



## CONDITION 3 DISCHARGE – 2023/0383/LBA



## SCHEDULE OF WORKS

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The Mill Cottages, Mill Lane, Empingham

Client : Mrs M. Griffin

**April 2024 V1.** Project reference ; JDA/2020/400

This document is part and parcel of a Condition Discharge application to Rutland County Council - Condition 3.

### CONDITION THREE

Before the relevant works are carried out, the following details shall be submitted to and approved in writing by, the Local Planning Authority;

1 A full schedule of works, comprising repair works to each room/component covered by this consent.

**Covered by this document and the following drawings and documents – all dated April 2024 ;**

**Repair of Wood Windows and External Door (document) V1**

Drawing No JDA/2024/20.2100.TIMBER/001  
Drawing No JDA/2024/20.2100.NOTES/001  
Drawing No JDA/2024/20.2100.SUR/SECT/001  
Drawing No JDA/2024/20.2100.RESTORATION.001  
Drawing No JDA/2024/20.2100.JOINERY/001  
Drawing No JDA/2024/20.2100.JOINERY/002  
Drawing No JDA/2024/20.2100.ROOFLIGHT/002  
Drawing No JDA/2024/20.2100.SUR/002  
Drawing No JDA/2024/20.2100.SUR/001  
Drawing No JDA/2024/20.2100.DORMER/001

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**2 Method for the installation of the ground floor bearing slab which should include how the building is protected during installation.**

The specification for the new insulated ground floor structures is set out on Drawing No JDA/2024/20.2100.RESTORATION.001. All floor excavation works to be carried out by hand with minimal disruption to the building's fabric. Where disturbance to the building is unavoidable, this will be kept to an absolute minimum.

The excavation of the existing floors in both the main dwelling and the outbuilding is to be a careful 'hand dig' with no vibrating or percussive machinery allowed. Prior to the excavation, hand dug trial holes are required to expose the existing foundation and substructure so that the formation depth of the new floor excavation can be agreed.

#### New Floor to Cottage and Outbuilding

Limecrete 'slabless' system is specified. Following excavation (hand dig only allowed) to formation level, lay 100mm of RFG (Recycled Foam Glass aggregate) on a geotextile membrane on firm subsoil. DPM is not allowable. Install a geotextile membrane below and above the RFG layer. Finish with an 80mm Limecrete (or Secil NHLS 2/1 mix) Screed. Insert cork board perimeter insulation at abutment wall masonry walling.

Prior to the hand dig excavation for the new floor, trial holes are to be dug to expose the existing footings (and fdns) to the external stone walls to ensure that the overall floor excavation does not compromise the substructure.

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#### **3 Method for re-building the chimney.**

Once the scaffolding has been erected, an inspection of the chimneys to the main dwelling and the outbuilding can be undertaken. From original visual inspections, it is likely that some stonework may need to be replaced. The specification for this work is covered on the aforementioned Working Drawings.

##### Stonework repair

Where stone repairs are specified, an assessment will be made on site as to the most appropriate method using the joint experience and expertise of the stone mason and architect.

1. Stone should only be replaced or repaired where identified by the architect and any further stonework thought to require replacement and not shown on the drawings, should be marked up with chalk to allow for further inspection. The contractor must check with the architect if the drawings / instructions are not clear.

2. Stone should only be replaced or repaired where identified by the architect and any further stonework thought to require replacement and not shown on the drawings, should

be marked up with chalk to allow for further inspection. The contractor must check with the architect if the drawings / instructions are not clear.

## **2.0 REPLACING STONE**

The type of stone for use in replacements is to be confirmed by the architect following comparison of samples on site. For this purpose the contractor should provide samples of potentially suitable limestone for comparison and selection on site.

Cut out defective stone completely or to a minimum depth of 100mm (or depth to match width / height if less) , using hand tools and diamond disc cutters to minimise vibration; and taking care to avoid damage to arrises and surfaces of adjacent stonework. Provide support as necessary. Fix new stone as specified, worked and finished to conform with existing detail, bedded with lime mortar. Grout and point up with lime mortar finished to slightly reveal arrises keeping the work clean to prevent staining Replacement stonework shall have a rock-faced surface to match existing stonework. All surface finishing shall be of the same pitch to match existing adjacent stonework. All surface finishing shall be done by hand tools only.

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### **4 Details of the flashing to be used at abutment.**

Code 4 lead flashing specification is noted on the working drawings.

All lead flashings, any valleys or soakers to be Code 5 lead and laid according to Lead Development Association. Flashings to be provided to all jambs and below window openings with welded upstands. Joints to be lapped min 150mm and lead to be dressed 200mm under tiles, etc. All work to be undertaken in accordance with the Lead Development Association recommendations.

Lead sheet in lengths not exceeding 1500mm for flashings where roofs abut the external brickwork are to be provided. Combined step and cover flashing fixed in position with lead wedges min. 25mm horizontal joint. Flashings to be continuous with trays min. 150mm above roof abutment and weepholes every 4th perpend.

Lead-lined valleys to be formed using Code 5 lead sheet. Valley lead and two tiling fillets to be supported on min 19mm thick and 225mm wide marine ply valley boards on either side of the rafters. Lead to be laid in lengths not exceeding 1.5m with min 150mm lap joints and be dressed 200mm under the tiles.

Roofing tiles to be bedded in mortar placed on a tile slip to prevent direct contact. Valley to have a minimum 100mm wide channel (125mm minimum for pitches below 30°).

All work to be in accordance with the roof cladding manufacturers and the Lead Development Association recommendations.

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### **5 Details of the mortar mix for re-pointing and for the construction of the garage block and for the extension and link extension.**

**Mortar for new build walling ;**

**Mortar ;**

Use white OPC and lime by Limbux. unless otherwise specified by structural engineer, use mortar mix of 9 sand : 2 lime : 1 cement.

Sand to BS 1200. do not use admixtures unless approved by S.O. All materials are to be measured by using clean gauge boxes. proportions are for dry sand - allow for bulking if the sand is damp. Do not use after initial set has taken place, do not re-temper.

Adequately protect new walling against snow or rain by suitable covering when precipitation has begun and at completion of days' work. Rake out and replace any mortar damaged by frost.

**Re-pointing specification:**

i Extent of all existing mortar to be removed, to be agreed with CA before proceeding with the work.

ii Depth of raking out in preparation for re-pointing to be at least twice the height of the joint and, in any case, not less than 30mm.

iii Lime-based mortar to be removed by hand or with a churn brush or by scraping (not striking) a chisel across the joint.

iv Cement based mortar to be removed by scraping with a chisel where mortar is loose.

Where mortar is not loose the Contractor is to provisionally allow for executing a sample panel as directed by the architect and removal with a hammer and chisel (in the event stonework may be harmed more by its removal than being caused by the mortar itself, the mortar will be left).

v Do not use mechanical chisels, angle grinders, etc. to remove existing mortar.

vi Remove all loose particles from joints and all organic growth (lichen, moss, etc.) from area of stone immediately adjacent to joint (25mm nom).

vii Thoroughly dampen down masonry with limewater before re-pointing with lime mortar allowing a period for free water to dry out. As necessary, repeat dampening down of unpointed areas as the work proceeds to ensure masonry is damp when repointed.

viii Allow for executing sample panels of pointing to a standard approved by the Supervising Officer prior to commencing the works.

ix Point up raked out joints ensuring that mortar is forced well into joints to fill all voids. Face of mortar to be finished just proud of flush with surrounding stone and filling deeper recesses in face of stones.

x Where joints are large (i.e., deeper or wider than 30mm), it may be necessary to point up in more than one application (to avoid slumping of mortar or excessive shrinkage) allowing each application to dry to a semi-set condition before applying more mortar.

xi Mortar joints to be finished flush with surrounding stone with surface of joint lightly tapped with a brush when mortar is semi-set (i.e., when mortar surface can still be worked with a brush but without leaving brush marks in the surface of the mortar or smearing mortar onto surrounding stone).

**Re-pointing mortar - adopt the following :**

i Mortar mixed using a gauging box, 1 : 2 1/2 - lime : sand.

ii Sand to be 50% Gibbons sharp sand and 50% Gibbons builders' sand, subject to approval of sample panels.

iii Lime to be 1 Chalkhill lime putty.

iv Mortar to be mixed on site, mix up enough lime/sand mortar at start of contract to complete the work. All coarse-stuff mortar (whether mixed on site or supplied to site) to be stored in plastic tubs (or dustbins) or on timber sheeting and protected from the weather and contamination by polythene sheeting/damp Hessian. Coarse-stuff to be re-mixed immediately before use.

v If winter work is carried out it is permissible to use hydraulic lime - avoid this if possible. If required, lime would be hydraulic lime hydrate (NHL 3.5) from Hydraulic Lias Limes Ltd, Melmouth House, Abbey Close, Sherborne, Dorset DT9 3LH (Tel: 01935 817220).

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**6 Samples of the materials to be used for the garage block and for the extension and link corridor.** Clipsham coursed limestone rubble walling is specified. Keep facework clean during construction and until practical completion. ensure that no mortar encroaches on face when laying. turn back scaffold boards at night and during heavy rain.

Rubbing to remove marks or stains is not permitted.

Facework to start nlt 150mm below fgl of paving or soil except where shown. Cut stone only where necessary at jambs, eaves and junctions.

Sample panel of stonework to be built for inspection/approval of planning officer will be provided on site prior to any works above slab level.

The coursed stone rubble walling is to be formed using approved locally quarried Clipsham limestone which is to be carefully graded by the mason into approximately five different bed depths. All bed and perp joints will be close and tightly formed throughout with

simple pointing using a wire brush and rag.

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**7 Section details at a scale of 1:10 for the glazed link.**

Joinery details are shown on Drawing No JDA/2024/20.2100.JOINERY/001

Drawing No JDA/2024/20.2100.JOINERY/002

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**8 Section details for the new dormer windows at a scale 1:10.**

Drawing No JDA/2024/20.2100.DORMER/001 indicates the construction detailing for the new rear facing dormers. Joinery details for the new dormers are show on Drawing No JDA/2024/20.2100.JOINERY/001 and Drawing No JDA/2024/20.2100.JOINERY/002.

