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**SCHEDULE OF REPAIRS TO  
THE STUDIO  
POUND FARM  
HADLEIGH ROAD  
HIGHAM  
COLCHESTER  
CO7 6LF**



**Client:** Harry and Emma Hall  
Pound Farm  
Hadleigh Road  
Higham  
Colchester  
CO7 6LF

**Prepared by:** The Morton Partnership Ltd  
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Revision	Date	Comments	Name
0	30/05/2022	Issued to Architect – Preliminary Scheme for pricing purposes	PV

## 1.0 Introduction

- 1.1 It is recommended that the best way to read this report is to print off the text separately from the drawings and photos. The photos can then be read in the correct order with the relevant text in the schedule of repairs. This should provide a good clear explanation of what is going on.
- 1.2 The weather on the day of inspection (Thursday 5<sup>th</sup> May 2022) was sunny spells, 18°C, with a 7mph wind blowing from the north west.
- 1.3 According to Babergh District Council, the Studio is listed as part of the curtilage to the main house, which is Grade II Listed. However, the listing on Historic England's website contains no reference to this building, only the main house.
- 1.4 The orientation used in this schedule has been simplified from that shown on the Architect's plans. The two gable ends will be described as the north and south facing gables, with the two flank walls as being on the east and west facing elevations. Thus the stack will now be in the south facing gable end.
- 1.5 It is recommended that this Schedule be read in conjunction with the Design and Access Statement with Heritage Assessment by Hoare, Ridge and Morris LLP which provides more history about what was once an artists studio.
- 1.6 The original timber frame building has been extended with a brick extension incorporating a fire place and stack at the south end. There are two internal tie beams at eaves level at roughly 1/3 positions along the building. The closest to the south end has a line of tenons in the underside which may indicate the position of the original gable end. The principal posts under this beam are also jowelled matching the corner posts at the north end.
- 1.7 From trial holes taken on site, the timber frame sits on a brick plinth which has hardly any foundation beneath relative to the current external ground level. The brick extension is on much deeper brick foundations going down 500mm below the current external ground level. A trial pit dug nearby indicated that the top soil transitioned to sandy soil and then onto fine sand which forms part of the Kesgrave sands and gravels group. The transition to fine sand started at about 800 below the current external ground level.
- 1.8 The existing building had been left exposed to the elements for many years and is currently protected by tarpaulins to help protect what is left. In 1987 the chimney stack collapsed into the building after a storm.
- 1.9 The basic repair philosophy is to leave as much of the building structure in situ and make sympathetic repairs. This applies to the existing roof structure. At the time of writing this report, the Architect plans to put new rafters and a ridge board above the existing roof structure. This will take the main roof load. The existing repaired roof structure will carry the vaulted ceiling finishes which may be sarking boards screwed to the existing rafters. The final detail is still in abeyance. New roof works are outside the scope of this document.
- 1.10 The timber frame has been left exposed (internally and externally) to the elements for many years. Previous repairs have also been carried out to the structure in some areas. This is reflected in what was observed on site and included in the schedule. The Reader's attention should also be drawn to Section 4.0 which mentions the limitations of the survey and this document.

## 2.0 Specification for Repairs

The words Client or Employer may be substituted for Contract Administrator or "CA" in the following. This should be read in conjunction with the Architect's specification.

### E10 MIXING/CASTING/CURING INSITU CONCRETE

#### 101 Specification

1. Concrete generally: To BS 8500-2.
2. Exchange of information: Provide concrete producer with information required by BS 8500-1, clauses 4 and 5.

#### 215 Ready-mixed concrete

1. Production plant: Currently certified by a body accredited by UKAS to BS EN ISO/IEC 17065 for product conformity certification of ready-mixed concrete.
2. Source of ready-mixed concrete: Obtain from one source if possible. Otherwise, submit proposals.
  - 2.1. Name and address of depot: Submit before any concrete is delivered.
  - 2.2. Delivery notes: Retain for inspection.
3. Declarations of nonconformity from concrete producer: Notify immediately.

#### 221 Information about proposed concretes

1. Submit when requested
  - 1.1. Details listed in BS 8500-1, clause 5.2.

#### 620 Temperature of concrete

1. Application: Repairs to existing floor slab
2. Objective: Limit maximum temperature of concrete to minimize cracking during placing, compaction and curing. Take account of:
  - 2.1. High temperatures and steep temperature gradients: Prevent build-up during first 24 hours after casting. Prevent coincidence of maximum heat gain from cement hydration with high air temperature and/ or solar gain.
  - 2.2. Rapid changes in temperature: Prevent during the first seven days after casting.
3. Proposals for meeting objective: Submit.

