viewpoints.

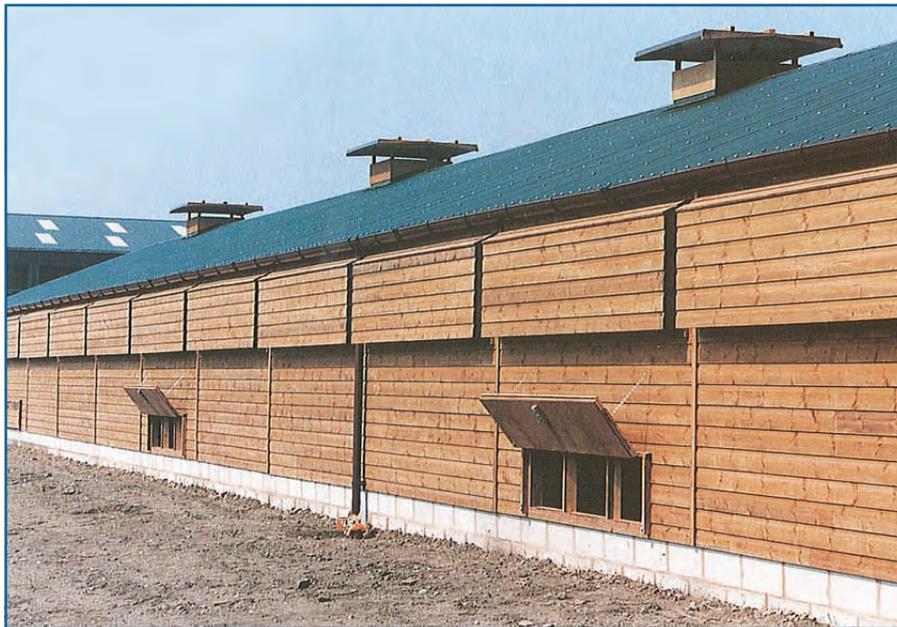


Fig 19: Example of horizontal timber, 'lapped' feather-board cladding

Intensive stock units are treated within the planning process under the class of agricultural buildings. The Town and Country Planning (General Permitted Development) Order 1995 allows certain works without planning permission. Part 6 of that document is concerned with agricultural buildings. However, any livestock building will require planning permission if it exceeds 465 sq. metres in size or lies within 400 metres of the cartilage of a "protected building" which includes most domestic houses, schools etc. However in practice most intensive stock units will require full planning permission.

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

Recent changes in European legislation impact upon the requirements for such intensive livestock units (*Conservation of Habitats and Species Regulations April 2010*). Dependent upon the size of the unit an Environmental Impact Statement (EIA) may be required as a part of any planning application. In the case of poultry units any scheme that involves 85,000 places for broilers or 60,000 laying hens will require an EIA (Schedule 1 of Town & Country Planning EIA (England & Wales) Regulations)1999. Smaller schemes having a floor area in excess of 500 sq. metres may similarly require an EIA under Schedule 2 of that document, were a scheme involves 60,000 broilers or 50,000 laying birds an EIA will be required.

Such intensive farming units have the potential to have a range of detrimental impacts upon the area surrounding the site and on sensitive habitats in the wider environment. It is therefore essential that a full Ecological Assessment forms a part of any planning proposal whether or not the proposal triggers a legal need for an EIA. Such an investigation will identify any protected or priority species, habitats or designated wildlife sites within the zone of influence. Particular protected species considered at risk from such development include the 17 species of native bats and the great crested newt.

SAC (Special Area of Conservation) and Ramsar are European designated sites which have the highest level of legal protection. Habitat Regulation Assessment must be undertaken to include all potential effects to sites in proximity, for example water pathways which could carry any contaminate down stream. Poultry units have been shown to produce damaging emissions which can transfer a considerable distance from the development site. Any scheme that could potentially release damaging emissions (nitrogen, ammonia etc.) must consider potential impacts on European Designated Sites under the Habitat Regulation Assessment (HRA) process set out in the 2010 Habitat Regulations. All European sites within 10km of any such proposal must be considered.

The EIA will inform any 'competent authority' LPA (Local Planning Authority) within the planning decision process regarding any significant effects to the local environment. In certain circumstances particular regard will be given to special environmental considerations and designations, for example, Special Areas of Conservation (SAC), Ramsar Sites, Sites of Special Scientific Interest (SSSI), the Shropshire Hills Area of Outstanding Natural Beauty (AONB).

