

HISTORIC BUILDING MAINTENANCE AND REPAIR GUIDE

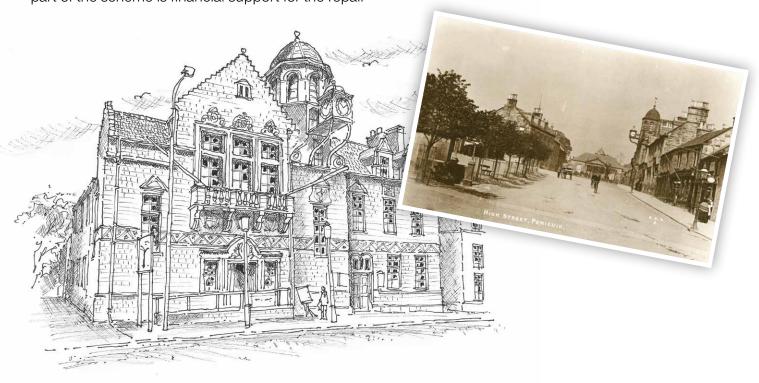
What is the Penicuik Heritage Regeneration Scheme?

The Penicuik Heritage Regeneration Scheme is a partnership between Midlothian Council, the Heritage Lottery Fund and Historic Environment Scotland, supported by the Penicuik Community Development Trust, Penicuik First and other community organisations.

The scheme will run for 5 years from 2018 and aims to tackle the effects of poor building maintenance, loss of architectural features, inconsistent shopfront design and unsympathetic public realm works. One part of the scheme is financial support for the repair

and restoration of eligible buildings in the town centre. The scheme will also develop training and community engagement projects and is investing in improving the public realm.

One of the intended outcomes of the regeneration scheme is that building owners, contractors and other building professionals have a better understanding of how to maintain and repair historic buildings using the correct techniques and materials.













Advice for Building Owners and Occupiers

The repair and enhancement of historic buildings is a key part of the Penicuik Heritage Regeneration Scheme, and grant assistance is available for eligible works.

Information on the what building work is potentially eligible for a grant from the regeneration scheme is provided in the "Explaining the Penicuik Heritage Regeneration Scheme" leaflet and the "Grant Eligible Building Work" leaflet.

The following buildings are eligible for grant support through the scheme.

1 – 10 High Street (all)
13-23 High Street (odd numbers)
14-20 High Street (shopfronts only)
22-30 High Street (even numbers)
33 High Street (Town Hall)
34 High Street (Royal Hotel)
35 High Street
2, 3, 4 & 4A The Square
10-12 The Square (all)

15 – 28 The Square (all)

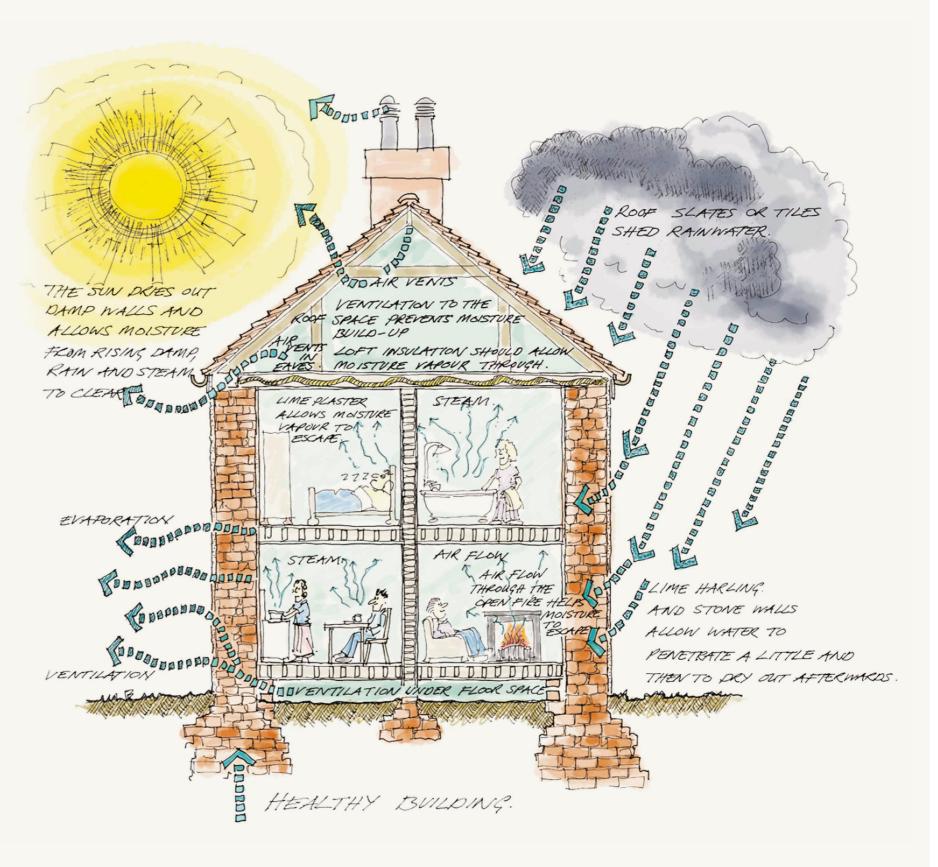
1-9 Bridge Street (odd numbers)
2-6 Bridge Street (even numbers)
18-34 Bridge Street (even numbers)
1-7 Parkend (all)
1-11 West Street (odd numbers)
2-10 West Street (even numbers)
14 West Street & 2 Croft Street
29-32 West Street
(all, including South Kirk Hall)
2-26 John Street (even numbers)