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**9 Details of treatment of the interior walls and floor to be installed for the conversion of the outbuilding.**

The existing solid stone walls to the existing outbuilding are circa 400mm thick - inner 'skin of coursed limestone rubble walling (second grade quality), a rubble 'rammel' walling infill of some 125mm thickness with an outer skin of coursed limestone rubble walling of a higher quality than the inner leaf. This type and form of wall construction is 'solid', devoid of a cavity and therefore wholly susceptible to the ingress of moisture. In order to comply with the Building Regulations for the proposed habitable use, the walling needs to be made waterproof. We are proposing to make said walling impervious to the ingress of moisture by applying a waterproofing material to the inner face linked to the DPM in the new insulated floor. Specification as follows;

Newton Waterproofing HydroCoat 107 Elastic 2K Cementious Coating (or equivalent approved).

Prepare the inside face of the masonry for application in accordance with the manufacturer's instructions including re-pointing of all bed and perp joints. Apply a min 2mm coat. Surfaces to be Free from previous coatings and contaminants including dirt, dust, efflorescence, mould, oil, paint and plaster. Cracks, porous patches and other defective areas subject to water pressure and liable to admit water: Control and seal using Newton 313-WP.

Application methods and coating sequence: Apply the first coat of Newton 107F using a brush, making sure it is evenly coated. Second coat should be applied using brush, roller, airless spray or trowel when the first coat is still green / tacky. Once touch dry additional coatings (as required) can be applied. For full installation instructions & coverage rates please refer to Newton Waterproofing Systems Ltd. Datasheet.

The walls are not plumb, therefore the design proposes the formation of a 100mm lightweight thermal block skin to the inside of the existing external stone walling - refer to floor layouts and sections for details.

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**10 Details of protection to all surrounding historic fabric within the building whilst repairs are being carried out, all repair works shall make good existing historic fabric in like for like materials. Except for where renewable fabric has been authorised by this consent.**

Protection of the existing historic fabric has been covered in both this Schedule of Works and the detailed drawings. All works of repair will make good the existing historic fabric using like for like materials. Said materials are to match the existing fabric as specified.

\*All retained/existing reed and plaster ceilings are to be retained and protected during repair/re-instatement works to both floors.

Said materials are to match not only in appearance but also in physical properties so that they age in the same way over time. Materials used for repair are to be sourced and used

**in accordance with the guidelines in the English Heritage publication “Conservation Building Materials’ issue 69 of 2012 and SPAB Technical Advice Notes as follows;**

- **Patching Old Floorboards**
- **Repair of Wood Windows**
- **The Need for Old Buildings to 'Breathe'**
- **Caring for Old Floors**
- **Fireplaces, Flues and Chimneys**
- **Control of Dampness**

**Protection measures to include the following.**

- **Emergency stabilisation** - Localised remedial conservation treatment may be required if the conservator determines that the historic feature is not robust enough to withstand wrapping or boxing in, or the building work itself. Elements that have become entirely detached may be packaged, clearly labelled to identify their exact provenance location and removed temporarily from the site
- **Temporary protection** - Protective materials over and around the historic feature may need to be installed, to reduce the risk of impact, exposure to dust and debris, and liquid damage. Generally, this will involve wrapping or boxing in the feature. The following criteria should be considered when selecting a suitable protective material:
  - Flexibility/rigidity
  - Impact resistance
  - Weight
  - Ease of fixing
  - Transparency
  - Liquid water and water vapour permeability
  - Fire-retardant properties
  - Costs, availability and ease of disposal
  - Sustainability and recyclability

**Controlling access** - External exclusion zones for plant or lorries bringing in materials or scaffolding will prevent them driving into anything important. Rooms not affected by building works should be closed off. Physical barriers should be installed where access through a particular space is necessary

**Taking care with scaffolding** - Putting up and taking down scaffolding should be supervised, by informed site manager and/or the SO (or building owner for smaller scale projects), to ensure that the owner or custodian has oversight. To avoid introducing additional dust and moisture to the site, specifications stipulate that scaffolding poles and boards are clean and dry.

**Containing the works** - Covering scaffolding with sheeting, putting up enclosures to contain supplies, installing deflection boards and using extraction equipment or tools with integral dust bags will help to reduce the spread of harmful materials and dust to some extent. Water arising from plumbing and wet works, such as plastering, should be contained using waterproof screens and sheeting.

**Door-size correx protection boards** to be used to protect all existing doors during renovation works.

Card floor correx protection boards to be used to protect all existing doors during renovation works.

Proguard Window Protection Film to be used to protect all existing doors during renovation works.

The Main Contractor is to take all necessary measures to ensure that the historic fabric (floors, walls, ceilings, internal and external joinery) is protected in accordance with "*Historic England document Temporary Protection of Historic Features During Building Works Published 15 April 2022*".

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#### **11 Details of new ground floor covering to the main cottage.**

##### **As specified in JDA drawings**

New Floor to Cottage and Outbuilding

Limecrete 'slabless' system is specified. Following excavation (hand dig only allowed) to formation level, lay 100mm of RFG (Recycled Foam Glass aggregate) on a geotextile membrane on firm subsoil. DPM is not allowable. Install a geotextile membrane below and above the RFG layer. Finish with an 80mm Limecrete (or Secil NHL5 2/1 mix) Screed. Insert cork board perimeter insulation at abutment with masonry walling.

Prior to the hand dig excavation for the new floor, trial holes are to be dug to expose the existing footings (and fdns) to the external stone walls to ensure that the overall floor excavation does not compromise the substructure.

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#### **12 Details for the repair to the first floor covering and ceilings within the main cottage.**

**As specified in the following drawings ;**

**Drawing No JDA/2024/20.2100.RESTORATION.001**

**Drawing No JDA/2024/20.2100.DORMER/001**

**Drawing No JDA/2024/20.2100.TIMBER/001**

**Drawing No JDA/2024/20.2100.NOTES/001**

**Drawing No JDA/2024/20.2100.SUR/SECT/001**

**\*REFERENCE SHOULD ALSO BE MADE TO APPENDIX A OF THIS DOCUMENT**

The works shall then proceed in complete accordance with the agreed details.

Reason: To ensure the works are appropriate to the historic significance of the listed building and because full details have not been provided with the application.

The property is Grade II listed building. The property comprises the Western of the pair of dwellings - two storey stone cottages - both owned by the applicant.

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**Condition 3**  
**Schedule of Works**  
**General**

- 1.1 Provide and maintain while works are being carried out all boarding, screens and barriers necessary to keep the building secure.
- 1.2 Install temporary propping in accordance with the directions of a structural engineer in order to stabilise stairs, floor joists, and the structure generally. Provide temporary balustrade and handrails where these are missing at staircases. Provide sheeting or boarding wherever floor boarding and stair treads are missing. Cordon off floor areas where joists are missing or unsupportable and display warning signs for duration of works.
- 1.3 Clear out rubbish from internal spaces so that all areas are open to inspection and free from nesting places. Prepare an inventory of all surviving historic features. All loose historic materials shall be retained and stored within a secure area within the building or secure temporary structure.

## 2 ROOF AND RAINWATER GOODS REPAIRS

- 2.1 Overhaul and reinstate salvageable rainwater goods. Reinstall missing or irreparable parts of the system. Clean rainwater goods through to inspection chambers and generally ensure that all rainwater run-off is conducted to drains.
- 2.2 Carefully strip the existing slates and hip/ridge tiles. Set aside all sound items for re-use. Strip off all battens and de-nail rafters. Carry out repairs to timber roof structure in accordance with a structural engineer or SO's survey and recommendations, including renewal of central valley joists, wall plates and ends of joists and rafters.
- 2.3 Fix new treated battens to BS 1318 of same size as the originals, using aluminium nails to BS 1202: Part 1, set out to the same gauge as the original over breathable felt (Tyvek or similar approved) to BS 747, Type IF. Re-roof using all original sound plain tiles with new slates and tiles to match as necessary, fixing with copper nails. Install soakers at hips and re-lay hip/ridge tiles in sand/cement.
- 2.4 Renew all flashing, soakers, fillets, gutter linings and outlets using leadwork installed in accordance with the Lead Development Association booklets Lead Sheet in Building and Lead Sheet Flashings.

## 3 STONEMASONRY, CHIMNEY AND RENDER REPAIRS

- 3.1 Cut back and treat all plant growth in external masonry using a systemic killer; leave to die and then carefully remove. Remove root growth from internal plaster and stonework in similar manner.
- 3.2 Erect boarded scaffolding and carry out repairs to stonework, including where necessary the following:
  - a) install corner ties at junctions of internal and external walls or at corners
  - b) install ties to bond together separated leaves of masonry
  - c) repair chimneys,
- 3.3 Rake out loose or defective mortar joints including chimneys and parapets (do not use hammer and chisel or pick hammer). Re-point using lime mortar and finish to a flush joint.
- 3.4 Replace broken chimney pots to match. Ensure all fireplace flues are clear throughout their height and install rain caps at all disused flues, for ventilation.

## 4 WINDOW AND EXTERNAL REPAIRS

- 4.1 Replace missing and irreparable window frames and sashes with new to match existing.
- 4.2 Overhaul all repairable windows and frames by replacing missing panes and parts; re-puttying and re-pointing externally; lubricating moving parts; refitting missing or defective ironmongery, cords and weights (adjusted as required for balance); preparing priming and redecorating including



undercoat and two top coats to all bare wood, using good-quality gloss paint in accordance with the paint manufacturer's recommendations; easing and adjusting to ensure smooth operation. Isolated areas of decayed wood shall be replaced by piecing in new matching treated timber.

4.3 Redecorate all previously painted external surfaces using good-quality paint in accordance with the paint manufacturer's recommendations, including painted metalwork and rendering.

\*For pointing and detailed repair specification refer to Drawing No JDA/2024/20.2100.RESTORATION.001 and JDA/2024/20.2100.SUR/SECT/001.

## 5 INTERNAL REPAIRS

5.1 Carry out repairs to timber floor structures and window lintels in accordance with a structural engineer or SO's recommendations. Take up and retain for re-use sound floor boarding and skirtings. Where more than 50% of length or depth of timbers are decayed or defective, install new material to BS 4978 GS Grade; otherwise splice new material to existing timbers; new work shall match the original in all other respects. Install suitable ties where recommended to tie timber framing to brickwork walls. Reinstall floor boarding and skirtings including new material where required, to match existing.