#### 680 Placing

1. Records: Maintain for time, date and location of all pours.
2. Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction.
3. Temperature limitations for concrete: 30°C (maximum) and 5°C (minimum), unless otherwise specified. Do not place against frozen or frost covered surfaces.
4. Continuity of pours: Place in final position in one continuous operation up to construction joints. Avoid formation of cold joints.
5. Discharging concrete: Prevent uneven dispersal, segregation or loss of ingredients or any adverse effect on the formwork or formed finishes.
6. Thickness of layers: To suit methods of compaction and achieve efficient amalgamation during compaction.

#### 840 Protection

1. Prevent damage to concrete, including
  - 1.1. Surfaces generally: From rain, indentation and other physical damage.
  - 1.2. Surfaces to exposed visual concrete: From dirt, staining, rust marks and other disfiguration.
  - 1.3. Immature concrete: From thermal shock, physical shock, overloading, movement and vibration.
  - 1.4. In cold weather: From entrapment and freezing expansion of water in pockets, etc.

## F10 BRICKWORK

### Materials

- 200 SAND: shall be clean washed very sharp pit sand free from loam and other impurities. Colour should be correct for mortar colour matching with existing, to be matched to approved sample. Use well graded sands (10mm maximum down to 75 microns), note the existing has aggregate particles up to 10mm. To BS 1200 unless specified otherwise. Sand for facework mortar to be from one source different loads to be mixed if necessary to ensure consistency of colour and texture.
- 220 LIME: to be Hydraulic lime NHL 3.5, obtained from St Astier, Setra Marketing Ltd, 16 Cavendish Drive, Claygate, Esher, KT10 0QE, tel: 01372 465779, or similar approved.
- 240 ADMIXTURES: do not use in mortar unless specified or approved. Do not use calcium chloride or any admixtures containing calcium chloride. Air entraining admixtures to be BS 4887.
- 250 WATER: to be clean and uncontaminated. Obtain approval for other than mains supply. Test to BS 3148 if instructed.
- 290 BRICKS: New bricks are to match existing in size, colour and texture. Three sample bricks to be provided for approval by Contract Administrator. One to be retained on site for future inspection and one passed to the CA for retention. Possible suppliers include:
- Bulmer Bricks, The Brickfields, Bulmer, Nr Sudbury, Suffolk CO10 7EF. Tel: 01787 269232;
  - Bovingdon Bricks, Ley Hill Road, Bovingdon, Hertfordshire HP3 0NW. Tel: 01442 833176;
  - Dunton Brothers Ltd, Blackwell Hall Lane, Ley Hill, Near Chesham, Bucks HP5 1TN. Tel: 01494 772111.
- 295 BRICK BOND AND LINE: Brickwork to be re-built in bond to match existing. Line of any re-built brickwork to be 'floated' to bond into the existing so that the plane of the wall looks visually reasonable.
- 300 MORTAR MIXES:
- Mortar mixes for bedding/re-pointing generally: 1:3 lime (NHL 3.5) to sand.
  - Sand to be well graded with 60% sharp sand and 40% soft sand well mixed, and coloured to match existing pointing.
- Workmanship (to be in accordance with manufacturers/suppliers recommendations).
- 330 SITE STORAGE:
- Store different sands and aggregate in different stockpiles on hard clean bases which allow free drainage and cover to prevent excessive wetting.
  - Store bags of cement and hydrated lime in dry conditions, raised off the ground and not touching damp surfaces. Do not use cement or hydrated lime affected by damp.
  - Avoid intermixing and contamination between stored materials and other building materials, debris and other deleterious matter.
- 350 LIME/SAND COURSE STIFF MIX: when pigment is not required, lime: sand mix may be prepared on site in lieu of ready mixed material by:
- Thoroughly mixing hydrated lime powder to BS 890 with sand, first in the dry state and then with water. The volume of lime specified can be increased by up to 50% to improve workability. Keep for at least 16 hours before use and prevent from drying out.
- 360 MORTAR PREPARATION:
- Measure materials by volume using clean gauge boxes. Proportion of mixes are for dry sand; allow for bulking if sand is damp. Where a range is given (e.g. 5-6) use the higher value for well-graded sand and the lower value for coarse or uniformly graded sand.
  - Mix ingredients thoroughly to a consistency suitable for the work and free from lumps.
  - Use mortar (containing cement) within about 2 hours of mixing at normal temperatures.
  - Keep plant and banker boards clean at all times.
  - Do not use ready mixed retarded mixes without the permission of the Contract Administrator.
  - Do not use hydraulic hydrated lime powder which exceeds its shelf life.
  - Carry out a site trial test initial setting period prior to carrying out the work.