Poultry & Pig buildings Guidelines

- A north-south orientation can minimise solar gain whilst reducing problems of light reflection in the early morning and late evening. Conversely where PV panels are incorporated into the design from a renewable energy perspective an E-W orientation may be appropriate.
- Dark coloured continuous ridge-vents should be used where possible.
- Cladding should be horizontal lapped 'featherboard' (Figure 19)
- Feed hoppers should be painted in dark colours, positioned away from adjacent roads or properties and set between buildings or against a backdrop of mature trees to avoid undue prominence.

3.2.5 Equestrian Buildings

Equestrian buildings include stables, indoor ménages, and food stores. Planning consent is required for the restoration or conversion of buildings to stabling for livery use (i.e. where horses are not used for the farm's agricultural activities or where they are not the farmer's domestic animals). Such conversion falls outside the scope of this document. The re-use of existing agricultural buildings for stabling is generally viewed positively by local authorities, and the Shropshire Hills AONB Partnership strongly encourages this approach. The Partnership recommends that erection of new stable buildings on a farm holding should only be accepted where it can be demonstrated that the use of existing building stock is not practical or appropriate. (Figure 20: Small stable)



Figure 20: Small stable building

Smaller stables are available in kit form for self assembly. They can be readily accommodated in the landscape if the choice of siting and materials is appropriate. Indoor ménages are more substantial buildings, often larger than livestock barns, with high sides of 8m or so to the eaves. The use of plinth walls with cladding above can help to break up the appearance of such high sided buildings (see section 3.3.2). Cladding materials such as block work, composite board, ply, metal or fibreboard sheet and profile metal sheeting roofs can be visually intrusive. Well positioned clear plastic or GRP windows set into the wall or roof cladding at regular intervals can help provide good natural light levels in indoor ménages.

Equestrian Buildings Guidelines

- Cladding should generally comprise dark stained lapped timber boarding.
- Stone or brick should only be used when the existing farm buildings are constructed in similar materials.
- Dark felt tiles should be used for roof coverings.

3.3 Materials & Detailing

This section provides guidance on the design and choice of materials for new agricultural buildings. It deals with roofs, lower level plinth walls and upper wall cladding.

3.3.1 Roofs

Common roofing types include corrugated fibre cement and plastic coated or galvanised profiled steel. The choice of material is determined by cost and purpose. Often where metal cladding is selected for the walls it is also used for roof covering. Dark coloured and non reflective roof coverings help diminish the visual impact of buildings.

i) Fibre Cement roofs

Fibre cement is suitable for low roof pitches between 11 and 22 degrees. It is widely considered to be fragile although it is now available with polypropylene reinforcement to meet latest Health and Safety Executive guidelines. It can be set without bargeboards but is more commonly used with flush (straight profiled) barge boards. 'Shadow verge' barge boards are less frequent, but together with projecting eaves they create shadow lines which make buildings look smaller and less industrial.

Fibre cement roofs usually also have gutters to the eaves. Although gutterless 'bend sheets' over the eaves are also available they are less appropriate in the AONB.

Roof-lights are often the most conspicuous elements of any roof and can be highly reflective. Glass reinforced plastic roof-lights appear less reflective than polycarbonate lights, upon weathering.

Through-colour fibre cement board is the least reflective of all modern farm building roofing types. (Figure 21). The preferred colour in the Shropshire Hills AONB is grey (anthracite). Natural grey board is initially conspicuous because it is light coloured, but it is non-reflective and darkens with wetting and age. Painted boards reflect light, even when dark coloured, and especially at low angles of incidence. They are the least preferred of all roof coverings. If painted board is necessary for functional reasons, then dark hues of blue (slate blue BS 18-B-29), green (laurel or juniper green BS 12-8-29), and brown (brown or Van dyke brown BS 08-B-29) are recommended.