Understanding Traditional Buildings

Most of the traditional buildings in Penicuik are built of relatively thick, solid stone walls, many of squared, dressed and coursed sandstone sometimes with ashlar dressings pointed in lime mortar. Other buildings have random rubble walls, some with squared quoins.

This is known as 'mass construction' and in traditional construction most walls do not have damp-proof courses. This traditional method of building enabled the structure to 'breathe' as it is

able to accommodate varying moisture levels, i.e. rain, wind-driven rain and snow by taking in and then evaporating moisture, thus keeping the building dry on the outside. These buildings usually have good ventilation under the floors and air movement is encouraged by open flues and through roof spaces. By keeping a building dry the inherent insulation values of the structure can be raised significantly. Wet buildings are cold, damp and miserable!



Breathing buildings are comfortable and healthy to live in, it is only when we try to introduce unreasonable degrees of draught proofing and thermal insulation that the natural air movement through traditional construction is interrupted, sometimes with serious consequences. Comfort levels can be raised with careful design and specification without upsetting this natural balance of conditions within the structure.

Many of the older buildings in Penicuik have been repaired over the years using modern materials such as cement mortars, gypsum plasters, modern formula paints and replacement windows, with the very best of intensions. However, these works have in some instances led to rot in timbers, requiring very extensive repairs. Furthermore, lack of proper maintenance has affected both the performance and the aesthetics of the buildings which have been severely compromised as a result.

We now know that repairing traditional buildings with modern or non-traditional materials has the potential to accelerate stone decay, to induce wood rot in built-in timbers, and to encourage water penetration and retention in the structure. The materials used in the construction of Penicuik were sourced locally, but many of these materials fell out of use in the early 1900's and were replaced by modern, often inferior, substitutes. Fortunately we are again now able to source appropriate traditional materials, and can begin a repair and maintenance programme to prolong the life of these buildings and preserve and enhance the townscape. In doing so, we can also bring new skills to local craftsmen for the future benefit of the local economy and the historic environment.

Looking After Your Building

The following pages describe briefly the main construction and materials of the buildings in Penicuik and the desirability of retaining traditional materials to enhance the historic value and appearance of the town.

Roofs and Roof Coverings



Pitched roofs are constructed of rafters, ceiling ties (beams), struts and wall plates and all should be in good condition. Regular inspections are recommended because if damp and unventilated conditions exist, fungal attack can result. Dry rot is particularly damaging. Insect attack can also weaken timber structural members. If roof timbers need treating for dry rot, expert assessment is needed so that non-destructive methods and nontoxic applications can be used wherever possible. The spraying of roofs and other timbers as a precautionary measure is of little value. In many cases the prevention of further water entry and the alteration of the internal conditions by, for example, increasing natural ventilation, may be sufficient to halt timber decay. Specialist contractors should undertake this work.