5.2 Treat retained structural timbers affected by insect attack and rot, and basement/low level brickwork affected by rising or penetrating damp in accordance with a COSHH assessment and the standards of the British Wood Preservation and Damp Proofing Association.

5.3 Blank

5.4 In accordance with the recommendations of a joinery conservator: compile an inventory of loose or damaged joinery and fittings, including [specify, eg wall panelling, doors, window shutters]; label and store temporarily in a secure area. Repair all damaged or defective items and reinstall loose items and missing parts of these to match original construction and patterns.

5.5 Decorate all internal plaster and woodwork surfaces using good-quality paint in accordance with the paint manufacturer's recommendations.

5.6 Provide ventilation to all internal spaces in accordance with BSCP 5925:1980, while ensuring that pigeons are prevented from entering the building.

\*For internal restoration and repair specification refer to Drawing No JDA/2024/20.2100.SUR/SECT/001

**INFORMATIVE:** All new external and internal works, and works of making good to the existing fabric, should match the existing adjacent work with regard to the methods used and to material, colour, texture and profile, unless specified otherwise in the above schedule, or agreed otherwise in writing by the local planning authority.

### **Electrical Works**

All electrical contractors involved on the project are to be fully briefed on the importance of the listed building.

The following schedule applies throughout the listed building.

(a) All electrical installation works are required to fully comply with the building regulations and will be carried out by suitably qualified (ideally NICEIC registered) contractors in accordance with the latest edition of BS 7671.

(b) Interlinked combined smoke/heat detectors are required as shown on the floor layout plans. The units are to be hard wired back to a separate fused circuit in the distribution board. Interlinked combined smoke detectors and alarms are also required where indicated.

The existing electrical installations have been altered and upgraded several times over the years, resulting in a combination of modern and older wiring and fittings. Any wiring that is outdated, unsafe or inappropriate to the conversion scheme will be removed and replaced.

There is no evidence of any interesting early electrical fittings that would be considered worthy of retention. However, if any are discovered during the works they will be assessed by the contractor and only retained if safe to do so.

Where viable, new electrical wiring and components will be kept out of view in voids to minimise any visual or physical impact on the building. A careful survey will be carried out before the electrical installation works commence to identify these, which may include voids in timber stud partitioning, cavities behind masonry walls, roof spaces above ceilings, voids between floor joists, gaps behind skirting boards and architraves etc.

Where it is not feasible to use voids the potential damage or loss of historic fabric necessary to conceal cabling by chasing or drilling will be weighed against the negative visual effect that surface-mounting would have on the architectural integrity of the building. There are instances where internal partitions and surface finishes are relatively modern and concealment of wiring etc. can occur in these elements without impacting on historic fabric.

However, any works that effect original walls, ceilings or floors will be carefully made good in matching materials such as lime plaster. These works will not be carried out by the electrical contractor – the lifting of any original floorboards is to be carried out carefully by a carpenter/joiner and any making good of original lathe and plaster etc. is to be carried out by an appropriately skilled plasterer. Previously made holes, notches and cable routes will be re-used where possible and consideration will be given to providing screw-fixed access covers to otherwise inaccessible voids to assist future access.

Any important interior features, such as decorative skirting boards, architraves, window surrounds and other mouldings are to remain completely undisturbed by any new electrical installations. Large or inappropriate electrical fixings are to be avoided throughout. Where possible miniature light switches and low-profile sockets etc. are to be used instead. The number of fittings will be kept to the minimum amount required to use each room effectively.

## **Plumbing**

All plumbing contractors involved on the project are to be fully briefed on the importance of the listed building.

The existing plumbing system appears to have been altered to suit various uses over the years and is generally modern. There is no evidence of any internal plumbing or sanitary fittings that would be considered worthy of retention. However, if any are discovered during the works they will be assessed by the contractor and re-used if appropriate.

### **(a) Sanitary plumbing**

All new waste pipework from basins, baths, showers, toilets and kitchen sinks will be in fully supported PCV and will either run through voids in walls/floors or be boxed in internally using timber framework and plasterboard/skim ready to receive a matt emulsion or ceramic finish as appropriate. Screw-fixed access covers will be formed in boxing (where appropriate) to ensure that all traps are accessible for cleaning.

### **(b) Hot & cold-water supplies.**

Existing redundant boilers, radiators & other related heating equipment are to be removed. Provision is to be made for the separate supply of wholesome cold water into each residential/commercial unit with supplies running to the kitchen sink and the sanitary fittings in the bathrooms/WCs. Hot water in each flat will be taken directly from an electric water heater to the kitchen sink and all sanitary devices in the bathroom. The new supply is to be sized to ensure suitable mains pressure is delivered to all outlet points allowing for peak time use for all units.

As with the electrical services (see (5) above), all new pipe runs will be kept out of view in voids to minimise any visual or physical impact on the building. A careful survey will be carried out before the plumbing works commence to identify these, which may include service voids in the timber stud partitioning and insulated linings, cavities behind masonry walls, roof spaces above ceilings, voids between floor joists, within kitchen and bathroom cabinets etc.

Where it is not feasible to use voids the potential damage or loss of historic fabric necessary to conceal pipe runs by chasing or drilling will be weighed against the negative visual effect that

surface-mounting would have on the architectural integrity of the building. There are instances where internal partitions and surface finishes are relatively modern and concealment of pipe work etc. can occur in these elements without impacting on historic fabric. However, any works that effect original walls, ceilings or floors will be carefully made good in matching materials such as lime plaster. These works will not be carried out by the plumber – the lifting of any original floorboards is to be carried out carefully by a carpenter/joiner and any making good of original lathe and plaster etc. is to be carried out by a skilled plasterer. Previously made holes, notches and pipe runs will be re-used where possible and consideration will be given to providing screw-fixed access covers to otherwise inaccessible voids to assist future access.

**Works to specific elements ;**

	<b>Element</b>	<b>Summary of Work</b>	<b>Design Justification</b>	<b>Method Statement</b>
<b>1.1</b>	<b>Walls</b>			
		Repairs to existing plaster	General repair to maintain integrity of existing building fabric and ensure continuity of use.	Wherever practical existing plaster of historical significance is to be retained and repaired as necessary. Where plaster is de-bonded /damaged to such an extent that retention is impractical; such plaster is to be carefully removed to minimise the risk of damage to adjacent sound plaster. Areas are to be made good with lime based 'horsehair' plaster with final coat to the same overall thickness as the existing plaster. final coat to be carefully feathered into existing finish to maintain smooth finish.
1.2		Repair and renovation of existing skirtings	General repair to maintain integrity of existing building fabric and ensure continuity of use.	General repair to maintain integrity of existing building fabric and ensure continuity of use.
1.3		Restoration/repair of picture rails, architraves, door linings and similar timber mouldings – where shown	General repair to maintain integrity of existing building fabric and ensure continuity of use.	Historic timber mouldings are to be rubbed down to remove excessive overpainting; chips and dents are to be filled with flexible timber filler. All bare wood is to be primed and painted with 2 coats satinwood paint. Where necessary any historic mouldings that are extensively damaged are to be replaced with modern facsimiles to match in every detail the existing moulding being replaced.
1.4		Alteration/removal of picture rails, architraves, door linings and similar timber mouldings – where shown	Specific and limited alteration/removal of existing mouldings / linings as part of development; refer to floor plans for specific justification	Where necessary any mouldings are to be carefully removed to minimize damage/disturbance to existing adjacent finishes.

1.5		Formation of new openings in existing walls – where shown	Alterations undertaken as part of development to improve public areas; refer to floor plans for specific justification.	Wherever practical all demolished / removed materials and features; unless otherwise reused elsewhere on site are to be offered for architectural salvage. Existing plaster is to be carefully scribed to the size of opening required and subsequently carefully removed to minimize damage to adjacent and retained finishes; and expose existing masonry walls. Existing masonry is to be carefully removed to minimize impact on adjacent retained areas.
<b>2.0</b>	<b>Floors</b>			
2.1		Removal of existing finishes	Removal of existing finishes generally to enable new finishes to be installed	Any finishes: carpet, lino, vinyl and ceramic tile etc. are to be carefully removed including gripper rods etc. to minimise potential of damage to any historic features or to the existing fabric.
2.2		Repairs to existing floorboards – where shown		Screw down any bouncing floor boards, to allow new floor to be laid. Replace rotten, damaged floorboard with suitably sourced board from architectural salvage yard.
2.3		Installation of new floor finishes – where shown	New finishes installed	Existing finishes are to be removed as 2.1 above. Floors are to be overlaid with isolating membrane to maintain integrity of existing surface and WBP plywood substrate to receive new finishes as specified. Plywood to be mechanically fixed to existing timber floor with minimal fixings. New finishes to abut existing /new skirtings with compressible cork joint or similar to maintain integrity of skirtings
<b>3.0</b>	<b>Doors</b>			
3.1		Removal of doors – where shown	Ex internal doors are incapable of re-use	Existing doors are to be carefully removed for disposal off site.
3.2		Installation of new doors – where shown	New doors installed as part of development to replace existing doors containing asbestos and new entrance doors;	New doors to be installed into existing openings / openings formed / modified New architraves and linings to be

			refer to individual rooms for specific justification.	installed as necessary as 1.3 above.
<b>4.0</b>	<b>Ceilings</b>			
4.1		Repairs to and renovation of existing lath and plaster ceilings.	Areas in need of repair. Last known partial renovation late 20 <sup>th</sup> C	Plaster to small areas of de-bonded ceiling will be carefully repaired to ensure the integrity of the existing lathe plaster is maintained and minimise any damage to adjoining areas. Where existing ceilings have completely failed and are beyond reasonable repair, new reed and plaster ceilings are to be formed. If necessary, joists are to be checked for any signs of rot or damage while ceilings are removed and repaired as necessary. Ceilings will be repainted with emulsion paint.
<b>5.0</b>	<b>Fittings and Furniture</b>			
5.1		Removal/relocation of existing fixtures e.g. main bars – where shown	Removal of existing fixtures as part of general redevelopment.	Existing fixtures are to be carefully removed to minimise damage to existing retained structures and features. Existing services are to be capped off / removed as necessary. Any historic features are to be offered for salvage.
5.2		Installation of new permanent fixtures e.g. Bar – where shown	Installation of new fixtures as part of general redevelopment.	Existing surfaces are to be made good as 1.1, 2.2 above as appropriate. New fixtures to be installed using minimum mechanical fixings to ensure integrity of existing surfaces.
<b>6.0</b>	<b>Provision of Services</b>			
6.1		Removal of redundant services.	Removal of existing redundant pipes, cables & ducts as part of refurbishment.	Existing redundant services are to be carefully removed to minimise damage to existing retained structures and features. Existing services are to be capped off / removed as necessary.
6.2		Installation of plumbing.	Installation of new services.	Existing hot & cold pipework system is to be generally retained as-is for heating and water supply.