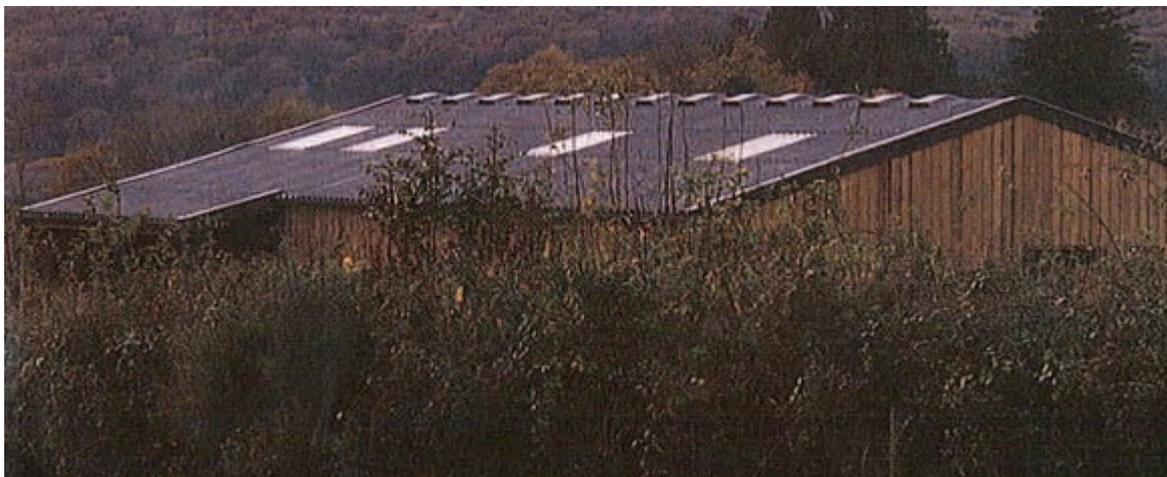


Fig 21: Fibre cement roofs are the least reflective roof material

Roof Guidelines

- Shadow verges, detailed to cast a shadow line, should be used wherever possible.
- Barges should be designed so that the gable elevation is set back from the barge.
- Eaves should project to the maximum extent possible (Figure 22).
- Simple roof constructions should avoid flashings at the eaves
- Roof flashings should be in the same colour as the roof and contrasting colour flashings should always be avoided
- Corrugated 'closure flashings' sitting under (but not wrapping over the eaves) can be used where insulation is important
- Roof-lights should be concentrated on the least visible pitch of the roof.
- Through-coloured board should be grey (anthracite), green (serpentine) or red-brown (jasper).
- Natural board is acceptable.
- If painted board is necessary for functional reasons, then dark hues of blue (slate blue BS 18-B-29), green (laurel or juniper green BS 12-8-29), and brown (brown or Van dyke brown BS 08-B-29) are recommended.

ii) Profiled steel roofs

Profiled steel is suitable for all pitches of roof and is often also used for wall and roof cladding. It is perceived to be more robust than fibre cement sheeting and safer for maintenance access on large spans. Steel roofs commonly have vented ridge tiles and glass re-enforced plastic or polycarbonate roof lights. Flashings are usually used on barge boards, eaves, and vertical arises to walls. Profiled steel is available in plastic coated, colour coated galvanised, and galvanised finishes.

All steel sheeting is highly reflective at low angles of incidence, even when in dark colours. The Shropshire Hills AONB Partnership does not recommend steel sheeting for roof construction in the AONB. Exceptionally, where profiled metal sheeting is deemed absolutely necessary for functional reasons, plastic coated steel in one of the following dark colours should be selected: dark blue (blue or slate blue BS 18-8-29), green (juniper green BS 12-B-29), or brown (Van dyke brown BS 08-8-29) are recommended.



Figure 22: Overlapping Eaves should project to the maximum

3.3.2 Lower Level Plinth Walls

Plinth walls around the base of large agricultural portal frame buildings are usually constructed from in-situ poured concrete, pre-cast units or concrete block-work. In-situ poured concrete is often selected for grain and crop stores, but its lack of joints or texture can pose visual problems. The use of form liners and exposed aggregate can create texture and give a more acceptable appearance. Light concrete plinth walls are often the most conspicuous part of a building, and by their nature, offer a harsh contrast with dark upper-wall cladding. The use of concrete colourants may reduce this.

Pre-cast concrete units are often used for ease and speed of construction and the visible joints give the plinth a more pleasing panelled appearance than in-situ poured concrete. Block-work can appear crude when viewed from close at hand but its coarseness usually tones down with weathering. It is generally appropriate on smaller buildings.

The break-line in materials between upper cladding and lower plinth wall is very important. Buildings appear most balanced where the plinth rises to around a quarter of the height of the elevation. This breaks up the apparent bulk of the building and gives it an agricultural appearance. In all cases buildings appear more visually grounded if the upper cladding casts a shadow line over the lower plinth.

