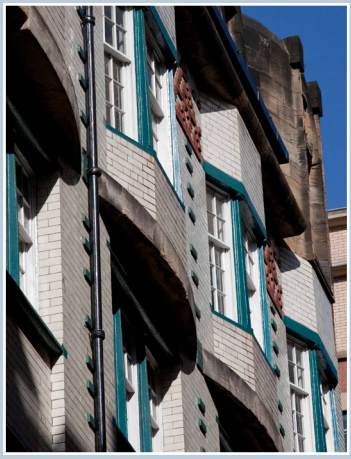
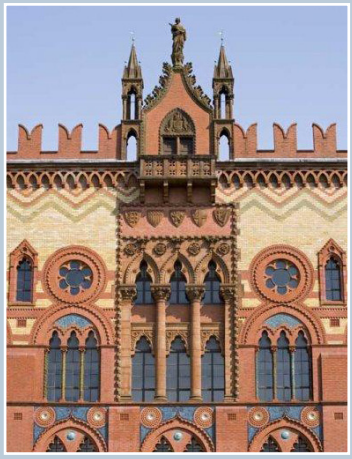
Managing
Change
in the Historic
Environment

HISTORIC SCOTLAND ALBA AOSMHOR

External Walls


October 2010

Key Issues

1. **The external walls of a historic building are an important element in defining its character. Listed building consent is required for any works affecting the character of a listed building and planning permission may be required in a conservation area.**

2. **The design, materials, method of construction, colour, texture, detailing and finish typically contribute to the character of a historic wall.**

3. **Maintenance and appropriate repair are the best means of safeguarding the historic character of a wall. This also reduces the requirement for new raw materials and energy.**

4. **Physical or documentary evidence must inform the reinstatement or reconstruction of walls. New work to a historic wall must seek to maintain its character.**

5. **If evidence of blocked openings or earlier phases of work is revealed, this should be documented, and where possible retained.**

6. **Traditional walls contribute to energy efficiency through their thermal mass, which allows for natural warming and cooling.**

7. **Planning authorities give advice on the requirement for listed building consent, planning and other permissions.**

1. INTRODUCTION

1.1 This is one of a series of guidance notes on managing change in the historic environment for use by planning authorities and other interested parties. The series explains how to apply the policies contained in the *Scottish Historic Environment Policy* (2009) (SHEP, PDF 312K) and *The Scottish Planning Policy* (2010) (SPP, PDF 299K).

1.2 This note sets out the principles that apply to altering the external walls of historic buildings. It should inform planning policies and the determination of applications relating to the historic environment, and replaces the equivalent guidance in *The Memorandum of Guidance on Listed Buildings & Conservation Areas* (1998).

1.3 Monuments scheduled under the Ancient Monuments & Archaeological Areas Act 1979 require scheduled monument consent for any works. Where a structure is both scheduled and listed, the scheduling controls have precedence. Separate advice is available from Historic Scotland's website: Scheduled Monuments: Guidance for Owners, Occupiers & Land Managers (PDF 718K). Local authorities' archaeological advisers are a source of advice about potential archaeological sensitivity.

Neolithic house, Skara Brae, Orkney. From the earliest times walls were designed to provide shelter and security, to contain warmth, and to meet the functional requirements of domestic and ritual life. Local materials and skill traditions established different patterns of wall construction and building design in different parts of the country, and adapted to new types of building and usage over time.

2. WHY ARE HISTORIC EXTERNAL WALLS IMPORTANT?

2.1 External walls are usually the defining feature of a historic building or monument. They not only incorporate the bulk of the historic fabric and perform structural or weather-protection tasks, but through their design they can also express some of the cultural and intellectual context in which the building was created.

Design qualities

2.2 Many of the formal qualities of a historic building, such as scale, proportion, colour, texture or style, are largely derived from the design and construction of its walls. The dimensions, types of materials and finishes, and the position and size of openings within the wall may all be important indicators of the building's age, purpose, status, or development through time.

Material qualities

2.3 Often design considerations were determined by the technological capabilities of the period, local building materials and traditions, topography and climate, stylistic intent, and social or economic circumstances.