				In all cases, the M&E contractor is to make full use of existing conduits, chases, pipe and cable runs to minimise any impact on the historic fabric
6.3		Installation of electrics.	Installation of new services as part of general upgrade.	New cables will be pulled through existing routes and run within voids already in place. Where necessary, exposed surface mounted conduit will be applied with minimal fixing to avoid chasing / cutting into historic fabric.  In all cases, the M&E contractor is to make full use of existing conduits, chases, pipe and cable runs to minimise any impact on the historic fabric
6.4		Installation of drainage.	Installation of new services as part of general upgrade.	New drainage for bedrooms en-suites will be routed through existing routes or new construction and connected to existing underground drainage. No new excavations will be carried out. Drainage to be installed in a way so that the property can be reinstated back to original condition.

**APPENDIX A. Detailed Specifications of Work Where Applicable :**

**7.1.0 Timber Laths or Reeds and Lime Plaster**

Timber laths or reeds for use with lime plaster are to be sawn softwood laths to match the existing spaced at 10mm apart to allow for the key of the lime plaster. Lightly spray the laths with water 30 minutes before applying the first coat of lime plaster but ensure that all moisture has been absorbed before plastering. Plaster to be a 3 coat lime plaster consisting of a 9mm 1:3 lime putty: sand render coat reinforced with synthetic alkali resistant fibres well beaten in – do not over trowel this coat; a 8mm 1:3 lime putty: sand floating coat as above and a 3mm 3:2 lime putty: very fine sand ‘un-haired’ setting coat to finish flush with the existing plaster line. Lightly scratch the first coat and floating coat with a lath or comb scratcher and leave to dry and cure until green hard.

**\*Refer to Page 32 for further details on plastering.**

**7.2.0 Internal masonry repairs**

Where brickwork has been chased to receive services and the bricks have been damaged, the brickwork is to be repaired as follows:

a. Surface chases where the brick face has been evenly taken back 10-15mm without excessive damage are to be retained and dubbed out with a 1:3 lime putty: sand render lightly scratched to receive the 3 coat lime plaster specified elsewhere.

This is to prevent further loss of historic fabric that will result if bricks or stone are cut out and replaced completely. However if excessive damage has been caused to masonry in isolated areas and the structural integrity is impaired then the following course of action is required.

b. Damaged stonework that are cracked or shattered and their structural integrity is impaired are to be carefully cut out using hand tools to cut through the lime mortar joints and the damaged masonry replaced with a sound reclaimed brick of size, colour and porosity to match that of the existing brick or stone removed. New masonry are to be bonded with the existing and bedded and pointed with a 1:3 lime/well graded clean sharp sand graded from 2.36mm to fines.

### 7.2.1 Fungus and Beetle Eradication

Following stripping out works, should fungal and beetle attack of existing timbers previously hidden from view to suspected this is to be reported to the architect, and subject to agreement, a survey and report should be commissioned from a suitable qualified building conservation scientist, such as Floyd Consult (tel: 01562 885806, [www.floydconsult.co.uk](http://www.floydconsult.co.uk)), to establish and report on the nature and extent of fungal / beetle attack, and to ascertain the sources and extent of any dampness.

Based on the findings of the survey and report, submit proposals to the architect, which should be the minimum required to rectify and issues found, taking into account the Grade II Listed status of the building. Retained elements of building fabric should not be damaged and remain stable at all times. The building fabric is to be allowed to dry out if required. Other building components within the areas to be treated are to be protected to prevent staining and other adverse effects. Do not disturb fruiting bodies. If heat treatment is not employed, spray with fungicide.

Removal of dry rot should be agreed with the architect. When agreed, remove carefully and clean surfaces. If infected areas are removed, these are to be disposed of safely at an approved waste disposal centre. If infected areas are to be retained, further instructions are to be obtained from the architect.

Decayed timber subject to wet rot is to be cut out until sound timber is reached and disposed of at an approved waste disposal centre. If decayed timber is to be retained, further instructions are to be obtained from the architect.

Timber infected with beetle infestation is to be cut, scraped, and trimmed back to sound timber, where heat treatment is not employed.

Treatments are to have an insurance-backed guarantee, administered by an independent insurance protection company. The guarantee period is to be a minimum of 20 years from the completion of installation, with certificates and guarantees provided upon completion.

### 7.2.3. Windows

All of the existing mullion/casement windows identified on the plans to be restored as per "REPAIR OF WOOD WINDOWS AND EXTERNAL DOOR" document.

General repairs - Overhaul all repairable windows and frames by replacing missing panes and parts; re-puttying and re-pointing externally; lubricating moving parts; refitting missing or defective ironmongery, preparing priming and redecorating including undercoat and two top coats to all bare wood, using good-quality gloss paint in accordance with the paint manufacturer's recommendations; easing and adjusting to ensure smooth operation. Isolated areas of decayed wood shall be replaced by piecing in new matching treated timber.

Redecorate all previously painted external surfaces using good-quality paint in accordance with the paint manufacturer's recommendations, including painted metalwork and rendering.



#### 7.2.4 Roof and Rainwater Goods Repair

Overhaul and reinstate salvageable cast iron rainwater goods. Reinstall missing or irreparable parts of the system. Clean rainwater goods through to inspection chambers and generally ensure that all rainwater run-off is conducted to drains.

Carefully strip the existing slates and hip/ridge plain tiles as necessary for repairs not requiring specific LB consent. Set aside all sound items for re-use.

Strip off all battens and de-nail rafters. Carry out repairs to timber roof structure in accordance with a structural engineer's survey and recommendations (as may be required), including renewal of central valley joists, wall plates and ends of joists and rafters.

Fix new treated battens to BS 1318 of same size as the originals, using aluminium nails to BS 1202: Part 1, set out to the same gauge as the original over reinforced sarking felt to BS 747, Type IF. Re-roof using all original sound Plain tiles, fixing with copper nails. Install soakers at hips and re-lay hip/ridge tiles in sand/cement.

Renew all flashing, soakers, fillets, gutter linings and outlets using leadwork installed in accordance with the Lead Development Association Booklets Lead Sheet in Building and Lead Sheet Flashings.

#### 7.2.5 Brickwork, Stonework, Chimney and Render repairs

Cut back and treat all plant growth in external brickwork using a systemic killer; leave to die and then carefully remove. Remove root growth from internal plaster and masonry in similar manner.

Erect boarded scaffolding and carry out repairs to brickwork in accordance with a structural engineer's recommendations, including where necessary the following:

a) repair parapets and chimneys, re-lay parapet copings on damp proof course and point all joints in copings where identified on plans.

Rake out loose or defective mortar joints to stonework including chimneys and parapets (do not use hammer and chisel or pick hammer). Re-point using lime mortar and finish to a flush joint.

Replace broken chimney pots to match. Ensure all fireplace flues are clear throughout their height and install rain caps at all disused flues.

Repair external rendering in a colour, texture and composition to match the existing; renew existing rendered finish wherever this is cracked or has lost its bond.

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### 8.0 Internal Repairs

8.1.1 Carry out repairs to timber floor structures and window lintels (if and where shown) in accordance with the structural engineer's recommendations if required. Take up and retain for re-use sound floor boarding and skirtings. Where more than 50% of length or depth of timbers are decayed or defective, install new material to BS 4978 GS Grade; otherwise splice new material to existing timbers; new work shall match the original in all other respects. Install suitable ties where recommended to tie timber framing to brickwork walls. Reinstall floor boarding and skirtings including new material where required, to match existing.

8.1.2 Treat retained structural timbers affected by insect attack and rot, and any low level masonry affected by rising or penetrating damp in accordance with a COSHH assessment and the standards of the British Wood Preservation and Damp Proofing Association.

8.1.3 Repair and reinstall internal plasterwork which has been lost or damaged at walls and ceilings. Take moulds of existing cornices and reinstall where necessary to match existing. Repairs to mouldings and decorative work shall be carried out with the use of running moulds and squeezes in accordance with *Decorative Plasterwork: Its Repair and Restoration* by Don Stagg and Ron Masters (Attic Books, 1986).

8.1.4 Decorate all internal plaster and woodwork surfaces using good-quality paint in accordance with the paint manufacturer's recommendations.



INFORMATIVE: All new external and internal works, and works of making good to the existing fabric, should match the existing adjacent work with regard to the methods used and to material, colour, texture and profile, unless specified otherwise in the above schedule, or agreed otherwise in writing by the local planning authority.

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## **9.0 Stonework repair**

### **1.0 GENERAL**

Where stone repairs are specified, an assessment will be made on site as to the most appropriate method using the joint experience and expertise of the stone mason and architect.

1. Stone should only be replaced or repaired where identified by the architect and any further stonework thought to require replacement and not shown on the drawings, should be marked up with chalk to allow for further inspection. The contractor must check with the architect if the drawings / instructions are not clear.

2. Stone should only be replaced or repaired where identified by the architect and any further stonework thought to require replacement and not shown on the drawings, should be marked up with chalk to allow for further inspection. The contractor must check with the architect if the drawings / instructions are not clear.

### **2.0 REPLACING STONE**

The type of stone for use in replacements is to be confirmed by the architect following comparison of samples on site. For this purpose, the contractor should provide samples of potentially suitable limestone for comparison and selection on site.

Cut out defective stone completely or to a minimum depth of 100mm (or depth to match width / height if less) , using hand tools and diamond disc cutters to minimise vibration; and taking care to avoid damage to arrises and surfaces of adjacent stonework

Provide support as necessary.

Fix new stone as specified, worked and finished to conform with existing detail, bedded with lime mortar

Grout and point up with lime mortar finished to slightly reveal arrises keeping the work clean to prevent staining Replacement stonework shall have a rock-faced surface to match existing stonework. All surface finishing shall be of the same pitch to match existing adjacent stonework. All surface finishing shall be done by hand tools only.