Buildings can appear inappropriately industrial where the plinth wall is entirely hidden by metal cladding - especially if this finished with a skirt flashing. Timber or local stone cladding can be used instead to give the walls a more traditional appearance and may be useful where the plinth is likely to be highly conspicuous. Lapped horizontal boarding, either wavy or straight edged, is particularly appropriate to small buildings. Locally sourced timber and natural stone are the most sustainable materials. Sensitive soft landscaping by the planting of native species can be used to minimise any negative visual impact. Hard landscaping, which can impact on buried archaeological remains should be avoided where possible and advice should be taken from the County Council Heritage Section.



Fig 23: Conspicuous plinth walls should be clad with timber or stone

Plinth Walls Guidelines

- Plinth walls should be either a quarter of the height of the total elevation height or to a maximum height of 1.5m in height.
- Block work should be used for buildings up to four courses.
- Where pre-cast concrete is used, the smallest pre-cast concrete panel modules (1 -1.5m high) are recommended.
- In-situ poured concrete should only be used where block-work and pre-cast units are shown to be unsuitable.
- The plinth wall should not be hidden by metal cladding.
- Conspicuous plinth walls should be clad with locally sourced timber or stone. (Figure 23).
- Where locally sourced timber or natural stone are shown to be unsuitable, in-situ poured concrete using locally sourced aggregates may be used
- The upper wall cladding should cast a shadow line over the lower plinth (Figure 24)
- Where an in-situ cast concrete plinth will be unavoidably conspicuous, form-liners, exposed aggregate or colourants are recommended.
- Buildings should be, where appropriate, screened by soft landscaping using a native species planting. Where hard landscaping in the form of bund mounds or terracing is considered consideration should be given to the site potential for archaeological deposits. Advice should be sought from the County Council Heritage Section



Figure 24: The upper wall cladding should cast a shadow line over the lower plinth

3.3.3 Upper Wall Cladding

Upper wall cladding may be either pre-treated softwood or metal profile sheet.

Pre-treated softwood is inexpensive and generally applied as vertical 'hit and miss' with 18mm gaps for ventilation (Yorkshire boarding). On exposed sites or elevations it may be close boarded. The timber is usually pressure treated to British Standard (BS) 4072 which gives it a chestnut brown colour, fading to silver grey in time. Yorkshire boarding has the most natural and traditional appearance and can be treated with stain to prolong its life. Locally sourced timber is the most sustainable material - especially when untreated, as is possible with hardwood or larch.

Metal profile sheet with or without flashings and trims is in common use. It can be highly reflective and therefore visually intrusive (see section 3.3.1).

Pig and poultry houses and stables are often clad in horizontal 'shiplap' pressure treated timber boarding. This generally provides a traditional appearance, appropriate to the AONB. Specialist pig or poultry buildings sometimes use glass-reinforced-plastic coated or painted board. These materials are acceptable for small buildings, provided dark colours are used.

Where buildings are large or have conspicuous side and end faces, the apparent size of the building can be reduced by using a dark coloured solid cladding on one face and Yorkshire boarding on the adjacent face (**Figure 25**). This offers the advantage of using weatherproof cladding on the exposed elevation and spaced boarding on the sheltered elevation to provide ventilation.



Figure 25: Example of a building showing contrasting colours used on elevations to break up building profile. A dark coloured solid cladding on one face of the building and Yorkshire board on an adjacent face reduces the apparent size of the building.

Wall Cladding Guidelines

- Pre-treated softwood is preferred
- Locally sourced timber should be used wherever possible
- Yorkshire boarding, applied as hit and miss, should be used in preference to close boarding
- Shiplap pressure treated boarding should be used for small buildings
- Where shiplap boarding cannot be used, dark coloured glass reinforced plastic or painted board may be appropriate.
- Flashings and trims to the walls should match rather than contrast the cladding
- Exceptionally, where metal profile sheet is deemed absolutely necessary for functional reasons, galvanise d or reflective finishes should be avoided. Additionally, consideration should be given to the background against which the building will be seen from key viewpoints.
- Where the backdrop is open fields, olive green (BS18-8-27) is preferable
- For the rare occasions when the backdrop is bracken, then dark brown (BS-08-29) may be advisable
- In very rare instances and only where the positioning of a building on a skyline is absolutely unavoidable, lighter colours such as gunmetal grey (BS18-8-25) may be considered.