- 370 COLD WEATHER:
- Prevent frost damage to walling.
  - Do not lay blocks / dressings etc. when air temperature is at or below 3 degrees centigrade unless mortar has a minimum temperature of 4 degrees centigrade when laid and walling is protected.
  - Do not use frozen materials and do not lay on frozen surfaces.
  - Maintain temperature of the work above freezing until mortar has hardened.
  - Adequately protect newly bedded work against rain and snow by covering when precipitation occurs and the completion of each days work.
  - Rake out and replace mortar damaged by frost and where instructed rebuild damaged work.
- 380 HOT WEATHER: Mortars should be protected from hot weather which will dry out the mortars excessively quickly.
- 390 WIND: Mortars should be protected from excessive winds which will increase the rate of drying out.
- 400 CLEANLINESS: keep face work 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 will not be permitted.
- 410 JOINTING:
- Where specified finish joints neatly as work proceeds.
  - Unless otherwise specified all joints are to be struck off flush.
  - Once the mortar has taken its initial set, stipple with natural bristle brush to leave the joint slightly recessed and to give the mortar a slightly textured surface to expose the aggregate.
  - Brushing of the joint will not be permitted.
- 420 TENDING:
- Tending is the key to successful mortar work.
  - Tending should occur over of a period of around 10 days.
  - Where appropriate push back mortar within joint where this has moved laterally.
  - It is imperative to control the rate of drying out and adjust it to the ambient environment to ensure consistency.
  - Tend by protecting the mortar with damp hessian and polythene in warm drying conditions and damp hessian and bubble wrap in winter or cold periods.
  - Check repairs at regular intervals and spray with clear limewater to keep damp.
  - Take care not to allow run off as lime mortar causes stains which are invisible until they dry out.
- 430 SAMPLES:
- Provide the following samples/samples repairs for agreement with the Contract Administrator:
  - 2 number mortar biscuits 50mm diameter x 20mm thick made up with varying types of sand to allow match to existing mortar.
  - Once biscuit sample agreed provide sample area of pointing to brickwork 0.75m x 0.75m – this also to be used for pointing.
  - Allow for raking out sample if not satisfactory and providing further sample area of pointing. Repeat twice times, as necessary, until sample approved by Contract Administrator.
  - Provide 2 samples of new plain bricks to match existing in colour, size and texture.
  - Provide 2 sample of coping bricks to plinth to match existing in colour, size and texture.
- 460 RELEASING BRICK/WORK:
- Provide temporary support as necessary.
  - Release bricks by cutting out jointing material, easing / levering bricks from their backing.
  - Prevent damage to bricks being removed and surrounding work.
  - Use manual tools only.
  - Lay dust by sprinkling with water.
  - Inspect voids with Contract Administrator or notify any signs of structural movements in walls.
- 470 PREPARING BEDS/BACKINGS/VOIDS:
- Thoroughly clear out void using hand tools and brushes.

- Temporary support surrounding work as necessary.
- 480 LAYING/BONDING:
- Ensure the bond, is replicated.
  - Clean out and flush out or moisten with clean water voids to remove dust and reduce suction.
  - Dampen bricks and tamp in place on a full and even bed of mortar.
  - Pack remaining joints with mortar using a rammer and pointing key.
- 490 RE-POINTING:
- Where specified carefully rake out existing joints by hand to form a square recess of 25mm depth.
  - Remove dust, lightly wet and neatly point in specified mortar.
  - Unless otherwise specified all joints are to be struck off flush.
  - Once the mortar has taken its initial set, stipple with natural bristle brush to leave the joint slightly recessed and to give the mortar a slightly textured surface to expose the aggregate.
  - Brushing of the joint will not be permitted.
  - Finish joints as work proceeds.

## **G20 CARPENTRY/ TIMBER FRAMING/ FIRST FIXING**

### GENERAL INFORMATION/ REQUIREMENTS

- 120 REPAIR PHILOSOPHY - This summarises the repair philosophy and approach to repairs to be followed when determining the scope and method.
- Generally, and in line with accepted practice the policy of minimal intervention will be followed, retaining as much as possible of the original historic fabric where repairs are deemed necessary.
  - Repairs to principal structural members will be designed on a case by case basis, and approved by CA (Contract Administrator) for adequacy.
  - Timber for all repairs will be undertaken in oak of similar moisture content when dry, i.e. seasoned oak to reduce the risk of warping and shrinkage. Second hand or re-claimed oak cannot be used unless for wedges etc. Where smaller face patches, slip tenons and wedges are required to repair joints in secondary members, dry oak will be used, coach screwed or fixed with resin as appropriate.
  - Otherwise, the condition of the timbers will be respected, in order to conserve as much of the surface as possible; loose frass from decayed areas will be removed carefully, whilst not attempting to remove all evidence of the general condition of the timbers as found.
  - All steel fixings in green oak will be stainless steel bolts or coach screws, the nuts or bolt heads to be counterbored flush to the face of the timber and pelleted or concealed unless otherwise agreed.
  - Where a steel repair is deemed preferable to a carpentry repair, stainless steel will be used, designed to suit each application, and approved by CA for adequacy.
  - Carpentry or steel repairs will be considered on a case by case basis treating each member on its merits, bearing in mind authenticity, cost effectiveness, aesthetic appeal, structural requirements and the maximum retention of the historic fabric.
  - Accurate records of all repairs and intervention will be made by the Contractor and registered with the CA for the benefit of recording all restoration activity.
- 150 STRENGTH GRADING OF TIMBER
- Grader: Any company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.
  - Grading and marking of timber:
    - Timber of a target/finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
    - Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
    - Structural timber members cut from large graded sections: Re-graded to approval and marked accordingly.