### **3.0 INDENTED REPAIR**

Carefully cut out defective area of stone to minimum depth of 100mm (or depth to match width / height if less), to vertical and horizontal joints, square to the face and with sharp arrises. Use light hand tools or, with prior approval, disc cutters to minimise vibration.

Cut new stone sawn square to provide joint width no greater than 2mm, worked and finished to conform with existing detail.

Replacement stonework shall have a rock-faced surface to match existing stonework. All tooling shall run in the same direction and be of the same pitch to match existing adjacent stonework. All rustication shall be done by hand tools only.

Fix stone into position with minimum 5mm diameter stainless steel threaded pins secured in annulus of polyester or epoxy resin. Avoid getting resin on adjacent stone faces.

Point up with lime mortar finished flush with the face. Mortar colour to match stone as closely as possible.

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#### **4.0 LIME MORTAR REPAIRS**

Prepare samples of mortar to match the various conditions of weathering and various stone core colours on a piece of stone or tile to be judged on its wet and dry appearance. If using proprietary mix, please follow manufacturer's instructions.

- Cut out the decayed areas (or previous poor mortar repairs) undercutting the edges to provide key
- Wash out the cavity.
- Saturate the cavity with lime rich water from the top of the coarse stuff curing bin to prevent dewatering of the repair mortar.
- Pre-wet the stone using industrial methylated spirits to enhance capillary attraction.
- Place the repair mortar compacting in layers not exceeding 10mm in thickness in any one application and having no feather edges.
- Allow each layer to dry out before rewetting and placing the next
- For cavities exceeding 12mm in depth and extending over 50mm square surface area, drill holes to take non-ferrous or stainless-steel reinforcement and set in epoxy mortar, allowing cover for reinforcement.
- Finish repair to the required profile using a wood or felt-covered float, or with a damp sponge or coarse cloth.
- Follow joints or surface finishing in the original work, forming joints for later pointing if appropriate.
- Protect repairs against frost, rain and direct sunlight for 1 month after completion and keep it moist with dampened hessian for a fortnight to ensure slow drying.

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#### **5.0 PREPARING BEDS AND BACKINGS**

Remove soft mortar by brushing, vacuuming or raking with chisel in preference to cutting with hammer and chisel.

Cut out defective stones or parts of stones until structurally sound material is reached. Leave cavities cut square and take care not to damage adjacent stones or surfaces to be retained.

Remove or cut out fully all stones, or parts of stones, to be replaced with new, prior to cutting and dressing replacement stone, to ensure that new stone exactly matches the void into which it is to be set.

Remove all unwanted remaining bedding and backing material, fixings and similar items from voids left where defective stones have been cut out and/or where stones are missing. Rake and clean out cavities to provide sound, hard surfaces for replacement stones/tiles. Remove dust throughout with a vacuum cleaner.

Treat voids with biocide if instructed.

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#### **6.0 REPAIRS TO EXISTING STONEMASONRY**

Take great care when reconstructing stonemasonry to save as much as possible of the original fabric and to retain the character of the masonry. In particular, strictly maintain the existing pattern of jointing.

Take extreme care not to disturb, move or damage any masonry however humble, unless instructed otherwise.

Where stones are to be removed keep area of removal to minimum. Remove stones in their entirety, irrespective of size, unless instructed otherwise.

Set stones for re-use aside with care and mark them as necessary on unexposed faces to ensure their replacement on their proper beds and in their proper locations.

Use manual tools only. Power tools will not be permitted.

Notify the Architect of any signs of structural movement found within the walls when stones have been cut out.

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### **7.0 CUTTING OUT FOR PIECING IN**

Where possible ascertain depth of the stone to be repaired. If practical remove stone to a depth of 100mm.

If the stone is less thick than 50 mm or the material that would be left would be unstable, seek instruction.

Cut out defective section to a square or rectangular profile.

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### **8.0 BASIC WORKMANSHIP**

Comply with the clauses of the following that are relevant to this section, unless otherwise specified or shown on drawings:

BS EN 1996, parts 1-3; 2005 and 2006, and PD 6697:2010.

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### **9.0 MASONRY ADHESIVES**

For fixing small sections of stone in 'dentistry' repairs use 'Akemi' resin/epoxy-based adhesive from Ebor Equipment Limited, Trans-Pennine Trading Estate, Gorrells Way, Rochdale, Lancashire OL11 2PX. Tel. 01706 869691, or other approved.

For piecing-in larger stones use Certite from SBD Ltd. Dickens House, Enterprise Way, Flitwick, Bedford MK45 5BY, Tel. 01525 722 100, or other approved, in conjunction with metal fixings where specified.

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### **10.0 METAL DOWELS, FIXINGS AND WALL TIES**

Copper or stainless steel as defined in Table 1 of BS 5390.

### **11.0 LAYING AND JOINTING**

Start stonework not less than 150mm below finished level of external paving or soil, except where shown otherwise.

Keep stonework clean during construction and until Practical Completion. Ensure that no mortar encroaches on face when laying. Turn back scaffolding boards at night and during heavy rain. Rubbing to remove marks or stains will not be permitted.

Set mechanical fixings in mortar

Dampen stones and well wet existing stonework and lay stones on a full even bed of mortar with all joints filled.

Maintain joint lines as existing, unless otherwise instructed.

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### **12.0 MECHANICAL FIXINGS**

Bed cramps, dowels and other fixings in 1:3 NHL 3.5 hydraulic lime: sand mortar.

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### **13.0 PINNING ERODED LOOSENED STONES FOR STABILITY**

Carefully drill through face at approximately 300mm to horizontal, to diameter instructed, ensuring drilling

has penetrated background, solid stone or stable core to minimum depth of 100mm.  
Remove debris from hole by blowing out with tubing and flush out hole with clean water from a syringe.  
Attach tubing to syringe and fill with resin prior to filling hole.  
Cut to length threaded austenitic stainless steel rod. Allow 6mm cover to face for small diameter rod, 12mm for large rod.  
Fill hole with resin to correct depth to avoid overfilling: e.g. 6mm diameter hole to take 3mm diameter rod hole to be resin filled to two thirds depth.  
Place protective plastic film and modelling clay plug below hole.  
Carefully insert dowel into resin filled hole by gently turning and pushing.  
Allow resin to cure to Manufacturer's recommended timings.  
Following curing, point hole in matching mortar.

#### **14.0 STITCHING ACROSS MAJOR CRACKS**

Where instructed and as directed specifically by the CO. All be carried out with utmost care:  
Remove stones as instructed for a distance of a minimum of 900 mm across the crack. Clean stones, mark and set aside for possible re-use.  
Do not adjust adjacent sound stonework to accommodate new stone unless instructed to do so.  
Using removed stone or matching stone salvaged from elsewhere, fill each pocket with pieces of stone at least 200 mm long.  
Ensure vertical joints are between 15 mm and 25 mm wide and that the crack line is covered by a stones placed centrally across it.

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#### **15.0 RE-SETTING LOOSENED OR DROPPED STONES TO ARCHES**

Cut out and remove as much as possible of the mortar joint at the head of the stone. Gently but firmly push stone upwards and remove as much as possible of the mortar to the two side joints.  
Allow stone to drop a little and pack head joint with 1:3 NHL 3.5 hydraulic lime: mortar: sand mix, pushing as much mortar as possible to the back face of the stone.  
Lift stone so that its underside is flush with the arch soffit and tamp it to consolidate mortar and push mortar forward. Ensure finished joints are fully filled.  
(Simultaneously with the above): while lifting the stone, pack the side joints with 1:3 NHL 3.5 hydraulic lime: sand mortar mix.  
Firmly pack the side joints with slate set at least 12mm behind the finished mortar face. Finish all visible joints.

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#### **16.0 PREPARATION FOR MORTAR REPAIRS**

Cut back damaged stone to firm base and minimum depth of 25mm, in ashlar preferably in regular shape parallel to original coursing.  
Undercut head and sides of small areas to provide key.  
Reinforce where necessary with 3mm diameter austenitic stainless steel or non-ferrous wire, resin anchored.

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#### **17.0 APPLYING MORTAR**

Brush out or vacuum clean cavity to remove all dust and either wet to reduce suction or prime with bonding agent.  
Press mortar firmly into cavity and around reinforcement and finish surface slightly rougher than surrounding stone with a wood float.  
Apply the mix in two coats scratching the first to receive the second.  
Where tile reinforcements are to be used, leave them projecting 5mm to key the final coat. Roughen surface after initial set with bristle brush or scrim to remove laitance.

Do not form feather edges.

Keep plastic repairs moist for three to four days after completion.

Repair each stone individually.

Do not take plastic repair or reinforcement across joint. Point joint after plastic repairs have set as later separate operation.

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### **18.0 GROUTING PROCESS**

Do not use grouting as a substitute for any necessary making good of the wall core.

Do not carry out any grouting until the making good of masonry to the outer surface of the areas is complete, and until the approval of the CO has been obtained.

All grouting is to take place in the presence of the CO.

Hand grouting may be used for small isolated voids and for fine cracks or fissures using a syringe, in association with tamping and pointing.

Grouting should generally be undertaken by gravity feed, using a watering can and funnels. Grouting may only be undertaken with a hand pump after receipt of the CO's written approval.

Mechanical pump grouting will not be permitted.

When grouting by gravity using funnels, ensure that each area of wall receives suitable and sufficient quantities of grout and that no cavities are left.

If grouting is undertaken using a hand pump with hose and nozzles, a fully working pressure gauge must be located on the pump at all times. Great care is to be taken to ensure that no masonry is disturbed or caused to bulge during grouting. Grout must never be pumped at a pressure exceeding 20 lbs per square inch (140 kPa).

If masonry is disturbed in any way during grouting, the operation is to cease immediately.

If the CO is not present, he is to be informed of the situation at once and asked for further instructions.

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### **19.0 PREPARATION OF FINE JOINTS IN DRESSED STONES**

Gently work a fine hacksaw blade along joints and remove loose material to a minimum depth of 13mm.

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### **20.0 REPOINTING PROCESS**

Begin from top of wall. Immediately before re-pointing flush out joints with water to remove all dust and to control suction. Wet surface until it remains wet.