Roof coverings are mainly in natural Scots and Welsh slate. This gives a distinctive character and texture to roofs which no substitute, such as concrete tiles can replicate. The replacement of slate with modern materials can be particularly damaging and disruptive to the appearance of the town. When repairing and reroofing attempts should be made to source Scots and Welsh slate where required to match existing. Missing, slipped or broken slates should be promptly replaced to match the original in order to avoid roof leaks. Flat roofs were traditionally covered with lead sheet on superior buildings, or zinc for more general use. Surviving examples are

rare except on church buildings. Whenever possible these materials should be used for repairs.

The detailing of roof lights, dormers, copings and flashing is equally important to the overall appearance of the roof and any change of the original materials should be avoided. There are many interesting features on the roofs in Penicuik for example. different types of dormer windows and interesting gable wall details i.e. crowstep gables. Gables are predominant and most frequently parallel with the street, the occasional one at right angles.

Chimneys and Skews



Chimney stacks (called 'stalks'), are the parts of the building most vulnerable for weathering, being exposed on all faces.

Chimney stalks are usually built in fairface rubble masonry but are often rendered with cement where the stone has decayed. The junction between chimney stalk and roof is a weak point in the roof covering and any deterioration of the lead flashings or cement fillets here should be repaired promptly.

Chimney cans (pots) are generally made of clay and set into a stone cope on top of the chimney stalk and haunched with cement. Skews are the stone cappings to the gable walls against which the slate roof abuts, and the joint is formed with a concealed lead flashing, or, more commonly a cement fillet as on a chimney. Skew stones are bedded and pointed in lime mortar on the sloping top of a gable wall and maybe supported at the foot by a shaped stone called a skew putt.

The repair of roof leadwork such as copings, flashings, valleys and gutter linings should be designed and installed in accordance with good practice and industry recommendations.

Rainwater Goods



Rainwater goods includes, rhones (gutters), hoppers, brackets downpipes and shoes at the foot. Cast iron was traditionally used because of its durability. If properly maintained these elements have a long life.

Cast iron must be painted to prevent deterioration and all joints between the various parts should be watertight. Rhones should be cleaned out annually to remove dirt and leaves and all cast iron should be repainted when existing coating start to deteriorate and in any case at approximately five-yearly intervals. Replacing cast iron with other materials such as upvc or aluminium is strongly discouraged. Modern substitutes may have different profiles and different fixings and supports. PVC is affected by ultraviolet light and is likely to change colour and become brittle with age, and is susceptible to physical damage and cracking.

Masonry Repairs and Reporting

Traditional masonry walls were built with two 'skins' of stone and the core filled with broken stone, lime mortar waste and rubble. The outer layer or face was either random rubble to take a harl or smooth lime render, or ashlar (stone blocks with a smooth or textured face, built with fine joints).

The inner stone was rubble with wider joints, also built with lime mortar. To the inner face was fixed horizontal timber laths to take two or three coats of lime plaster. The cavity between the laths and the stone face served to allow air movement and the evaporation of any moisture in the wall.

Prior to about 1900 masonry walls were constructed without damp proof courses. The 'breathability' of

natural materials stone, lime mortar and lime plaster is sufficient to control moisture and allows both ingress and evaporation.



To prevent water entering the top of the wall a sound, dry

and well ventilated roof was essential. Moisture in the base of the walls can be reduced by lowering of ground levels, improved drainage around the building, replacement of any hard cement mortar with lime mortar and if none exists, the introduction of underfloor ventilation. Modern injected damp proof courses are of little value in traditional masonry walls of composite construction as described above, and the appearance of the masonry wall can be spoilt by lines of drilled holes, both horizontal and vertical.

Buildings in Penicuik were mostly constructed of sandstone with lime mortar. Stonework was of different styles such as random rubble, coursed squared rubble or ashlar with a tooled or smooth face. Building stone was quarried locally wherever possible to minimise transportation costs.