3.3.4 Doors

Door types used in agricultural buildings can include vertical roller shutter doors, suspended sliding sheet doors, swing doors and small personnel doors. Vertical roll shutter doors are commonly used for security or vermin proofing reasons but have an industrial appearance. Sliding sheet doors and swing doors are usually in highly reflective flat sheet or profiled sheet metal. The use of sliding sheet or swing doors in sheet or profiled metal or the use of vertical roll shutter doors for agricultural buildings is not recommended in the AONB. Timber boarded doors in a vernacular style can be designed to meet security and vermin proofing requirements and offer an acceptable alternative.

Doors and other apertures can help break up the large scale and bulk of modern agricultural buildings. The appearance of buildings is improved where doors are internally hung or set back into the cladding. This creates a shadow line which serves to break up the bulk of a large building. Doors that have an upper opening (like the traditional stable door) also improve the appearance of large buildings. Bright or light coloured doors (intended to match for instance the colouring on adjacent farm buildings) can be very conspicuous.

Doors Guidelines

- Doors should be set back in relation to cladding wherever possible
- Upper openings in doors should be included wherever possible
- Doors should be painted to match, or be darker than, the surrounding cladding
- Bright or light colours for doors are not recommended
- Timber boarded doors in the local vernacular style are recommended. If vertical roller shutter, or metal sliding sheet or swing doors are absolutely necessary for functional reason, they should be:
 - sited on an inconspicuous elevation
 - painted in a complimentary darker colour (slate blue or charcoal for example) than the cladding



Fig 26: Example showing recessed machine and pedestrian doors in large building

CONSTRUCTION OF NEW AGRICULTURAL BUILDINGS

3.4 Groundworks

In an upland area many new agricultural buildings will require the preparation of a platform on a sloping hillside. Such ground-works can appear highly artificial (even when softened by planting) when viewed from below or from the opposite side of a valley. Careful siting and construction can help the ground—works to appear natural, reduce the apparent height of a building, or mask the lower plinth wall. The use of bunds can assist with the screening of working areas but can appear intrusive in other settings, unless carefully blended into an adjacent embankment or cutting. Bunds will nearly always require planting to enhance their appearance. The use of artificially constructed bunds to disguise the appearance of inappropriately sited or designed agricultural buildings is not recommended. The guidelines for ground-works will also apply to access tracks.

Where landscaping requires excavation consideration should be given to the potential for the presence of archaeological deposits. (see guidelines)



Figure 27: Traditional building terraced into hill slope

Groundworks Guidelines

- The construction of a conspicuous raised platform on the downhill side of a building is not recommended.
- Buildings should be set into a 'cut' in the hillside wherever possible. This may require a retaining structure. (Figure 27: Building set into hillside).
- **Where archaeological deposits are potentially present the advice of the County Council Heritage Section should be sought in advance of any Earth moving.**
- Surplus material should be spread over a large area to create a natural appearance
- Wherever the tops of the cut slopes are visible they should be blended gently to meet the natural slope.
- In flatter landscape settings, the material cut to form the platform should be distributed to give gently sloping but slightly raised ground around the building.
- Planting should be used to further diminish the scale of buildings set into hillsides.

3.5 Landscape Planting

The integration of new buildings into the landscape can be helped by the planting of shrubs and trees. Such plantings offers also an opportunity to add to or create wildlife habitat and potentially increase local biodiversity. Full consideration should be given to this element in the design of any planting scheme and should use native species.

However, landscape planting should not be used to screen inappropriately sited or designed agricultural buildings. Extending or replacing hedgerows, especially in front of a building, can help re-establish the pattern of the landscape. The planting of new hedgerows and trees – the latter preferably in small groups - in the surrounding landscape can also help with longer distance views. (Figure 27).