While damp fill joint with specified mortar.

Thoroughly compact mortar to fill all voids and to ensure it adheres firmly to each side of joint. Iron mortar in with appropriate pointing tool (not trowel) of width to suit joint width, keeping finished mortar face back from damaged and weathered arrises and to width of original joint.

Allow sufficient time for the re-pointing to be done without hurry.

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### **21.0 Restoration of Cast Iron Rainwater Goods**

#### **STANDARDS**

BS 7079: 2009 - General introduction to standards for preparation of steel substrates before application of paints and related products.

BS EN ISO 8501: 2000 - Preparation of steel substrates before application of paints and related products. Visual assessment of surface cleanliness.

- Part 1: 2001 - Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings.
- Part 2: 2001 - Preparation grades of previously coated steel substrates after localized removal of previous coatings
- Part 3: 2007 Preparation grades of welds, edges and other areas with surface imperfections.

BS EN ISO 8502: 2000 - Preparation of steel substrates before application of paints and related products.

## HEALTH & SAFETY ISSUES

Painters working with existing lead-based painted components are required to dispose of wastes in accordance with the Environmental Protection (Duty of Care) Regulations 1992. Check with the local Environmental Health Officer or Waste Regulatory Authority for any special disposal provisions that may pertain locally.

- Take precautionary measures to protect employees, the general public, and the environment.

The immediate hazards are skin contact and inhaling airborne dust. Workers will require protective equipment to avoid inhalation, ingestion or contact; wet cleaning methods will keep dust to a minimum; (all operatives working on site will have to undergo lead testing, before during and after completion). The slurry and other waste from treatments such as cleaning must be properly handled, and disposed of according to the local requirements.

## COLD REPAIRS OF CAST-IRON

The ironwork should be taken apart in reverse order to the way it was originally assembled.

Wherever possible, plates, pins and studs should be contained within or behind components, to make them as invisible as possible

" Repairs should be weaker than the original material, so that the repairs fail first if the metalwork comes under stress

" Steel is much stronger than cast iron or wrought iron, so thinner sections can be used, whilst still providing the same strength

" Holes drilled into an original component weaken it, so they should be kept as small and few as possible, and staggered to minimise development of lines of weakness

" A repair can fail through fastenings that are over-sized or near an edge tearing out of the side of a component

" Countersunk bolts can be used to minimise visual intrusion on a flat face

" Bolts and pins can be assembled with wet paint to help exclude water from threads.

## WELDING

Tungsten inert gas welding is allowed

## RIVETING

If the rivet-heads have corroded and the rivets must be removed, this must be done carefully to avoid damaging the plates and the holes. The heads should first be ground away, and then the shanks drilled out;

the remaining material can then be punched out. If necessary, rivets can be made flush with the surface by counter-sinking.

## BRAZING

Brazing is allowed. The surfaces to be joined are cleaned, fluxed, and flame heated to around 600°C, and the filler is melted at the joint.

## SOLDERING

Soldering is allowed. The surfaces to be soldered together are cleaned and protected with a liquid or paste flux, and then heated by a flame or an electric soldering iron.

## STUDDING

Studding is allowed. Broken rod-shaped components can be repaired by drilling and tapping both parts and screwing together onto a threaded bar (studding), beaded on a two-pack epoxy putty. If components cannot be rotated, the studding can be screwed into one-part and secured by epoxy putty into the other. If the component is wide enough a stud and dowel repair can be executed.

## SITE & OFFSITE PREPARATION AND PAINTING

Working area: Covered and properly lit, heated and ventilated.

Sequence of working:

Blast clean, fabricate, remove flash rust with a light overall sweep blast, prime.

## FILLING

Any small surface defect - such as a pinhole, a cavity or a crater - is a potential water trap. It is rarely possible to fill such defects with welding filler-rod or bronze, so they should be filled

after the second coat of paint has been applied with a material compatible with the coating; a common choice is the sandable two-pack polyester compound used for car body fillers. To avoid masking the surface detail and texture, the least possible amount of filler material should be used, and when dry it must be rubbed down to blend with the surrounding metal.

## MANUAL CLEANING OF NEW METALWORK

- Preparation: Remove fins, burrs, sharp edges, weld spatter, loose rust and loose scale.
- Surface finish: Clean but unpolished to BS EN ISO 8501-1, grade St 2ó.
- Finishing: Thoroughly degrease and clean down. Remove any consequent rusting back to grade St 2ó. Prime without delay.

## COATINGS - ALL BLACK FOR THE HAYCOCK RESTORATION

- Surfaces to be coated: Clean, dust free and suitably dry. Previous coats to be adequately cured.
- Multiple coats of same material: Use different tints to assist checking of complete coverage.
- Penultimate coat: Colour recommended by paint manufacturer to suit top coat colour.
- Finish required: Smooth and even, of uniform thickness and colour, free from defects.

## PAINT MANUFACTURERS

[www.tikkurila.com](http://www.tikkurila.com)

[www.protegacoatings.com](http://www.protegacoatings.com)

## GAP CLOSURE SEALANTS

Manufacturer: Adsheed Ratcliffe & Co Ltd.

Web: [www.arbo.co.uk](http://www.arbo.co.uk).

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### **22.00 Helicoil Installation Method Statement - \*if specified on the Working Drawings**

1. using an appropriate power cutting tool with vacuum attachment, cut slots into the horizontal mortar joints, to the specified depth and at the required vertical spacing - ensure that as much mortar is removed as possible from the exposed stone surfaces in order to provide a good masonry/grout bond.

2. Clean out all dust and loose mortar from the slots and thoroughly flush with water. Where the substrate is very porous or flushing with water is inappropriate, use HeliPrimer Wb. ensure the slot is damp or primed

3. Cut the Helibar to the required length and bend to fit slots.

4. Mix Helibond cementitious grout thoroughly using a drill and mixing paddle and load into the Helifix Pointing Gun.

5. Fit the mortar nozzle to the gun.

6. Inject a bead of Helibond grout, 10-15mm deep, into the back of the slot.

7. Push the Helibar into the grout to obtain good coverage.

8. Inject a second bead of Helibond grout over the exposed Helibar and iron it into the slot using a finger trowel - inject additional Helibond as necessary, leaving 10-15mm for new pointing.

9. Point up the remaining slot with a suitable matching mortar - the crack/gap within the wall should be waterproofed using an appropriate Helifix bonding agent or filler, e.g. Helibond or Crackbond, depending on the width of the crack and the surface made good or left ready for pointing.

10. Clean tools with clean, fresh water.

Note. Pointing may be carried out as soon as is convenient after the Helibond has started to gel. ensure that pointing does not disturb the masonry/Helibond connection.

Caution. Always locate, identify, and isolate any electrical, water or gas services which may be present in the wall or the wall cavities and can pose a safety risk before drilling or cutting. Always take the necessary safety precautions. use electrical safety gloves and wear appropriate footwear and eyewear.

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## 23.00 RESTORATION OF EXISTING FLOORBOARDING



### LIFTING FLOORBOARDS

The necessary tools are likely to include: a wide-bladed bolster (preferably two of these); wooden blocks of various thicknesses; a flat hardened steel plate; a hammer; a 13 mm ( $\frac{1}{2}$ " ) batten about 200 mm (8") longer than the width of the board; nail punches; a hacksaw; and a crowbar.

- 1 Using a block of wood (or the steel plate) to protect the edge of the adjoining board, work around the board to be lifted with the bolster, levering from side to side slightly, to try to loosen the board (see figure 2(a))
- 2 Starting over a joist (by a nail) about a third of the way down the board (to avoid splitting the end), lever more vigorously with a pumping action first one side of the board and then the other, so as to raise the board by up to one-third of its thickness. Ensure the edge of the adjacent board is protected. Moving towards the middle, then back towards the end, repeat the process until one end of the board comes free. If this does not seem to be working or if the board is very decayed, resort to a nail punch and try to drive the nails down.

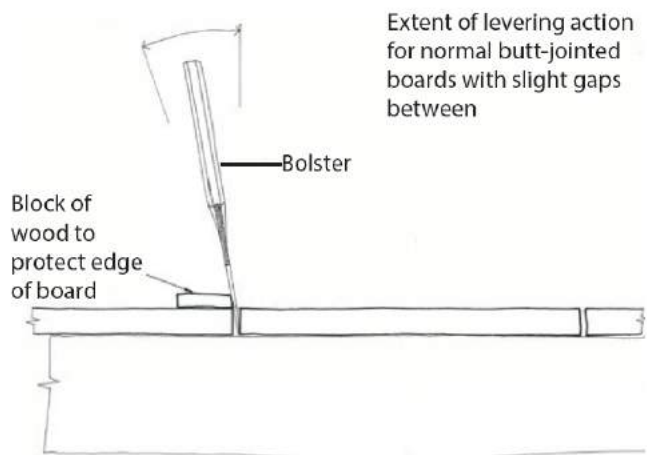
When one end has been freed, try placing the 13 mm ( $\frac{1}{2}$ " ) batten underneath it, spanning the two adjacent boards, and gradually move this towards the next set of nails with gentle pressure applied on the free part of the board (see figure 2(b)). The amount of pressure will depend on the condition of the board. This will normally ease the nails slightly out of the joists. Remove the batten and allow the board to drop to its original position to give access to the nail heads. If this does not succeed, try the bolster again or perhaps the crowbar – levering (pump action again) under the board near the position of the nail, but away from the edge of the board.

- 1 Particular care needs to be taken with the nails at the end of the board, as it is easy to split an old board unless these are removed gently.
- 2 Once the board is free, pull out the nails – pincers, hammer or crowbar.
- 3 The levering process using the bolster against the side of the board is probably the one most likely to cause damage by bruising neighbouring boards or splitting away part of the board being lifted. This process can usually be avoided when lifting the second and subsequent boards as it is possible to place a block across the joists and to lever against the underside of the board with a crowbar (see figure 2(c)). Once the board has started to lift, the bolster or crowbar can be inserted between board and joist and levering with a pumping action resumed. Again, it is wise to start about one-third of the way along a board and work to the middle and back to the end.