Natural stone deteriorates, albeit very slowly, and may require repair or replacement if surface decay becomes significant or structurally damaging. Repairs should only be carried out with matching stone. Patching with cement or other substitutes is strongly discouraged. Salvaged stone should be used where available.

Many buildings have been repointed with a hard cement mortar which can accelerate the decay and deterioration of the stone blocks. Where repointing is to be carried out, lime mortars should always be used and will prolong the life of the building. This work should be carried out by skilled and experienced tradesmen and should match the materials and style of original pointing.

External Finishes

Many buildings in Penicuik were constructed of fair face masonry, some had a lime harl or smooth lime render to provide additional weathering protection and decorative coat. Some have lost their original coatings through natural decay or some may have been removed in the past. Whether these should be replaced depends on individual circumstances.

If moisture penetration is a problem or stonework is deteriorating renewal of the coating would be recommended. Sandstone was sometimes painted with lime wash and this should be re-applied once it begins to deteriorate. Lime wash is compatible with harl and smooth lime renders.

Stone cleaning should only be carried out where atmosphere or chemical soiling is causing actual damage to the stone work. Cleaning for cosmetic reasons is not recommended. If cleaning is thought to be necessary then an appropriate method should be selected with care to avoid damage to the stonework. This is a specialist operation and should be carried out only by skilled and experienced tradesmen. Technical guidance published by Historic Environment Scotland or other sources should be consulted.

Windows and Doors

Window design and proportion are a key part of a building's character. Replacement of traditional windows with new types and styles can seriously affect the appearance and often the value of a building of traditional construction.

The majority of original windows in the town were either casements or sash. These windows provide the maximum amount of daylight through an opening; give controllable ventilation, effective security and do not project from the face of the wall like some modern substitutes. If traditional windows have deteriorated the first recommended course of action is repair and this can be carried out by an experienced joiner. Repairs can be carried out more cheaply than replacement with another style or material and will maintain the original character

and fabric of the house. If the building is listed then formal consent would be required for any change to the appearance of the windows.

In all situations replacing windows in other materials such as aluminium or UPVC is not recommended. It should be noted that window sections in other materials cannot match those made of timber, the frames and glazing bars (astragals) will invariably be thicker thus reducing the daylight size of the window.

Window maintenance should pay attention to the condition of the paintwork and should include regular inspection of the timber cills. Wear in sash cords and shrinkage and wear in the frame can cause draughts. All can be repaired by a joiner with materials to match. The thermal insulation value of sash windows can be improved with draught stripping or secondary glazing, which must be fitted internally. This can also improve sound insulation where external noise is a problem. Sash and case windows are hung on Simplex hinges to allow inward opening for safe cleaning – useful on upper floors.

Windows are set into checks in the outside wall and sealed with mastic. Traditionally, mastic was made with burnt linseed oil and fine sand and this is available in either red or buff colour to match the stonework. It should not be painted as the coatings will crack and peel in sunshine. Care should be taken not to damage the mastic when windows are being cleaned or repainted.

Entrance doors to houses in the town are made of timber and are either framed and vertically boarded or, from the 19th century onwards, generally panelled. Doors at the rear are often of a plainer style. As with windows, doors can be repaired with ease by an experienced tradesman and original doors should be retained and not replaced with modern substitutes. Replacement solid flush or glazed doors in UPVC or aluminium are not recommended as they can adversely affect the appearance, character and value of the building.

Original door hardware such as knobs, handles, numerals and escutcheons should be retained.

New fittings of a correct pattern and materials are

available to replace those missing and modern substitutes are not recommended.



External Paint Finishes

Where stonework has been painted it should be maintained and renewed at regular intervals to ensure its waterproofing attributes and appearance. Limewash, or alternatively, natural emulsions, are available and should be used in preference to oilbound paints which prevent moisture evaporation from the masonry surface.

Exterior woodwork such as doors, windows and fascias should be painted with a microporous paint which allows controlled moisture transfer without blistering.

All external painted surfaces and materials should be inspected regularly and redecorated when signs of deterioration are found. This includes rainwater goods, doors, windows and railings which should be maintained in sound condition. Painting waterproofs, protects, and preserves these elements, and enhances the appearance of the whole building.

