

Historic Building Repairs

**SPECIFICATION
REQUIREMENTS
AND
STANDARDS OF WORK**



Guidance on the repair of historic buildings
and grant aid requirements

Historic Buildings Conservation Committee
Bradford on Avon

Bradford on Avon Historic Building Grant Scheme

SPECIFICATION REQUIREMENTS AND STANDARDS OF WORK

The following notes have been prepared to provide guidance on repairs to historic buildings in Bradford on Avon and are equally applicable on grant aided or routine maintenance work. Where a grant is offered these requirements will be reflected in appropriate technical conditions. An applicant, or applicant's agent, should therefore ensure that contractors who carry out grant-aided work are aware of the conditions and the standards that will be required.

RE-ROOFING

Roof repairs should be comprehensive, and any necessary associated repairs, to the roof structure, chimneys, leadwork or rainwater goods for example, carried out at the same time. Details of any new, or altered, roof windows or skylights, roof vents, flue terminals, soil and vent pipes or aerials should be approved before work starts. All redundant wires, brackets, aerials etc. should be removed and aerials or wires to be retained fixed as unobtrusively as possible.

STONE TILE

Stone tiles are a valuable and diminishing resource and it is normally possible to salvage a significant percentage of an existing roof covering. Where replacement stone tiles are required, these should preferably be new and from an approved source, or sound secondhand to match the existing in size, colour and texture. Tiles to be laid on battens and counterbattens, and in regularly diminishing courses from eaves to ridge to present unbroken horizontal lines, and should be fixed with oak pegs or alloy peg nails. Detailing should be reinstated carefully to the original form, particularly to valleys, dormers, eaves and verges. Swept valley details are especially important to retain. Artificial or reconstructed tiles of any type are not acceptable. Ridge tiles, particularly decorative stone ridges, should be carefully salvaged and reused with any deficiencies made up to match the existing.

New lead soakers and flashings should be provided at all abutments and chimneys, although mortar fillets may be used in appropriate circumstances. Leadwork generally should be checked and renewed or repaired as necessary. Provision should be made for ventilating roof spaces by an agreed method. The use of breather felt is preferred as the under-slatting membrane.

RE-SLATING

Generally re-slatting should be carried out using new Welsh slates selected to match the colour and size of the original. Where existing slates are sound and have a long life expectancy they can be re-used but the condition of existing slates should be carefully assessed and all slates which are poor or show signs of deterioration discarded. New and reclaimed materials should not be mixed together on the same roof slope. Slates to be laid in horizontal courses to match the existing and fixed with copper nails to battens, secured to the rafters with stainless steel nails. Detailing should be reinstated carefully to the original form, particularly at eaves, ridges and verges. Existing ridge and hip tiles or slates should be retained and re-set where possible or should be replaced in slate, clay or stone to match the existing, as appropriate. Verges, ridge and hip tiles etc. should be pointed neatly in gauged mortar no stronger than a 1:1:6 cement/lime/sand mix. Modern "scroll" hip irons should not be used. Leadwork and ventilation should follow the guidelines given previously.

RE-TILING

Re-tiling should be carried out re-using sound existing clay tiles, plus additional matching new tiles as required. Reclaimed and new materials should not, however, be mixed together on the same roof slope and in some cases it will be preferable for a roof to be re-covered using all new tiles. New tiles should be of natural clay to match the existing in type, colour and texture (handmade plain tiles or pantiles, for example) as closely as possible and laid in similar courses.

Detailing generally should be reinstated carefully to the original form, particularly at eaves, ridges and verges. Existing ridge and hip tiles should be retained and re-set where possible or should be replaced to match the existing, particularly if of a decorative pattern. Pointing to ridge and hip tiles, verges etc. should be neatly done in a gauged mortar no stronger than a 1:1:6 cement/lime/sand mix. Leadwork and ventilation should follow the guidelines given previously.

CHIMNEYS

Chimneys requiring repair should be reinstated or re-built accurately to the original height and profile, in materials to match, ie: stone, brick or rendered masonry, as appropriate. Re-pointing or re-building should be carried out as described separately. Original details, including the original style of chimney pots, should be reinstated wherever possible.

LEADWORK

All flashings, soakers, cappings, valley and gutter linings and other weatherings should be in lead, to the weights and details recommended by the Lead Sheet Association as described in the latest Lead Sheet Manuals. All flat roof coverings, including internal wells, dormer windows etc., should also be in lead. Appropriate provision should be made for ventilation below the lead, particularly where thermal conditions are likely to change, eg where insulation or a new heating system has been installed.

RAINWATER GOODS

Generally, any new or replacement rainwater goods required should be in cast iron, to the original pattern, and, where appropriate, fixed on forged pin brackets. (New timber fascias are inappropriate on historic buildings and should not be used.) Cast aluminium gutters are acceptable in cases where the original section is no longer obtainable in cast iron. Gutters and rainwater goods originally of a different material, such as lead, should be retained unless otherwise agreed. Upvc or similar non-traditional gutters and downpipes on street or prominent elevations will need to be replaced in cast iron and any non-original fascias removed.