Structural qualities

2.4 External walls generally have a structural function in supporting floors and roofs as well as providing a protective envelope

Central block of the former Fife Arms Hotel, Banff, 1843–5. The classical design places emphasis on the symmetry, proportions and detailing of the walls and reflects the functional hierarchy of the interior. Corniced windows indicate the principal rooms on the first floor; smaller windows relate to private or subsidiary rooms. The design maximises the architectural impact of the walls by hiding the shallow pitched roof behind a parapet.

The mid-18th-century Old Schoolhouse at Cottown, Perth & Kinross. The uneven character of the wall surface is derived from the local materials used in its straw-bonded mudwalls. The colour reflects the use of local clay as a pigment in the modern coating of lime harl and limewash applied during repairs by the National Trust for Scotland. The different window sizes reflect the internal hierarchy of rooms. © N. Haynes.

High Street, Arbroath. Rich pink-red sandstone, typical of parts of Angus. Here the stone is laid in regular courses. © N . Haynes.

Harling being carried out at Dymock's, Bo'ness. © N . Haynes.

around the internal spaces. Other external walls act primarily as a weatherproof skin, with structural support provided by a framework of timber, iron, steel, or reinforced concrete (depending on the age of the building). Whether structural or non-loadbearing, external walls are critical to the long-term stability and technical performance of the building.

3. IDENTIFYING THE INTEREST OF HISTORIC WALLS

3.1 The walls of historic buildings have a wide variety of forms and materials, ranging from relatively simple local vernacular to highly crafted opulence, reflecting their ownership, location, purpose, and the period(s) of their construction.

Earth and clay

3.2 From early times, walls were constructed from local natural materials such as clay, timber and stone. While stone rubble walls remain the most obvious legacy from the past, buildings were constructed into the 19th century from walls of clay mixed with straw or from clay and bool (uncut stone), often with a sacrificial layer of lime or clay render to provide further protection. Double-skinned stone rubble walls with earth packed between were a common form of construction until the 19th century.

Stone

3.3 Stone is the predominant building material in Scotland's historic buildings and often reflects the local geology: e.g. red sandstone in the South-West, paler sandstone in the East, granite in Aberdeenshire. Advances in technology in the 19th century freed stone from being the main structural element of building, although it continued to be used in wall construction and cladding to protect the structural frame. The size of the stones, their position and the style of jointing contribute significantly to the character of a wall and can demonstrate distinctive local traditions. The finish of stone ranges from roughly shaped or simply squared rubble to tooled and finely polished ashlars. Jointing can vary from broad 'slaister' pointing in lime mortar to wafer-thin joints filled with lime putty. Decorative carved stone details were employed on walls from the medieval period into the 20th century.

Harling

3.4 Harl or render was extensively used as a surface coating to protect friable construction materials or to provide the illusion of a fine masonry finish. Traditionally lime harling was used. This was mixed with local aggregates, from which it gained its pigmentation.

Brick

3.5 Brick began to be manufactured in Scotland in the 17th century but did not gain significant production and use until the 18th century. Garden walls, farm offices and farmhouses saw the

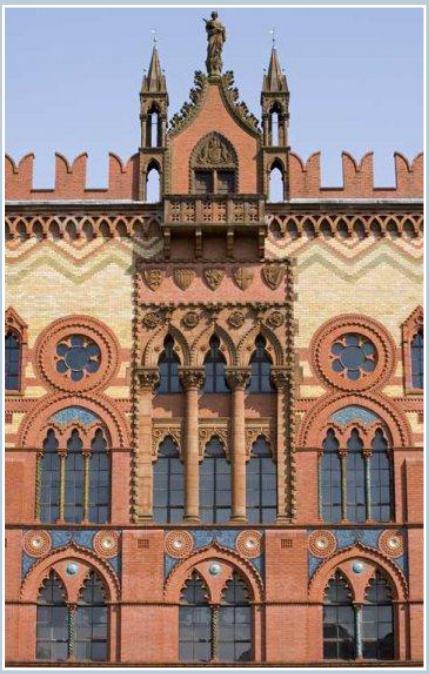
early adoption of brick. In the 19th century, improvements in production quality and volume led to a widespread use of brick for industrial purposes and housing, particularly in mining areas. Brick was also widely used for housing between the wars, and was put to good use by 20th century modernist architects.