Regular maintenance will keep woodwork and cast iron in good condition, and prolong their life. Painting of parts of a building at high levels is a job for experienced tradesmen.

External Colours

The limewashing of masonry and harl is common in certain areas in Scotland. Limewash was used on agricultural buildings for its antiseptic qualities, and on harled buildings to enhance the weathering properties of the applied finishes. Traditionally, the choice of colour was white or natural earth colours found in the area and it is important therefore that colours for repainting are selected with care. The ready availability of a wide range of modern paints has encouraged the painting of walls in other, non-traditional colours in the detriment of local character. The painting of previously unpainted stone buildings is not acceptable in the conservation area.

Boundary Walls and External Surfaces

Stone garden and boundary walls are an important feature of the town and should not be overlooked when building maintenance is being planned.

Stone walls, being exposed to weathering from both sides, require more frequent maintenance than house walls, and the materials, form and style of construction are equally important to the character of the area.

Regular maintenance and repair should be carried out with materials to match the original. Substitutes such as timber fencing, brick in place of stone, or concrete block are not acceptable. Stone walls should be repointed with lime mortar not cement, as this will prolong the life of the masonry. Copes must be reinstated in natural stone where missing and bedded and pointed with lime mortar.

Most town houses are built on the pavement, and the surface to the front is not the householder's responsibility. Where houses are set back or have boundary walls the privatelyowned hard surfaces should be maintained in good condition, ensuring that water drains away and that the surface is sound. Effective drainage from paths and paved areas is important to avoid standing water next to buildings, and to prevent the build-up of ice in freezing conditions.

Recommended colours for external use:

- Previously painted walls:- white, off-white, cream
- Previously painted windows and door architraves (surrounds):- white
- Windows:- white, or off white
- Doors:- black, dark green, dark blue, red, maroon
- Rhones and RWPs:- black, dark green, stone colour to match the masonry
- It is recommended that any proposed change of colour is agreed in advance with the CARS Project Officer.



Shop Fronts

Shop fronts in the historic part of Penicuik tended to be of two types. Some of the buildings traditionally had the shop name and signage hand painted on the stone string course running at first floor level. Shop windows were vertical narrow windows often with low cill heights.

Other shops had a Victorian style timber frame with fascia, pilasters, brackets and stall riser, often with an awning for protection from the elements.

Where shops have been retained it is important to repair and restore them in a sympathetic traditional manner. Much of the character of a building can be damaged by the replacement of traditional shop fronts by modern alternatives that bear little relation to the historic and architectural credentials and the proportion and details of the building.

See separate Penicuik shop front design guide for more information.

Things To Look For:

Easy Checklist for your Building

Note: this checklist serves to inform homeowners what defects may become apparent. In almost all cases repairs should be carried out by tradesmen.

ROOFS:	likely cause	suggested repair	date inspected	action date
Loose or missing ridge cappings (usually galvanized metal, or tiles); Missing, slipped or broken slates or tiles.	Storm damage Nail sickness, physical damage by foot traffic	Replace to match Replace with matching slates, or tiles bedded in mortar		
Displaced or failed lead flashings around Dormers, rooflights and party walls	Storm damage, decayed timber beneath	Check beneath, then renew flashings; renew mortar joints at wall junctions		
Water penetration into roof spaces, and evidence of staining below Splitting or buckling of flat roof coverings, and failure of flashings	Slating defects as above Decay of timber sarking, aged roofing materials; ponding; apron flashings parting from walls	Repair as above to ensure roof is watertight Check condition beneath; renewing roof and all flashings; provide adequate falls to outlets		
CHIMNEYS:	likely cause	suggested repair	date inspected	action date
Copes and chimney cans displaced, missing or broken	Loose or missing cement haunching; wind damage; natural deterioration	Replace cans to match; renew haunching; fit ventilated cowl if flue is unused		
Pointing missing, or cracks in harling	High exposure, aged mortar, stone decay around joints	Renewing pointing in lime/ sand mortar; cut out cracks in harl if severe, patch and apply limewash		
Plant growth	Open joints in copes or chimney stalks	Weed carefully to remove roots, treat cavities with herbicide and repoint joints		
Lead flashings or mortar fillets at chimney stalks missing or loose	Storm damage, timber decay beneath, theft of lead	Check roof condition, renew lead flashing to match, repair adjacent slates		
ROOF DRAINAGE:	likely cause	suggested repair	date inspected	action date
Leaks from joints in rhones (gutters) or from rainwater pipes	Bolts rusted, sealant in joints decayed	Clean joints, renew sealant and bolts; touch up paintwork		
Rhones sagging, or spilling over after heavy rain	Rafter brackets failed; rhones choked; inadequate falls	Renew brackets, clear rhones, increase falls to outlets		
Leak causing rust staining or green (algal) staining on walls	Joint sealant failed	Repair joints and allow walls to dry out. Biocides may be used with care		
Blockages caused by leaves and vegetation	Overhanging trees; plants rooting in rhones	Clear out, cut branches back		
Internal signs of damp on plasterwork at ceilings	Generally from roof defects; or internal pipework	Rectify roof as described, check nearby pipework		