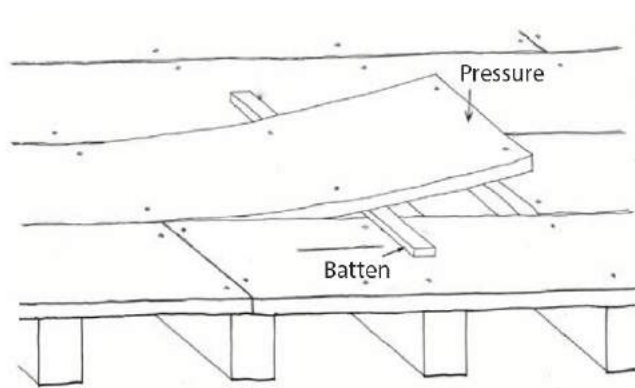
**In-situ boarding**



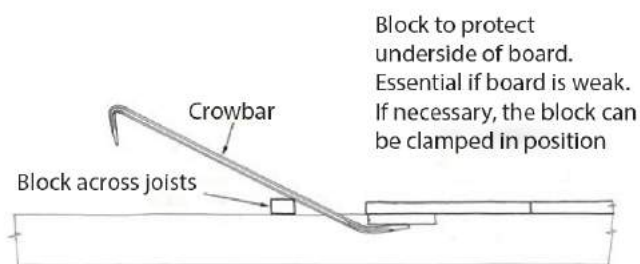
Main bedroom with single board raised for inspection. All boards are to be taken up to facilitate repair and M&E installation.



2(a)



2(b)



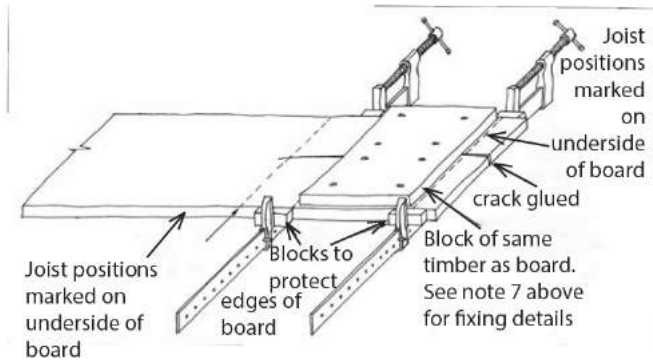
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### Undulations and gaps

It is sometimes suggested that all the floorboards should be lifted in order to shuffle them up to close gaps or to level a sloping or undulating floor. In general, such proposals should be resisted for various reasons unless there is a special need, for example, to carry out repairs. In particular, there is a danger that lifting floorboards will cause damage. Also, the undersides of many old boards are shaped because either the board or the joists are uneven, and in such circumstances they must be replaced in their original position exactly.

Deflection in a floor is often reflected by movement elsewhere in the structure, but provided that the structure is still sound it may be best to leave well alone. A levelled floor can look extremely out of place in an old cottage or house where the walls, windows and doors have deflected and where the ceiling slopes at an angle similar to that of the old floor.

## Repairing a split board



### Option 1:

- 1 Clean out the crack/split.
- 2 Work glue into the split.
- 3 Insert wedges in joints either side to close the split while the glue is drying.
- 4 Insert a butterfly stitch across the crack (if required).

### Option 2:

- 1 Lift the board.
- 2 Mark the joist position on the board.
- 3 Clean out the crack.
- 4 Remove warp/twist (if necessary).
- 5 Glue and clamp. Ensure use of blocks to protect the edges, and that the board remains true.
- 6 Treat the underside of the board and the joists etc, if necessary.
- 7 Screw on fixing blocks but do not glue (see figure 4). If the split has been caused by maltreating the board, ensure the blocks are of similar timber to the board, well-seasoned and with grain running in same direction as that of the board. If a split has been caused by natural movement of the timber, the blocks should be fixed with slotted screw holes and with the grain running across the board.
- 8 Relay the board.

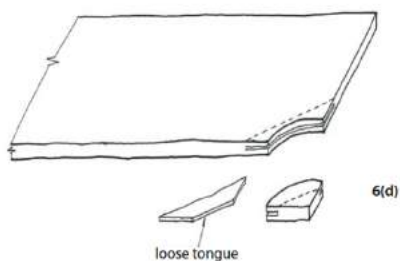
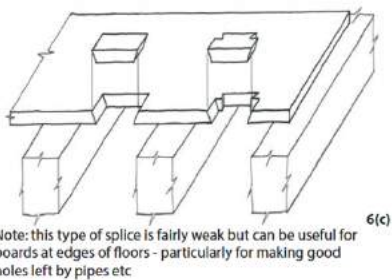
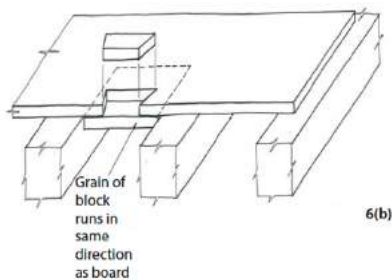
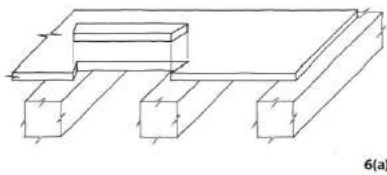
### Reducing unevenness

An uneven board can rarely be made perfectly straight, but any twist or warp can usually be reduced to acceptable levels:

- 1 Lift the board.
- 2 Either steam the board or immerse and soak it in water. (Note: This is likely to spoil any finishes which have been applied to the board.)

- 3 Lay the board out to dry on battens and apply weights to overcome twisting. There is a tendency for boards to revert partially to the original twist when the weights are removed, and this should be compensated for by overweighting.
- 4 Allow the board to dry slowly whilst under pressure for at least one week.
- 5 If serious warping is still present, try applying wet rags to selected areas of the board and re-weighting. The dampened areas will swell slightly – helping to straighten a board. If it is held flat while drying, then the warping is likely to be reduced. The process can be repeated.
- 6 Treat the underside of the board (and joists etc, if necessary) against beetle attack.
- 7 Relay the old board.

### Repairing a broken edge



- 1 Choose the repair type (see figures 5 and 6).
- 2 Lift the board (if necessary) and mark joist positions on the underside of the board.
- 3 Select seasoned timber of the same variety and match the grain.
- 4 Cut out around the broken edge of the board.

5 Form a new section to fit the old, glue and clamp in position.

6 Carefully pare down the new section to follow the undulations of the old. Do not pare down the surface or the edges of the old board.

7 Treat the underside of the board and joists etc, if necessary.

8 Relay the board (if lifted previously).

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### **Strengthening a weak board**

1 Lift the board (if necessary).

2 Screw battens to the sides of the joists over the area affected.

3 Lay 25 mm thick slats on battens under the weakened board (see figure 7).

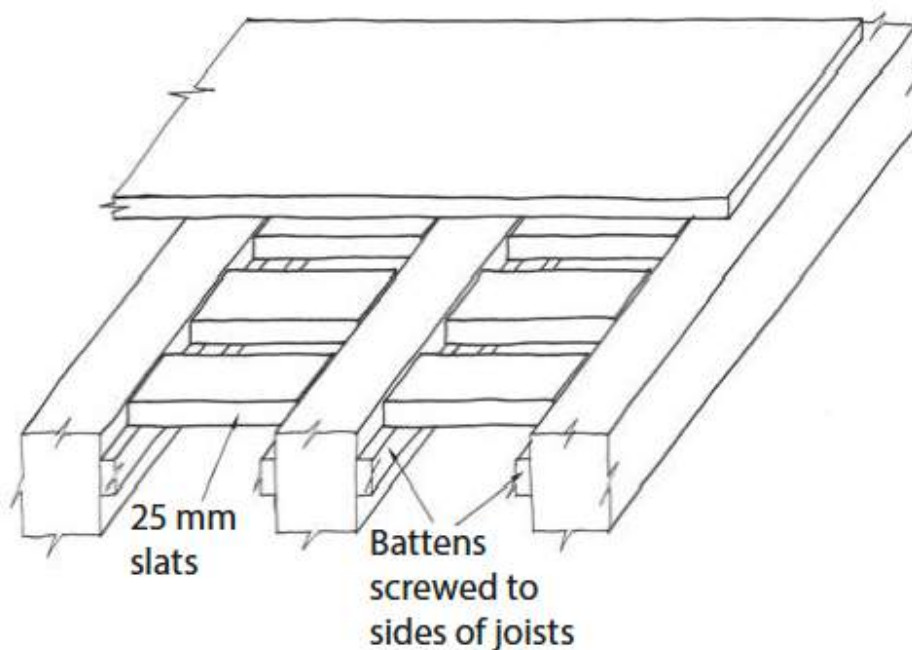
4 Treat the board, slats and battens against beetle attack. Note: Treatment must be undertaken before any wax is applied.