### TYPES OF TIMBER

## 210 GRADED SOFTWOOD FOR STRUCTURAL USE GENERALLY

- Stress graded to BS 4978 or other national equivalent and so marked.
- Strength class to BS EN 519 or EN 338:C16 (SC3) or C24 (SC4)
- Surface finish: sawn generally, regularised for ceiling joists.
- The following required:
  - Tie beams, half ties, dragon beams, dragon ties, principal rafters, and hip rafters to be boxed heart with the heart to be located as close to the centre as possible.
  - Live knots may not exceed 50% of any face.
  - Small sound dead knots allowed < 50mm diameter, not allowed in the middle 50% of the length of beams and bending members.
  - Slope of grain typically 1:8 (12%) and not to exceed 1:5 (20%).
  - Sap is allowed on arrises but will account for no more than 15% of face or edge.
  - On larger section tie beams sap or wane may occur on all four corners.
  - Wane not to exceed 10% of face or edge.
  - Fungal attack shall not be allowed.
  - Small heart shakes are allowed, but should not extend beyond 25% of the radius of the beam in any direction.
  - Ring shake shall be graded out.
  - Surface fissures not to exceed half the length of the piece.
  - Bow should be less than 3mm per metre run.
  - Surface finish: New Sawn.
  - Treatment: Finish to Architect's requirements after installation.
  - Moisture content at time of erection: As clause 450.
  - Inspection: Structural timber to be inspected at timber yard by CA or Structural Engineer prior to delivery to site. Timber to be free from defects which in the opinion of the CA or Structural Engineer render it unsuitable for its purpose.
  - For any sections less than 50mm provide kiln dried timber.

## 260 GRADED HARDWOOD

- Species and origin: European Oak, Quercus robur.
- Grading standard: Equivalent to or exceeding good quality THB (BS 5756:2007), to a minimum strength class D30 with the following qualification
  - Carriage beams to be boxed heart with the heart to be located as close to the centre as possible.
  - Braces and other curved members to be cut from appropriate curved stock.
  - Live knots may not exceed 30% of any face.
  - Small sound dead knots allowed < 50mm diameter, not allowed in the middle 50% of the length of beams and bending members.
  - Slope of grain typically 1:8 (12%) and not to exceed 1:5 (20%).
  - Sap is allowed on arrises but will account for no more than 15% of face or edge.
  - On larger section tie beams sap or wane may occur on all four corners.
  - Wane not to exceed 10% of face or edge.
  - Fungal attack shall not be allowed.
  - Small heart shakes are allowed, but should not extend beyond 25% of the radius of the beam in any direction.
  - Ring shake shall be graded out.
  - Surface fissures not to exceed half the length of the piece.
  - Bow should be less than 3mm per metre run.
- Surface finish: New Sawn with arrises generally taken off with a draw knife or similar and with timber checked to reduce likelihood of splinters.
- Note some timbers are chamfered with stop ends.
- Moisture content at time of erection: As clause 450.
- Inspection: Structural timber to be inspected at timber yard by CA or Structural Engineer prior to delivery to site. Timber to be free from defects which in the opinion of the CA or Structural Engineer render it unsuitable for its purpose.
- To be sourced from renewable source with FSC Certificates or Chain of Custody Certificates to be provided.