Concrete

3.6 From the 1850s, mass concrete was used for building sheds and houses, often using similar construction techniques to clay walling. Reinforced concrete was used extensively in the 20th century, initially for its structural properties but in the post-war period for the aesthetic value of its finishes. The aggregate employed could result in a very coarse surface, and the imprint of rough wooden shuttering resulted in a highly textured surface.

Other materials

3.7 From the mid 19th-century, many firms produced catalogues of prefabricated buildings ranging from cottages, barns, meeting halls and churches to whole factories made of timber frames clad with corrugated iron. The profile, pitch and gauge of the metal and the choice of finish establish the distinctive character of these walls. Technological advances have resulted in cladding in a variety of metals in the 20th century as well as materials such as ceramic tiles, terracotta, faience, vitrolite and glass.



Former Templeton's Carpet Factory, City of Glasgow (1889). The decorative brick alludes to the pattern of an Axminster carpet and to the form of the Doge's Palace, Venice. © Crown copyright: RCAHMS. Licensor www.rcahms.gov.uk.

4. GENERAL PRINCIPLES FOR ALTERATIONS AND REPAIRS

4.1 The following should be read in conjunction with Historic Scotland's Technical Advice notes. Details are given at the end of this guidance note.

Character and interest of the building

4.2 Every effort should be made to repair the external walls of a historic building and alterations or repairs should protect its character. Walls are valuable in their own right as major elements in the design of a historic building and for their practical performance and appearance. Documentary research and fabric analysis is useful in understanding the design and material properties of historic walls before undertaking alterations or repairs.

Maintenance

4.3 Regular inspection, maintenance and appropriate repair are essential to maintaining the structural and visual integrity of historic walls.

Alterations

4.4 All alteration proposals should take into account the design and material characteristics of the historic wall. Most buildings have one or more principal elevation, which is usually particularly

Mass concrete tenements in Dundee, cast insitu in 1874–5 by the Concrete Building Company for the Working Men's House Building Association. The buildings were renovated and a buff render applied in 1982–4. © Crown copyright: RCAHMS. Licensor www.rcahms.gov.uk.

Structural instability requires the rebuilding of this wall in Peterhead. The granite stones have been numbered ready for reinstatement.

Dymock's Buildings (late 17th century), Bo'ness, were restored by the National Trust for Scotland in 2004. A cement render was removed, the archaeology of the wall recorded, and then a lime harl and limewash were applied. Evidence of former openings remains visible. © N. Haynes.

sensitive to alteration. There are often ways of accommodating alterations, perhaps in alternative locations, without detriment to the character of a principal elevation. The design, materials and construction of alterations should seek to complement the original.

New openings

4.5 The formation of a new opening in a wall needs to be considered in light of the overall composition of the wall and assessed as to whether or not it would be consistent with the existing design. Care should be taken to ensure that the cumulative effect of new openings does not harm the special interest of the building. Where the formation of a new opening is found to be consistent with the design of the wall, the minimum historic fabric should be removed and the opening should be detailed to match the existing openings. Where there is no obvious precedent, a clearly modern intervention of high-quality design may be appropriate. Service ducts and vents should be located on secondary elevations. Separate guidance on extending buildings is provided in this series.

Rebuilding

4.6 There may be occasions when a wall needs to be rebuilt for structural reasons. In most cases it is possible to rebuild the wall reusing the bulk of the dismantled original material. Dressed stone in particular should be rebuilt in its original position. It is important to maintain the proportions, depth and irregularities arising from historic methods of construction in the rebuilt wall. New materials should normally match the characteristics of the existing in all respects. The opportunity should be taken to restore any details of the wall that have previously been altered. Proposals to rebuild should normally be accompanied by a structural report and detailed survey drawings to enable a faithful reconstruction.

Reinstatement

4.7 Where walls have been altered inappropriately in the past, reinstatement should be based on documentary or physical evidence of missing features or materials.