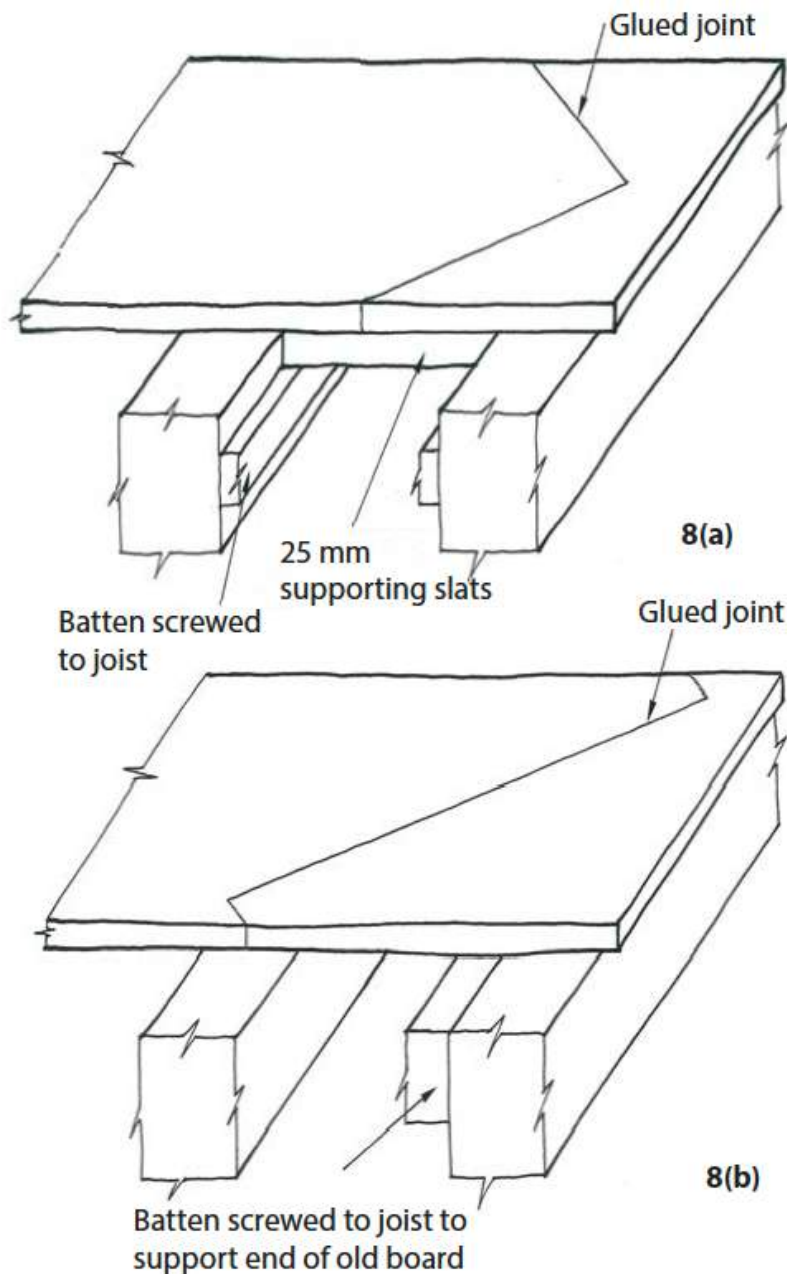
5 Impregnate weakened areas of the board with beeswax. (If the board has become extremely fragile, it may be necessary to use resins.)

6 Relay the board.

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### **Splicing a broken end**





If the end of a board is so decayed that it cannot be saved, then it is usual for the board to be cut back to the next joist and a short board pieced in. However, this can often mean that much more of a board is removed than is strictly necessary and, in some floors, a new short board can look completely out of place. In such circumstances it may be appropriate to splice a new end on to a board. The most appropriate type of splice to use will depend on a number of factors including the grain of the wood and the width of the board.

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### Relaying old boards

Considerable care needs to be taken when relaying old floorboards. In general, it is easier to nail floorboards down, but there are a number of occasions when this should be avoided, and screws used instead. For example:

- 1 Over a decorative plaster ceiling or ceiling painting, which might be disturbed by nailing.
- 2 Over a lath and plaster or reed and plaster ceiling where the plaster key is suspect.
- 3 Over service runs etc, where frequent lifting and relaying of the board will be necessary.

Iron screws will eventually rust and become extremely difficult to remove (even if greased). In general, brass screws should be used and these should be lightly greased before fitting to aid removal. Where a board is likely to be lifted and re-laid every few years (for example, over service runs), brass cups should be used to protect the board from any damage caused by the screw head.

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## 24.00 Restoration and Repair of existing reed and plaster ceilings

### REED AND PLASTER CEILINGS – RESTORATION METHODOLOGY

We have identified the existing ceiling (plaster) finishes to be Lime based with no visible 'hair' reinforcement. Plaster was applied to reeds. The first 'scratch coat' of coarse plaster was, by inspection, applied diagonally across the reeds and made to penetrate the gaps between the reeds to form wet rivets of plaster 'keys'. Two further coats were applied – the 'straightening' and 'finishing' coats. All ceilings have been either painted (latterly by emulsion) or, in some areas, wallpaper. There is no 'modelling' to ceilings. All areas of reed and plaster ceilings have been damaged by historic ingress of moisture with circa 12% having fallen down or debonded.

Repair and restoration work is to be carried out in materials which ultimately match the composition and strength of the existing. New work should *never* be stronger or denser since this can actually encourage deterioration in the existing fabric, either by transferring stresses from the harder repair material or because moisture-borne contamination such as salts will concentrate at boundaries, the weaker material giving way first. *None* of the modern plastering materials and techniques are suitable for repairing historic plasterwork and their use should be strictly limited to new work; neither is plasterboard. The various proprietary accessories such as metal angle beads and stop beads are also unsuitable for use in historic buildings.

Where plasterwork is secure or can be propped, all necessary work to structural timbers such as beams, ceiling joists, strapping etc should be carried out from above or behind with minimum disturbance to the plaster. Traditional methods of timber repair are desirable but should be carefully considered to avoid interfering with the plasterwork: there will be occasions when steel repairs will result in less destruction of original plasterwork. Structural repair must be completed before repairs to plaster begin.

First Floor Zone. Ceiling repair requires very careful lifting of floorboards in the area above the damaged plaster. When repairs are complete, hammering of floorboards can cause serious damage to the repairs and must be carried out with great care: the boards should not be fixed until the repair is fully dry and the ceiling should continue to be propped from below until they are re-fixed.

adjustable props (to take the load firmly without stressing or damaging the plaster) may be used in conjunction with plywood panels and timber battens positioned clear of the base of plaster ornament. A



thick isolating layer of soft material such as underfelt, straw-filled sacks or foam rubber must be sandwiched and firmly packed between the timber and plaster faces.

Only tradesmen who are familiar with the application and techniques of traditional plastering are appointed to undertake repair and restoration work in lime plaster. Allowance should be made for adequate drying out time between the application of lime plaster coats: this is likely to be at least two weeks but will depend very much on local site and climatic conditions and the experience and judgement of the plasterer on site will need to be relied upon. All areas of newly repaired or reinstated plasterwork must be given adequate time to dry out before initial decoration takes place.

#### Small patches and cracks

Large cracks and patches need to be prepared by undercutting the edges with a sharp chisel (for plaster on the hard) or a fine knife blade or handsaw (for plaster on lath, taking care not to cut the lath) to form a dovetail key. The area may need to be widened until its edges adhere tightly to the background. Before plastering, all loose material, dust and dirt should be thoroughly removed by careful brushing and vacuum cleaning and the surrounding area should be treated with size or possibly a weak 1:10 PVA solution. Lime plaster may be thoroughly wetted up with lime water which will feed and firm up the old plaster and also reduce the suction: excessive dryness of old plaster may necessitate persistent wetting until the surface is truly damp. The background should be prepared, and the patch built up in coats of no greater than 10mm (3/8 in) thick to the depth of the surrounding plaster ensuring that with lime plaster the necessary time is taken for each coat to set. Small cracks may be similarly wetted up and filled with lime putty combined with a small amount of fine aggregate such as silver sand: this custard-like mix is best applied with a soft brush to get into all the crevices.

#### Damaged or missing reeds or keys

Re-use salvaged wire where possible for reed support. Any new wire to be galvanised and fixed to joists at 200mm centres with stainless steel fasteners.

#### New Lime plastering

The scratch coat is the first coat applied to the substrate - made with a coarse aggregate to leave a rough surface. **Float Coat / Brown Coat** - The float coat (also known as brown coat) is applied on top of the scratch coat and is also made with a coarse aggregate. The surface is ruled to a relatively flat finish and is scratched lightly to leave a key for the finish coat. **Finish Coat** - the finish coat is the final, visible surface. Its purpose is decorative and is made with a fine aggregate to produce a smoother, flatter finish. A coat should not exceed 15mm thick. Allow sufficient time for each coat to dry before applying the next.

The recommended drying time is 1 calendar day per millimetre; therefore, a 10mm coat would be left to dry for 10 days before applying the next coat. This may vary slightly depending on site conditions but should not be less than 4-5 days in any scenario.

#### Reinforcement Fibres – if deemed necessary

Fibres can be added to base coat to strengthen the material. The fibres should be curly or wiry to form an effective mesh and tie into nooks and crannies around the timber laths.

The following types of fibre are recommended:

- **Natural Goat Hair**  
Preferably from animals wintered outdoors for the maximum strength and durability.
- **Coir / Coconut Fibres**  
A natural waste material with the tensile strength of steel, works very well in practical terms.

## 5. Plastering

Good quality work on laths generally requires 3 coats, though sometimes only 2 coats were used historically. Due to the huge variations in lath sizing and design, *trials must always be undertaken to ensure the compatibility of lime plaster with the lath system.*

Lime plaster should always be mixed to a stiff, plastic consistency. It should not be so wet that it runs or drips off the trowel.

For restoration and repair work, lime putty should be a minimum of three months old. Historically many different types of sand would have been used – a blend of fine and sharp sand or whatever was available locally. Currently a good quality well-graded sharp washed pit sand is used for fine work. The standard mix is one part lime putty to 2.5 parts sand with the addition of cow, horse or goat hair (2-4kg (4½-9lbs) of hair per cubic metre of mortar). This is scratched after application using a three-pronged lath scratcher.

### First Coat

On wooden laths the plaster should be applied in a diagonal direction to the laths ensuring the lime plaster pushes through the gaps in the lath fully, so a “nib” forms on the other side. The front of the lath is covered by approx. 8mm. Other work likely to cause vibrations must not be carried out until the first coat has set. This coat must be well scratched once the lime plaster has set, but while it is still green with a diamond pattern 45° to the laths. For curing / setting times, see relevant datasheets. The plaster then starts to dry and initial carbonation begins. The timing of subsequent coats depends on temperature and humidity. Generally one month is an average drying time for the first coat. If the first coat has become very dry the surface should be dampened prior to the application of the second coat.

### Second Coat

A floating coat, which will add approx. 10 to 12mm thickness to the first. Scratch while green with a devil or nail float. This coat is normally the same product as the first. The second (‘floating’ or ‘straightening’) coat uses one part lime putty to three parts sand to a thickness of 10-15mm (3/8"-5/8"). Hair would also have been added but at a lesser quantity than for the first coat. The second coat is ruled flat and scoured using a wooden float to consolidate the surface. A devil float (a wooden float with nail points projecting about 2mm from each corner) is then passed over the surface to give a key for the finish coat. This surface also needs to be dampened to control suction before the application of the finish coat.

### Final Coat

A thin skim of fine lime plaster will give the desired texture and smoothness, often no more than 3mm thick. Adequate time between coats must be left, normally around 1 week.

The finishing coat was one part lime putty to one part fine sand or two parts lime putty to three parts fine sand to a thickness and sometimes with the addition of fine short chopped goat hair.

**April 2024**



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