## 315 SCREWS:

- Material: Stainless steel.
- Grade: 304



- Type: Wood screws to BS 1210.
  - Sizes: Various as detailed in specification or on drawings.
- 316 BOLTS and TIE BARS:
- Material: Stainless steel.
  - Grade: 304.
  - Type: Hexagonal head to BS 3692.
  - Sizes: Various as detailed in specification or on drawings.
- 317 WASHERS:
- Material: Stainless steel.
  - Grade: 304.
  - Type: Gauge to BS 4320.
  - Sizes: Various as detailed in specification or on drawings.
- 318 PLATES, BRACKETS ETC:
- Material: Stainless steel
  - Grade: 304.
  - Type: Fabricated from standard plate.
  - Sizes: Various as detailed in specification or on drawings.
- 319 STUDDING:
- Material: Stainless steel.
  - Grade: 304.
  - Size: Various as detailed in specification or on drawings.
- 320 ANGLE CLEATS:
- Material: Stainless steel.
  - Grade: 304.
  - Type: Purpose cut from bent plate.
  - Sizes: Various as detailed in specification or on drawings.
- 321 PLATES:
- Material: Stainless steel.
  - Grade: 304.
  - Type: Purpose cut from standard plate.
  - Sizes: Various as detailed in specification or on drawings.
- WORKMANSHIP GENERALLY
- 400 SEQUENCE OF WORK
- Where new oak structure indicated work to be carried out in a sequence to allow use of traditional mortice and tenons at both ends of members as opposed to slip tenons or alternative jointing.
- 401 CROSS SECTION DIMENSIONS OF STRUCTURAL SOFTWOOD AND HARDWOOD TIMBER
- Dimensions: Dimensions in this specification and shown on drawings are target sizes as defined in BS EN 336.
  - Tolerances: The tolerance indicators (T1) and (T2) specify the maximums permitted deviations from target sizes as stated in BS EN 336, clause 5.3:
    - Tolerance class 1 (T1) for sawn surfaces.
    - Tolerance class 2 (T2) for further processed surfaces.
- 420 WARPING OF TIMBER
- Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 519 for softwood, or BS 5756 for hardwood.
- 430 SELECTION AND USE OF TIMBER
- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.

- Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
  - Scarf joints, finger joints and splice plates: Do not use without approval.
- 450 MOISTURE CONTENT
- Moisture content of timber and wood based products at time of installation: Green (>30%).
- 451 MOISTURE CONTENT TESTING
- Procedure: When instructed, test timber sections with an approved electrical moisture meter.
  - Test sample: Test 5% but not less than 10 lengths of each cross-section in the centre of the length.
  - Test results: 90% of values obtained to be within the specified range. Provide records of all tests.
- 500 RECORD DRAWINGS: On completion of the works the Contractor shall provide the CA with a set of record drawings. The drawings are to include, plans and details of all works.
- 510 PROTECTION
- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
  - Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- 520 EXPOSED END GRAIN
- Components: Seal exposed end grain of the following before delivery to site: all timbers.
  - Sealer: clear end grain sealer.
- 540 CLEAR FINISHES
- Structural timber to be clear finished: Keep clean and apply first coat of specified finish before delivery to site.
- 550 EXPOSED TIMBER
- Prevent damage to and marking of surfaces and arrises.
- JOINTING TIMBER
- 580 JOINTS:
- Finish joint surfaces to all scarfs, splices and finger joints so that adjoining surfaces are in full contact over the whole of the surface of the joints.
  - Cut all mortice and tenons so that adjoining surfaces are good fit with maximum cumulative gap in one direction of 5mm.
  - Pre-drill pilot holes in timbers.
  - All to be traditional joints with mortices and tenons being draw bored and oak pegged.
  - Joints which will be concealed upon fabrication and erection to be painted for additional protection.
- 600 BLACK BOLTS AND NUTS:
- To BS EN 20898.
- Finish (applied by manufacturer): as clause 670.
- 610 BLACK CUP AND COUNTERSUNK HEAD BOLTS AND NUTS:
- To BS 4933.
- Finish (applied by manufacturer): galvanised as clause 670.
- 620 WASHERS:
- Plain to BS 4320, spring to BS 4464.
  - Material and finish to match bolts.
  - Dimensions when seated directly on timber surfaces, unless specified otherwise:  
Diameter/side length: Not less than 3 times bolt diameter.

Thickness: Not less than 0.25 times bolt diameter.

630 BOLTED JOINTS:

- Locate holes accurately and drill to diameters as close as practical to the nominal bolt diameter and not more than 2 mm larger.
- Place washers under all bolt heads and nuts that would otherwise bear directly on timber. Use spring washers in locations which will be hidden or inaccessible in the completed building.
- Tighten bolts so that washers just bite the surface of the timber. Ensure that at least one complete thread protrudes from the nut.
- Check at agreed regular intervals up to Practical Completion and tighten as necessary to prevent slackening of joints.

635 COACH SCREWED JOINTS:

- Pilot Hole: Drill to threaded length and to correct diameter for coach screw specified, and in specified positions.
- Pre-drill holes to coach screw shank diameter plus 2mm for length of shank only.
- Position coach screw with specified washers and fully tighten.