Harling

4.8 New lime or clay harl, render or limewash should be based on evidence of previous use of the material on the building. Properly specified traditional materials allow the wall to absorb and evaporate moisture effectively. Historic cement renders should only be removed if found to be causing damage. The application of limewash should likewise be backed by evidence.

Repointing

4.9 Repointing should use traditional materials compatible with the wall's original construction and detailed in a manner appropriate to the character of the building. Inappropriate materials can be damaging to the surrounding stone. It is advisable to seek

professional guidance in specifying and using traditional materials.

Paint

4.10 The application of paint to unpainted historic walls can cause considerable damage in the long term by preventing the evaporation of moisture from the underlying fabric. Where paint has been applied in the past and is harming the performance of a wall, careful removal is recommended, guided by expert advice.

Indenting and plastic repairs to masonry

4.11 Stones only need to be replaced when they have decayed to such a degree that they affect the structural stability of the surrounding stonework. Indent repairs should be carried out in stone that best matches the existing stonework in mineralogical composition and carried out to the highest technical standards. Eroded stonework does not necessarily require repair. Cladding or plastic repairs in synthetic materials are likely to exacerbate decay as well as being visually detrimental. Planning authorities may ask for evidence to show that repairs are necessary and that the repair methods are appropriate.

Sculpture

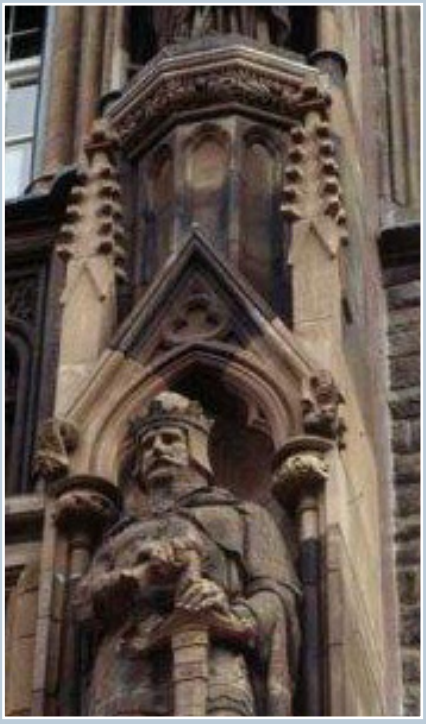
4.12 Replacing sculptural stonework on a wall must be considered against its significance and that of the building as a whole. Erosion is a naturally occurring phenomenon and can be part of the attractive aging process of a historic building. If decorative stonework is a significant architectural feature then the replacement of sculptural details to maintain its significance may be appropriate.

Cleaning

4.13 The patina that materials acquire through age and weathering can be an important part of the character and appearance of a wall. The weathering of building materials often enhances their attractive qualities. Weathering layers can form natural barriers that protect the material from erosion, and attempts to remove them can cause considerable damage and accelerate decay. Cleaning should normally only be considered where the structural integrity of the wall is threatened by surface growths. To ensure that the cleaning method will not damage the stone or brickwork, applications for listed building consent should be supported by a technical analysis and sample test cleaning of small unobtrusive areas.

Archaeology

4.14 Work to historic walls can often reveal features such as blocked openings or a change in material that can provide significant information about the development history and fabric of the building. Photographic or measured recording may be appropriate if the evidence will be covered over in the course of the works. Where there is a high likelihood of uncovering



Scottish National Portrait Gallery, City of Edinburgh, 1890. Decisions about whether to re-carve stonework are a matter of values. Here the artistic value of a sculpture calls for it to be conserved mostly as found, whereas the architectural elements (finials and hoodmoulds) that also function in shedding rainwater have been completely replaced where required.

Graffiti: The removal of graffiti requires prompt action before the paint or ink dries into the wall surface. Cleaning methods should be tested on a small unobtrusive area to determine the least aggressive treatment for effective removal of the graffiti. In extreme cases of repeated vandalism, a sacrificial wax coating might be considered for vulnerable surfaces.