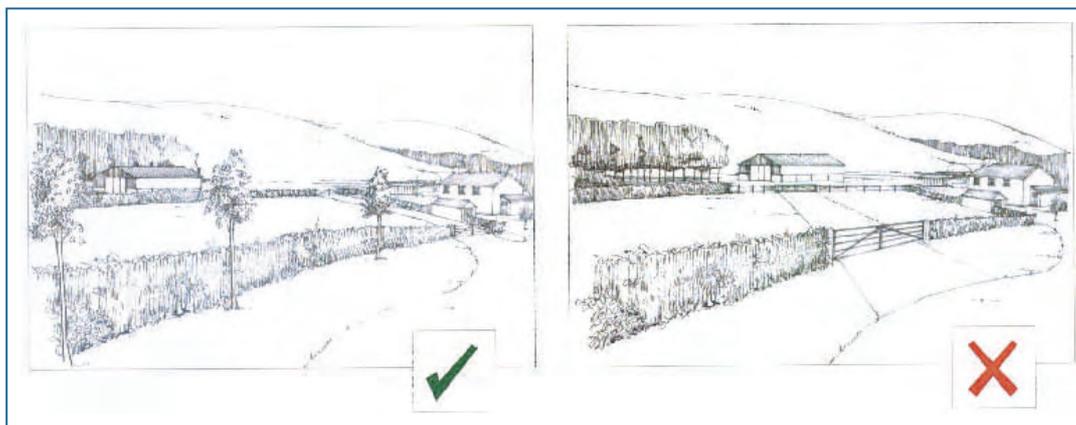


Fig 28: Hedges and trees can be used to help screen buildings

A shrub edge and under-storey can be of value for wildlife and is usually vital for screening purposes. A mixture of mostly small transplants and some larger stock (such as 'feathered' or 'standard' trees) gives a good balance between long-term establishment and initial screening. The maximum value for wildlife is achieved when native species are used. Good ground preparation in properly prepared pits is essential for any planting to be effective. A good programme of aftercare is equally important.

Landscape Planting Guidelines

- New buildings should be sited to take advantage of the screening of existing trees and hedges
- Native trees and shrubs should be used unless a good case can be made for the inclusion of other species (locally distinctive in the area for example).
- Planting in rows should be avoided
- A management and maintenance programme covering at least three years and including watering, weeding, protection from pests and replacement of failed plants should be put in place. Use of a composted wood or bark mulch should be used to minimise weed competition and reduce watering requirements.
- Use of a composted wood or bark mulch should be used to minimise weed competition and reduce watering requirements

3.6 Lighting

The dark skies of the Shropshire Hills are part of the area's tranquillity and special qualities. The proper design of lighting for new agricultural buildings is essential to minimise light pollution and to protect this special feature of the area.

Lighting is usually needed to assist in evening or night working (particularly in winter) or for security reasons. Detailed lighting proposals should be clearly set out in all proposals for new buildings. Such proposals should always consider where lights might be seen from in the wider landscape, particularly where the building is on a hillside. A small number of well positioned and properly controlled lights can be as effective and more energy efficient than a larger number of poorly controlled and badly positioned lights.

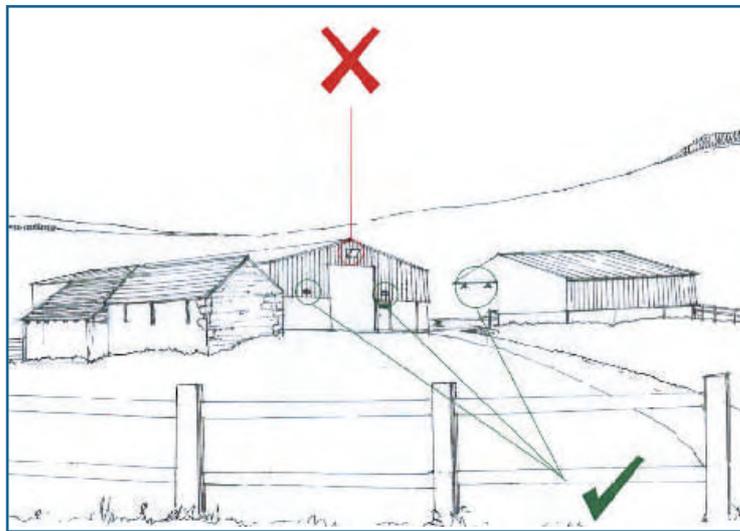


Fig. 29 Lighting should be set low down on buildings to reduce light scatter

Lighting Guidelines

- Where security is an issue, options such as CCTV or timer switches for internal lights should be considered before lighting solutions are sought.
- Lighting should be controlled by photoelectric cells and set on a minimum time setting.
- Lighting should be sited at vulnerable doorways/access points
- Lights should always be directed down, not sideways. (Figure 29)
- As far as possible, position lights so that they are shielded by buildings and not visible from the surrounding countryside.
- The elevations of large structures should not be illuminated.
- Lighting should be set below the eave height of existing traditional farmstead buildings.
- A number of low powered lights is more acceptable than a single high powered light

3.7 Ancillary Development

Changes in farming practices, including those designed to meet cross compliance conditions continually give rise to new ancillary structures. These include silage clamps, slurry pits, feed hoppers and silos, access tracks and lay down areas. Such developments can have similar impact to the new buildings themselves.