STRUCTURAL TIMBER REPAIRS

Repairs to structural timber should be made by splicing-in sound replacement timber of similar scantling and species wherever possible, retaining all existing timber of historic value. Replacement hardwood timber should be new green oak for new elements, or kiln-dried oak for face patching and similar small repairs: secondhand material should not be used. Specialist advice should be sought concerning any existing timber carrying decoration likely to be of historic importance.

A detailed specification and drawings will be required for the repair or reinstatement of an historic roof structure before any work is undertaken, and it is expected that these will be based on a careful and comprehensive survey of the existing structure. Large sections of timber should not be formed by laminating smaller sections. Generally, in situ resin repairs to structural timbers are not acceptable, as it is important to maintain flexibility at joints in order to allow for some movement in the frame. Shakes in structural timbers should not be filled just for the sake of appearance.

STONEWORK REPAIRS

Repairs to stonework should be carried out in natural stone to match the existing in both colour and texture, and the type and source of stone will need to be agreed. Stone should be obtained from local mines and be selected to reflect the degree of exposure expected. Generally, stone should be cut out only where it has lost its structural quality, is badly decayed, or where retention would accelerate deterioration of other stones. Stones should not be replaced simply for cosmetic reasons. Replacement stones should be cut to the full dimensions of the existing blocks, and should never be less than 100mm in depth. Existing coursing and bond should be maintained and this is especially important with ashlar work. Piecing in of small areas of stone or placing new stones across original joint lines is not acceptable.

New stone should be tooled to match the original unweathered finish, and all saw marks removed. Stone should be laid in its natural bed, (unless otherwise specified), and should be laid to match the existing as ashlar, coursed and squared rubble etc.

All replacement details should be cut accurately to the original patterns and profiles, carefully matching cornices, mullions, hood moulds or other architectural features and relating accurately to original joints. Where the stone is badly eroded, replacement details should be agreed before work starts. Dressing off should be limited to the removal of dangerous or loose material, and should be carried out with a bristle brush: chisels or wire brushes should never be used.

Areas of unsound stonework should be carefully rebuilt, re-using as much of the existing stone as possible. Areas to be rebuilt should be recorded or photographed with stones marked where necessary before being taken down so that the rebuilding can be an exact copy of the original. Resin-based in situ "plastic stone" repairs are not acceptable except for very small areas and with prior agreement.

STONEMWORK RE-POINTING

Sound original pointing, even where slightly eroded, should always be retained with re-pointing restricted to defective or incorrect work. Stonework should be re-pointed or bedded in an appropriate lime mortar mix (that is one weaker than the adjacent masonry) generally a 1:3 lime/sand mix, particularly for ashlar limestone. The use of putty lime, rather than hydrated lime, is encouraged, as is the preparation of coarse stuff (ie mixed sand and lime, kept covered until needed). The colour and texture of the new mortar, which should match the original mortar before weathering, should be provided by the use of appropriate sands. Proprietary colour mixes or colouring pigments should not be used. Where repointing rubble stone it will usually be advisable to use a proportion of grit sand to give texture and reduce shrinkage. Excessive use of stone dust will also aggravate the problem of mortar shrinkage.

Joints should be carefully raked out using only hand tools to a depth of at least 25mm and up to 40mm, depending upon the width of the joint, and flushed out with clean water. Cutting out of existing mortar with mechanical discs is not acceptable and will prejudice grant aid to the building. The joints should be solidly filled with new mortar as far back as possible between the stones and finished flush, then tamped back with a bristle brush, avoiding brushmarks, to expose both the aggregate and the edges of the adjacent stone. Joints should not be struck or finished proud of the masonry face to form 'strap' or 'ribbon' pointing, or feathered over the edge of eroded blocks. Where the existing stone is eroded, the face of the mortar should be kept back to the point at which the joint remains the original width. Re-pointing should not increase the width of the original joints.

EXTERNAL CLEANING

There needs to be a specific reason to clean stonework and any external cleaning must be agreed before work starts. Only techniques which do not cause damage will be acceptable, which on limestone normally means light cleaning by low pressure water washing assisted by bristle brushing: cleaning should always be undertaken by a specialist conservation contractor. No abrasive or high pressure cleaning techniques should be used, particularly unregulated grit or sand blasting. Cleaned surfaces should not be treated with any form of sealant or water repellent.

WINDOWS AND DOORS

Original windows and/or external doors should be retained and carefully repaired wherever possible. Repair is always the preferred option and historic joinery should not be removed and replaced simply because it is easier to do so. It needs to be recognised that the quality of original timber is almost always higher than modern replacement and, with careful maintenance, can have a long life expectancy. It is especially important to retain and repair surviving early casements. If replacement is unavoidable, the new windows must be accurate replicas to the original design in both pattern and detail. Timber sections, especially mouldings, should be to the original profile; this is of particular importance for glazing bars and meeting rails to horizontal sashes. Double-hung sliding sashes should be without horns (unless the original sashes were to this pattern) and be hung on sash cords with weights. Spring balances are not acceptable.