The exposed wall of this 17th-century house in Cupar, Fife, reveals archaeological evidence of a number of blocked openings. The previous mixture of window sizes and levels has been regularised in the current arrangement. © N. Haynes.

Modern lime mortar pointing, Scottish Lime Centre, Charlestown, Fife. The use of lime allows the wall to 'breathe'. Traditionally, most rubble walls had lime slaistered, or buttered, over the joint to achieve a fairly smooth finish that would erode with time. Where pointing does not alter the character of a listed building it would not normally require consent.

archaeological evidence in a major building, adequate provision should be made for recording as works progress.

5. ENERGY EFFICIENCY

5.1 Energy conservation is necessary in addressing climate change. In many cases cost-effective and sustainable improvements to the energy efficiency of traditional buildings can be achieved without damage to their character. Heat loss typically occurs in various parts of a building. It is important to take an overall view of energy efficiency measures.

5.2 Proper maintainance of traditional masonry walls will help to maximise their thermal efficiency. This is usually achieved through mass and their performance is dependent on their ability to retain heat and 'breathe' out moisture. Preventing the build-up of excess water in external walls will help to optimise their weatherproofing and thermal performance. Measures to consider include:

- prompt repair of roofs, gutters, downpipes, wallheads, and missing pointing or harling;
- appropriate above and below ground drainage;
- appropriate repairs in traditional materials to maintain the breathable qualities of joints, stonework and internal painted surfaces.
- investigation of appropriate insulation.

5.3 Additional energy conservation measures are best considered in the context of all component parts of a building. Further information is available in Historic Scotland's *Inform Guide: Energy Efficiency in Traditional Homes*.

6. CONSENTS

6.1 Listed building consent is required for any work to a listed building that affects its character. The local authority determines the need for consent.

6.2 Where listed building consent is required, an application is made to the local authority. This should include accurate scale drawings showing both the existing situation and the proposed works in context. It is normally helpful to provide detailed technical information and photographs.

FURTHER INFORMATION AND ADVICE

Details of all individual scheduled monuments, listed buildings, designated gardens and designed landscapes, and designated wrecks can be obtained from Historic Scotland (see contact details below) or at: www.pastmap.org.uk. Details of listed buildings can also be obtained from the relevant local authority for the area.

Advice on the requirement for listed building consent, conservation area consent, building warrants, and other permissions/consents should be sought from local authorities.

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E-mail: hs.inspectorate@scotland.gsi.gov.uk
Web: www.historic-scotland.gov.uk

Cover images

Charles Rennie Mackintosh's Daily Record Building (1900–04), Renfrew Lane, Glasgow. The tall frontage to the narrow lane is faced in white glazed brick at the lower levels to reflect and maximise light. © N. Haynes.

Decorative brickwork at the former Templeton's Carpet Factory (by William Leiper, 1888), Glasgow. The colours are paler after acid cleaning in the 1980s. © Crown copyright: RCAHMS. Licensor www.rcahms.gov.uk.

George Square, Edinburgh. The replacement stone (at the bottom of the photograph) is carefully matched with the original 1890s stone for type, colour and tooling. Natural weathering will reduce the contrast between the new and old work. © N. Haynes.

Other selected Historic Scotland publications and links

Maintaining your Home – A Short Guide for Homeowners (2007) (PDF 1.4MB)

Inform Guide: Energy Efficiency in Traditional Homes (2008)

Inform Guide: Damp Causes & Solutions (2007)

Inform Guide: Masonry Decay (2005)

Inform Guide: Repointing Ashlar Masonry (2008)

Inform Guide: Indent Repairs to Sandstone Masonry (2007)

Inform Guide: Structural Cracks (2008)

Inform Guide: The Use of Lime & Cement in Traditional Buildings (2007)

Inform Guide: Repairing Brickwork (2007)

Inform Guide: Care & Maintenance of Corrugated Iron (2008)

Inform Guide: Cleaning Sandstone: Risks and Consequences (2007)

Inform Guide: Graffiti and its Safe Removal (2005)

For the full range of Inform Guides, Practitioner Guides, Technical Advice Notes and Research Reports please see the Publications section of the Historic Scotland website.