3.7.1 Silage Clamps

The change from hay-making to silage means that silage clamps are now commonplace. New clamps tend to be constructed from in-situ or pre-cast concrete walling, with a hard-paved apron. In some instances portal frame buildings may be used. Silage clamps are usually covered with weighted sheeting or with polythene, weighted down by tyres.



Fig 30. Example of in-situ Silage Clamp

Silage Clamps Guidelines

- Tall, light coloured, concrete walls should be avoided for silage clamps.
- Silage clamps should be set into rising ground to reduce their apparent wall height.
- On flatter sites, use ground modelling to raise earth up and against the wall plinth.
- Use tree and shrub planting to minimise apparent wall height.
- Avoid orientations where the open side of a clamp can be seen from key viewpoints.

3.7.2 Slurry Pits & Tanks

Cross compliance conditions which restrict winter muckspreading and increased numbers of livestock (on larger farms) mean that the need for slurry storage has increased. Modern slurry storage facilities may be in the form of a specialist steel tank above ground or a pre-cast or in-situ concrete tank set into the ground. Above ground steel tanks are usually 2 – 5m in height and between 5 and 15m circumference. These can be visually intrusive and their use is not recommended in the AONB.

Other above-ground storage may comprise an earth bund with an inner liner and protective outer fence. Below-ground pits need to address ground water protection issues but are more visually acceptable than above-ground tanks. Lined pits have less embodied energy and lower transport costs than concrete tanks, so are the most sustainable option for slurry storage.

Parts of the AONB lie within Nitrate Vulnerable Zones (NVZ). This designation covers areas where nitrate pollution is a problem. The aim is to reduce nitrogen losses from agriculture to water. Farmers within a NVZ must follow rules on the storage and spreading of organic manure. Detailed requirements can be found on the DEFRA website at <http://www.defra.gov.uk/environment/water/quality/nitrate/help-for-farmers.htm>. A leaflet on the storage of organic manure is also available at: <http://www.defra.gov.uk/environment/water/quality/nitrate/pdf/leaflet4.pdf>

Slurry Pits & Tanks Guidelines

- Lined pits are the preferred option for slurry storage.
- Where lined pits are not technically feasible, below-ground pre-cast or in-situ tanks may be considered.
- If above ground slurry storage is absolutely necessary, then bunded storage should be preferred.
- Where bunded storage is used, every effort should be made to set the pit partly into any slope and to blend the earthworks into the natural lie of the land.
- If above-ground steel or concrete slurry tanks are necessary for technical reasons they should be painted in a dark colour.

3.7.3 Feed Hoppers & Silos

Large feed hoppers and grain silos are not common in the Shropshire Hills AONB as they are usually associated with large scale dairy units. Guidance on small hoppers for pig and poultry units is given in section 4.2.4 above.

Large cylindrical silos for grain or forage can range in capacity from 200 to 1,500 tonnes and be in excess of 20m in height. They are conspicuous structures within any landscape and particular care is needed in the choice of their location. The use of stainless or galvanised steel finished for feed hoppers or silos is not recommended.

Feed Hopper & Silos Guidelines

- Tall vertical silos should be set amongst buildings and or adjacent to trees rather than in isolated positions.
- Exceptionally, if galvanised or stainless steel is necessary for functional reasons, this should be painted in a suitable dark colour.

3.7.4 Access Tracks & Lay-Down Areas

Increased mechanisation of farming and cross compliance conditions aimed at minimising soil erosion may be encouraging farmers to hard pave access tracks and lay-down areas for machinery. Surfaced or linear tracks as well as the earthworks associated with hard-standing can appear unnatural. Where tracks are cut into sloping ground, steep banks can lead to soil erosion problems. The use of locally sourced aggregates offers a more sustainable and visually acceptable solution than concrete surfacing.