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EXTERNAL WALLS:	likely cause	suggested repair	date inspected	action date
Loose or missing pointing on exposed stonework	Decayed mortar, stone deterioration	Selective repointing with lime/sand mortar		
Excessive erosion of stonework, especially beneath rhones	Long-term saturation; use of cement mortar; frost action	Repair rhones; indent new stones only if erosion is severe; avoid plastic repairs		
Erosion of stonework around hard cement pointing	Cement pointing prevents natural evaporation; stone saturated; frost action	Carefully remove cement and repoint with lime/sand mortar		
Excessive decay at foot of wall, especially those close to roads	High moisture content in stonework here, also ground water; damaging effect of road salts	Indent new stone if erosion is severe; consider protective coatings; renew pointing if decayed		
On harled or smooth rendered walls, cracked, missing or boss (loose) areas	Water penetration behind harl or render, frost action; physical damage; effect of salts	Identify boss areas, cut back to sound surface and apply matching harl or render		
Deteriorating limewash or point finishes, exposing the surface beneath	Sacrificial decay of these protective coatings	Remove flaking coatings to sound base and re-apply in limewash		
Heavy organic growth or green staining (algae)	Colonization of algae, on saturated stonework in sunlit areas	Treat only if severe, with environmentally-safe biocide; repairs may be necessary		
Satellite dishes and TV aerials placed in prominent positions	Lack of awareness of the damaging effect on the appearance of the building	Relocate aerials, dishes and cabling to less prominent positions e.g. behind chimneys		
DOORS & WINDOWS:	likely cause	suggested repair	date inspected	action date
Sash windows won't slide freely, or drop when in open position	Swollen beads due to decay or water penetration, wear and tear, incorrect sash weights; broken cords	Repair by piecing-in, or with new beads; adjust batton rods; renew weights and cords		
Signs of woodrot in cills or window frames (test carefully for soft wood)	Failure of paint finish through lack of regular maintenance; cill contacting wet stonework	Renew cills (whole rather than part); renew mortar pointing, and repaint		
Missing or failed mastic pointing	Natural ageing; effect of sunlight and weathering on previously painted mastic	Renew mastic (linseed oil and sand mix preferred to silicones); do not overpaint		
Doors binding; soft wood at foot of door, or physical damage	Timbers swollen due to water penetration through lack of maintenance; wet rot at foot	Allow door to dry thoroughly; (do not adjust width); cut out and piecein decayed sections with timber		

Note: this checklist is included to allow homeowners to monitor internal condition of the building.