640 STUDDING:

- Pre-drill holes in timber to specified stud diameter.
- Cut studding to correct length.
- Position studding and pass through timber, where necessary assist with blows from a hammer with a block of timber to threaded end to prevent damage.
- Apply washers, and / or tooth plate connectors, and gully tighten nuts.
- Where threaded length extends past nuts these should be cut to a length of 10mm + 3mm.
- Clean cut ends to remove all loose or sharp material.

670 ANTICORROSION FINISH(ES) FOR FASTENERS:

- To BS 729 for galvanizing, with internal threads tapped and lightly oiled following treatment
- To BS 4921, Class 1 for sherardizing
- To BS 7371:Part 3 and passivated, for zinc plating.
- Where no particular treatment is specified, select from the above to suit service conditions.

750 MODIFICATIONS/REPAIRS

- Defects due to detailing or fabrication errors: Report without delay.
- Methods of rectification: Obtain approval of proposals before starting modification or remedial work.
- Defective/damaged components: Timber members/ components may be rejected if the nature and/or number of defects would result in an excessive amount of site repair.

760 TEMPORARY BRACING

- Provision: As necessary to maintain structural timber components in position and to ensure complete stability during construction.

775 BEARINGS

- Timber surfaces which are to transmit loads: Finished to ensure close contact over the whole of the designed bearing area.

780 WALL PLATES: Ensure that wall plates are:

- Positioned and aligned to give the correct span and level for trusses, joists, etc.
- Fully bedded in fresh mortar.
- In lengths of not less than 3 m with half lap joints.

784 INSTALLING JOISTS GENERALLY:

- Position at equal centres not exceeding designed spacing and true to level.
- Install bowed joists with positive camber.
- Position end joists approximately 50 mm from masonry walls.

795 TRIMMING OPENINGS: When not specified otherwise, trimmers and trimming joists to be not less than 25 mm wider than general joists.

- 850 INSPECTION: Give CA reasonable opportunity to inspect structural timberwork before covering up.
- 860 BOLTED JOINTS: Inspect all accessible bolts at the end of the Defects Liability Period and tighten if necessary.

## **Z20 FIXINGS/ADHESIVES**

To be read with Preliminaries/General conditions.

- 110 FIXING GENERALLY: Use fixing and jointing methods and types, sizes, quantities and spacings of fasteners which are suitable having regard to:
- Nature of and compatibility with product/material being fixed and fixed to,
  - Recommendations of manufacturers of fasteners and manufacturers of components, products or materials being fixed and fixed to,
  - Materials and loads to be supported,
  - Conditions expected in use,
  - Appearance, this being subject to approval.
- 120 FASTENERS for materials and components forming part of external construction to be of corrosion resistant material or have a corrosion resistant finish.
- 130 FASTENERS for materials and components:
- Forming part of external construction but not directly exposed to the weather to be of corrosion resistant material or have a corrosion resistant finish.
  - Directly exposed to the weather to be of corrosion resistant material.
- 140 FIXING THROUGH FINISHES: Ensure that fasteners and plugs (if used) have ample penetration into the backing.
- 150 PACKINGS:
- Provide suitable, tight packing's at fixing points to take up tolerances and prevent distortion.
  - Use no compressible, rot proof, non-corrodible materials positioned adjacent to fixing points.
  - Ensure that packing's do not intrude into zones that are to be filled with sealant.
- 160 CRAMP FIXING:
- When not specified otherwise position cramps not more than 150 mm from each end of frame sections and at 600 mm maximum centres.
  - Secure cramps to frames with matching screws as masonry work proceeds, and fully bed in mortar.
- 170 NAILING:
- Nails: To BS 1202.
  - In joints, use not less than two nails and opposed skew nailing unless specified otherwise.
  - Drive nails fully in without splitting or crushing the material being fixed.
  - Punch nail heads below surfaces that will be visible in the completed work.
- 180 MASONRY NAILS: Do not use without approval.
- 210 PLUGS:
- Proprietary types selected to suit the background, loads to be supported and conditions expected in use.
  - Locate plugs accurately in correctly sized holes in accordance with manufacturer's recommendations.
- 220 SCREW FIXING:
- Screws: To BS 1210.
  - All screws to have clearance holes. Screws of 8 gauge or more and all screws into hardwood to have pilot holes about half the diameter of the shank.