Details of any new windows that are not replica replacements of the existing (or original) windows must be agreed before the windows are made, and, where necessary, Listed Building Consent obtained. Removal and replacement of non-original windows may be required and will also need consent.

Existing old, especially crown, glass should be retained and re-used in new windows, as replacement with modern float glass will always adversely affect the appearance. New door and window furniture should be to the original pattern. New and/or repaired external joinery should be painted with a traditional gloss paint system and not stained. Double-glazed units are not appropriate in historic buildings as they affect the reflective quality of the windows.

IRONWORK

Decorative ironwork should be carefully repaired or, if absolutely necessary, reinstated accurately to the original pattern and detail, in a similar material. Ironwork requiring repair or replacement should be recorded, by photographs or drawings, before work starts, and the existing paint finish analysed to determine the original colour scheme. Drawings for any new or replacement ironwork will be required for approval.

New or repaired ironwork should be painted with a gloss paint system to the original colour scheme. Any alternative colour scheme proposed should be agreed in advance.

PAINTING AND DECORATING

Regular maintenance of external decorations will enhance a building and help prevent premature decay.

Paint colours are often subject to changes in fashion and it should not be assumed that the colours found on a building are original or appropriate. Specialist advice on paint analysis and use of authentic historic colours may be required and prior agreement on changes to existing colour schemes is essential. Surfaces not previously painted, such as stone or brickwork, must not be painted and in some cases it may be desirable for inappropriate decorative finishes to be removed. Various paint removal techniques are available and detailed advice will be provided following an examination of the particular problem.

SPECIALIST TREATMENTS

The problems of damp and timber infestation need careful investigation and analysis prior to action. The causes of damp penetration, or exact type of infestation, should always be identified before work is undertaken. Defective rainwater gutters or downpipes will cause damp within a building which will disappear if appropriate repairs are undertaken.

Buildings need to be allowed to breathe and 'damp-proofing' will often be unnecessary and may even be undesirable. Damp proofing of solid floors has been shown to aggravate damp in surrounding walls and consequently the replacement of suspended floors with concrete is not normally acceptable. Adequate ventilation will help to reduce damp and condensation problems and should be the first option explored. Excessive use of chemicals can have adverse effects on a building and its occupants.

There are various types of timber decay, the most virulent of which is dry rot and where, in extreme cases, the structure of a building may be affected and weakened. Dry rot is a fungus which can destroy timber but it survives only in particular circumstances. The ideal conditions for the rot are unventilated cavities with a high moisture content. If left undisturbed the fungus will produce fruiting bodies and thus spread. Urgent action is needed if an outbreak is discovered but remedial work needs to be agreed in advance to avoid damage to historic structure. Common furniture beetle infestation and to a lesser extent death-watch beetle may be evident in a building but action is usually only necessary if the infestation is active. The use of chemicals is subject to Health and Safety regulations and appropriate precautions must be taken.

It is vital to identify the cause and extent of any rot before deciding on appropriate remedial action. Treatment will only be effective if the cause is eradicated and future maintenance is carried out correctly: if maintenance is poor then the rot is likely to return. It is difficult to give general guidance on the use of specialist treatments as all cases need to be assessed individually.

UNUSUAL FEATURES OR MATERIALS

Where unusual architectural features or materials are found they should always be retained and a specification for their repair agreed.

PHASED WORK

Repairs should be specified on the basis of a comprehensive assessment of the historic building and the identification of all evident or anticipated defects, taking into account age, style, materials and workmanship.

Where it is not possible to undertake all identified repairs immediately, say for financial reasons, it may be possible to agree a phased programme of work. This will be on the basis of dealing first with the most urgent items, and carrying out any necessary maintenance to prevent damage to other parts of the building.

PROTECTION FROM FIRE

Not all historic buildings have adequate protection from possible fires from adjoining properties and this may be especially evident in linked roofspaces. Repair works to roofs should include the provision of fire breaks where necessary, and other measures to upgrade the fabric of the building may be desirable. Advice can be given in individual cases and Listed Building Consent may be required. The opportunity to improve fire protection should be considered as an integral part of any major repair scheme.

RECORDING

Photographs and in some cases measured details may be required before work starts so that there is a record of any detail that may need to be copied. Any special feature that may be uncovered during the course of work should also be recorded.

These notes have been prepared to provide guidance on repairs to historic buildings and are equally applicable on grant aided or routine maintenance work. Inappropriately specified and poorly executed repairs can cause long-term damage and lead to expensive reinstatement. Action should always be taken when defects are first identified.

Works which affect the character of a listed building, whether external or internal, will require listed building consent from Wiltshire Council. It is therefore advisable to discuss proposals with the Conservation Officer (Wiltshire West) 01225 770344 and check the need for consent before starting work.

Further advice on the operation of the Scheme is available from :

Colin Johns

Technical Adviser to the Historic Buildings Conservation Committee.

 / fax 01225 868037.

cj@bradfordonavon27.co.uk