INTERNAL SURFACES & COMPONENTS:	likely cause	suggested repair	date inspected	action date
Water staining on walls or ceilings, or on roof timbers within roof spaces	Water penetration through roof, valleys or flashings	Overhaul roof; replace defective slates or other roofing; inspect and renew flashings where deteriorated		
Excessive condensation on windows (or on wall surfaces)	Reduction in natural air movement in the building; excessive draught-proofing at windows and doors; closed-up chimney	Ensure trickle ventilation; re-open flues; install extractors in kitchens and bathrooms avoid moisture producing appliances; ventilate roof spaces		
Water leaks around windows or doors; broken fastenings and handles	Shrinkage of window elements; defective mastic; physical damage; severe exposure	Overhaul windows and repair, renew putty and mastic; renew fastening to match originals		
Musty, damp smell especially in enclosed spaces	Woodrot, either dry- or wet-rot; water penetration leading to raised moisture content in timber; lack of ventilation; damp conditions internally; lack of heating	Get report by expert professional; resist proposals to strip all areas merely to get warranty; renew structurally unsound timber; alter internal conditions to reduce moisture levels to below 20% avoid the use of chemicals; introduce ventilation; retain original materials wherever possible		
Mould growth on walls, ceilings or beneath floor coverings	Damp conditions internally, lack of ventilation; lack of heating	Stop any water entry to the building; lift coverings and expose affected areas to air; dry the building and introduce heating and ventilation; avoid the use of chemicals wherever possible		
Splitting or distortion of skirtings, floorboards or window shutters	Possible surface indications of woodrot beneath, due to damp conditions as described above	Investigation by competent professional and proceed as for woodrot above		
Failure of paintwork on windows and outside doors	Blistering of paint-work by age and sunlight; condensation from window glass affecting putty; possible timber decay	Remove old paint finishes, repair windows and doors as required, renew putty glazing; and renew paintwork		
EXTERNAL PAINTWORK	likely cause	suggested repair	date inspected	action date
Split, flaking or dull surfaces on gloss painted windows and doors	Deterioration of old paint systems; damp in underlying timbers; effect of sunlight	Check moisture levels and correct; prepare thoroughly and repaint		
Splitting of wood beneath paint, or spongy feel	Possible woodrot due to failed paint coatings	Test carefully with sharp point; cut back to sound material and piece-in with matching timber		
Rusting, or paint failure on cast iron pipes	Weathering; routine decay of paint coatings; paint failure aggravated by rusting beneath; physical damage	Clean off iron surfaces to bare metal, prime and paint with oil-based paint		
Missing or loose putty on windows and rooflights	Failed paint coatings allow water behind putty; shrinkage with age	Cut out and renew putty; repaint after skin forms		

EXTERNAL ELEMENTS:	likely cause	suggested repair	date inspected	action date
Excessive erosion of stone or brick boundary walls; loose copes	Natural weathering; poor quality stone or brick; water damage to mortar beds	Indent new stone or brick only if erosion is causing structural failure; rebed copes; avoid plastic repairs		
Missing or loose pointing	Aged mortar; stone decay around joints	Selectively repoint with lime and sand mortar		
Rusting of iron railings and dates and poor paintwork	Breakdown of old paint coatings through weathering; lack of regular maintenance	Clean off iron surfaces to bare metal, prime and repaint with oil-based paint		
Surface water not draining from paths; settlement of stone pavings	Pavings laid without falls, or bedding washing-out	Lift pavings, relay sand bed and mortar dabs and re-lay pavings to falls		
Blocked or hidden underfloor ventilations	Raised ground or paving levels around walls	Adjust levels to below wall vents; prevent further obstructions		

Useful Contacts:

Duty Planning Officer,

Planning Service, Midlothian Council.

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Email: dutyplanningofficer@midlothian.gov.uk

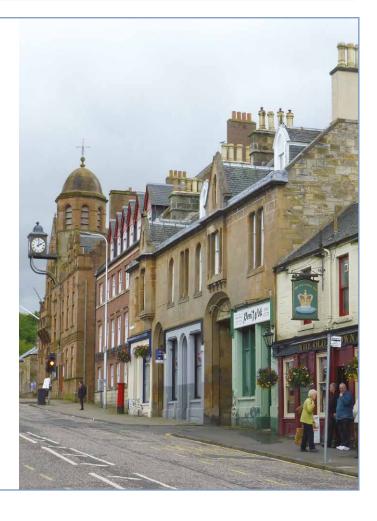
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Handy references:

Historic Environtment Scotland "Inform" series on Historic Building Repair and "Short Guide to Maintaining Your House". Institute of Historic Building Conservation "Stitch in Time" guide on maintenance.