- Before using brass, aluminium or other soft metal wood screws pre-cut the thread with a matching steel wood screw.
  - Do not hammer screws unless specifically designed to be hammered.
  - Drive countersunk heads flush with timber surface, or not less than 2 mm below it if they are to be stopped.
  - Washers and screw cups, where specified, to be of the same material as the screw.
- 230 PELLETING: Countersink screw heads 6 mm below timber surface and glue in grain-matched pellets not less than 6 mm thick, cut from matching timber. Pellets to occupy the whole depth of the holes and be finished off flush with surface.
- 240 PLUGGING: Countersunk screw heads 6 mm below timber surface and glue in plugs. Plugs to occupy the whole depth of the holes and project from the surface.
- 250 POWDER ACTUATED FIXING SYSTEMS:
- Do not use without approval.
  - Tools to be to BS 4078:Part 2 and Kite mark certified, and used in accordance with BS 4078:Part 1. Operatives to be trained and certified as competent by tool manufacturer.
  - Fasteners, accessories and consumables to be types recommended by the tool manufacturer.
  - Ensure that operatives take full precautions against injury to themselves and others.
  - Remove all unspent cartridges from the site when no longer required.
  - Apply zinc rich primer to heads of fasteners used externally, in external walls or in other locations subject to dampness.
  - Use top hat section plastics washers to isolate cartridge fired nails from stainless steel components fixed externally, in external walls or in other locations subject to dampness.
- 510 ADHESIVES:
- Adhesive types: As specified in the relevant section.
  - Surfaces to receive adhesive to be sound, unfrozen, free from dust, grease and any other contamination likely to affect bond. Where necessary, clean surfaces using methods and materials recommended by adhesive manufacturer.
  - Adjust surface regularity and texture as necessary to suit bonding and gap filling characteristics of adhesive.
  - Ensure that operatives observe manufacturers and statutory requirements for storage and safe usage of adhesives.
  - Do not use adhesives in unsuitable environmental conditions or beyond the storage period recommended by the manufacturer.
  - Apply adhesives using recommended spreaders/applicators to ensure correct coverage. Bring surfaces together within recommended time period and apply pressure evenly over full area of contact to ensure full bonding. Remove surplus adhesive using methods and materials recommended by adhesive manufacturer and without damaging surfaces.
- OTHER ITEMS-
- HELIBAR CRACK STITCHING/ MASONRY REINFORCEMENT  
Refer to Appendix C for details.
- 998 RESIN ANCHORS  
Use Rawl KF-2 throughout. Substrate holes to be drilled and cleaned in strict accordance with the latest manufacturer's instructions. Note the resin working & curing times which are related to the base material temperature. Refer to the same information for the required drilled substrate hole diameters, standard embedment depths (unless noted otherwise) and recommended torque settings.

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<b>3.0 Schedule of Repairs</b>		
3.1 Generally, normal readily available electroplated fixings should be fine with very old timbers. New replacement oak will require the use of stainless steel fixings. Galvanised fixings should not be used with new oak.		
3.2 Remove existing tarpaulins and provide scaffolding to the structure.		
3.3 Repairs to the existing roof structure –		
3.3.1 East Side Roof Structure:		
3.3.1.1 Replace existing 50 x 100 timber plate 1.4m long on top of brick flank wall at the south end.		
3.3.1.2 Check the condition of all the rafter feet along this side. Some of them are rotten and require repairs by partnering up short sections (1.2m long) of matching rafters. The rafter size is highly variable. However, in one area they were 80 x 70 at 360 c/c. For pricing purposes, allow for ten rafters to be repaired in this way.		
3.3.1.3 Provide three new rafters to replace those that have snapped on the east side, sized to match the remaining nearby rafters (Photo 1).		
3.3.1.4 Replace 4.5m long section of the original ridge board. Sized to match existing.		
3.3.1.5 Check the purlins ends on the east side with the gable spandrel panels for rot. Allow to repair these with 1.2m long matching splices at each end.		
3.3.2 Repairs to the West Side Roof Structure:		
3.3.2.1 Replace existing 50 x 100 timber plate 1.4m long on top of brick flank wall at the south end.		
3.3.2.2 Check the condition of all rafter feet for rot and repair as previously described with 1.2m long matching sections. For pricing purposes allow for eight rafters to be repaired this way (Photo 2).		
3.3.2.3 Provide four new rafters to replace those that have fallen away. Sizes to match the existing rafters in this section of roof.		
3.3.2.4 Provide 2No. 50 x 100 C16 treated studs under the purlin in the south gable spandrel stud panel.		
3.3.2.5 At the north end, the west side purlin needs a splice repair at the end with a new 1.2m long matching section used (Photo 3).		
3.3.3 Existing High Level Collars:		
3.3.3.1 Check all the fixings between the four collars and the rafters. For pricing purposes allow for all of these to be replaced with 2No. M10 (4.6) bolts to each connection.		
3.3.3.2 The collar nearest the stack on the south side has split and needs replacing. Use 50 x 200 C16.		
3.4 Existing Internal Timber Tie Beams:		
3.4.1 There are two principal tie beams at roughly 1/3 positions along the sides. The first tie beam at the south end runs down onto two jowelled timber posts. Each end of this tie beam needs to be checked for rot. Allow for a half lap repair to each end with new 1.0m long sections and 4No. M12 bolts to each joint. There are also some shakes in the beam. Timber on either sides of these could be coach screwed together using M12 coach screws at 500 c/c along the length of the beam (Photo 4). The iron straps at each end may be badly corroded. For pricing purposes, allow for these to be replaced.		