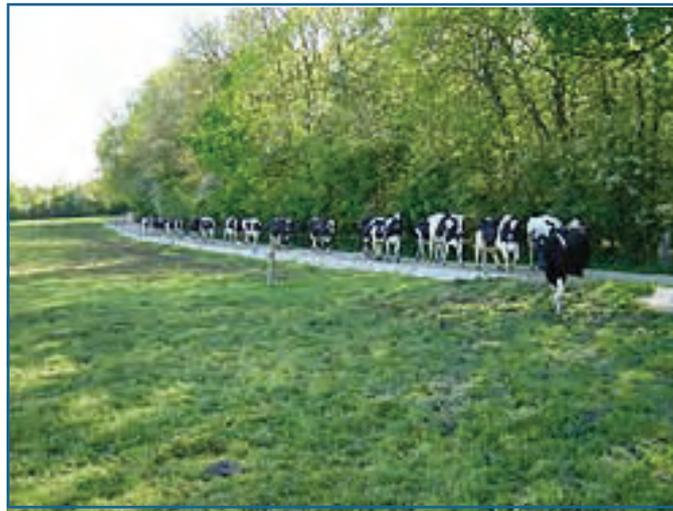


Fig 31. Access track screened by mature hedge

Access Track & Lay-Down Area Guidelines

- Wherever possible, locally sourced aggregates should be used for access tracks and lay-down areas
- Care should be taken to fit the line of new access tracks into the natural lie of the land and where tracks cross undulating or rising ground, linear alignments should be avoided
- Earthworks should be blended into the surrounding area.
- Where possible use shelter belts, hedges and trees to screen access tracks (figure 31).

Appendix 1: (Sources of local building materials)

BUILDING PRODUCTS

Wenlock Lime Ltd	Coates Works, Stretton Road Much Wenlock, TF13 6DG	01952 728611
Powys & Marches Stone Supplies	The Old Station Yard, Four Crosses Llanmynech, SY22 6RG	01691 831682

JOINERY PRODUCTS

Shropshire Oak	50 Trench Road, Trench, Telford, TF2 6PF	01952 608895
Sabrina Oak Doors	Alma Street, Mountfields, Shrewsbury SY3 8QL	01743357977
Eden Natural Flooring	64 Wyle Cop, Shrewsbury, SY11 1UX	01743 340077
Shropshire Alder Company	Pound House, Union St, Bishops Castle Shropshire SY9 5AJ	01588 638010

WOOD PRODUCTS

Chris Underhill	2 Oldfield, Bromfield, Ludlow, Shrops. SY8 2BS	01584 856448
A. B Woodworking	Unit C1, Bank Top Industrial Estate, St Martin's, Oswestry, SY10 7HB	01691 777147
John Davies	5 Wyke, Much Wenlock, Shropshire, TF13 6PA	01952 884251
Greenoak Designs	Unit 10, Little Posenhall Farm, Brosely, TF12 5BE	07917 1422910
Hester Woodcarvers	High Street, Clun, Craven Arms, Shrops. SY7 8JB	01588640864
Earthcare	The Old Post Office, Priestweston, Montgomery SY15 6DE	01938 561404
Woodforms	The Poplars, Gwern-y-Brenin, Oswestry, SY10 8AR	01691 680196
Morgans & Barrett	58 Darren View, Crickhowell, Powys, NP8 1DS	07814 396805
Countryside Management		
New House Oak	New House Farm, Holme Marsh, Kington, Herefordshire, HR5 3JS	01544 340444
Marches Oak	Oak Cottage, Whettleton Lane, Craven Arms SY7 9AJ	01588 672540
Ranald J Laurie	Ferney, Onibury, Craven Arms, SY7 9BJ	01584856270
Raby Sawmill	Uppington, Telford, TF6 5HL	01952 740296

ARCHITECTURAL GLASS

Hopton Glass Studio	Sue Dawes, Bridge Cottage Studio, Hopton Wafers, Cleobury Mortimer, DY14 0HH	01299270391
---------------------	---	-------------

METAL WORK

Lucy Hickey	Upper House Farm, Clunton, Craven Arms,	01588 660712
Darren Broome	The Old Forge, Bedlam Lane, Bitterley, Ludlow	07815126375
Metal Works of Art	Stanley Cottage, Lower Down, Lydbury North,	07989 902727
Merrie England	5, The Woodlands, Ryall, Upton on Severn Worcestershire, WR8 0PQ	01684 593541

This list is for information only and does not imply any endorsement.

Please contact the AONB and let us know if any of these companies are no longer trading, direct line 01588 674085.