- 3.4.2 Check the condition of the ends of the north side tie beam. Allow for 2No. half lap repairs (1.0m section with 4No. M12 bolts each) at these ends. Allow for replacement of the iron straps at each end with matching steel alternatives.
- 3.5 This section describes repairs to the internal faces of the walls. Most of the external elevations (except the south brick gable) were inaccessible because of the tarpaulins. They are described starting from the north gable end and working round in a clockwise direction.
- 3.5.1 North Facing Internal Elevation:
- 3.5.1.1 This is a traditional timber frame with a spandrel panel over the tie beam. According to a painting in the main house, this was once glazed. This spandrel panel is now rotten and needs to be completely replaced (Photo 5). Provide new posts (2No. 50 x 100 C16) under the ends of the purlins. Glazing arrangement and details to be confirmed by the Architect.
- 3.5.1.2 Check the ends of the top rail for rot. For pricing purposes, allow for the replacement of 1.0m of each end with matching timber. Also allow for replacement of the two iron straps with mild steel alternatives. Size of the top rail is 200x200.
- 3.5.1.3 Replace both rotten corner jowel posts in this panel.
- 3.5.1.4 Check the condition of the remaining five wall studs and allow for repairs to the bases of these where they run into the timber plate. The studs are 180 x 180 at 500 c/c. Refer to the typical details in this report for repairs to these studs.
- 3.5.1.5 The timber plate (120 wide by 100 deep) has been patch repaired with cement which needs to be removed. For pricing purposes, allow for the complete replacement of this member (Photo 6).
- 3.5.1.6 Below the timber plate is a brick plinth wall which has been faced with concrete on the side face (Photo 6). This was done to hide the condition of the brickwork behind and hold it together. Allow for the removal of the cement and the rebuilding of the brick wall in short 1.0m sections on a hit and miss basis. It is currently assumed that the existing foundation will not be deepened unless the slab level is dropped by the Architect. This is currently in abeyance. The foundation is currently 150 below the external ground level at its lowest point.
- 3.5.1.7 There is an existing doorway in this panel. Allow for replacement of the lintel with a matching element and traditional stud infill where the door was. Provide minimum 1no. new 180 x 180 oak stud. Keeping a lintel will help define the history of the panel.
- 3.5.2 East Facing Internal Elevation:
- 3.5.2.1 The top rail in the timber frame part is a 200 x 200 section (Photo 7). On the north end, there is signs of water ingress in the joint. Allow to replace 1.2m of beam at this end where it runs into the corner posts. A splice repair should suffice.
- 3.5.2.2 The opposite end of the wall plate should also be carefully checked. For pricing purposes, allow for a similar repair at this end.
- 3.5.2.3 The jowl post at the junction with the later brick wall has also moved out of alignment and will need to be reset (Photo 8). Fix to brickwork with Rawl M10 KF-2 resin anchors at 450 vertical centres with 150 masonry embedment.
- 3.5.2.4 The bottom plate (over the brick plinth) is approx. 130 wide by 100 deep. This is clearly rotten in large areas. Allow for this to be replaced along its entire 5m length (Photo 9).
- 3.5.2.5 Stud no.2 is part of the door framing near the north end and has no sole plate beneath it. This will need a splice repair and connecting back into the wall plate.

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- 3.5.2.6 Three studs have had their bases previously repaired with cement patches. These need to be removed and new splice repairs provided to the bases of the studs. Allow for replacement of the bottom 600 of the studs.
- 3.5.2.7 The timber framing around an old window is completely rotten and needs replacing. The timbers are 150 x 80, 1.5m long total split into three 500mm sections.
- 3.5.2.8 There is cracking in the masonry panel at the corner of the south end. Stitch the corner from the outside using 6mm stainless steel HeliBars – “L” shaped to every fifth course. Refer to Appendix C for details. HeliBar to run all the way up the wall. Repoint the masonry on both sides using lime mortar. Internal area is about 1.5 x 3.0m.
- 3.5.3 South Facing Internal Panel:
- 3.5.3.1 There are top studwork spandrels over the brick gable wall either side of the stack (Photos 10 and 11). Allow for replacement of these two panels. Use 50 x 100 C16 studs at 400c/c, double studs under the purlins, lime render over a breather membrane with 9.0m OSB Type 3, sheep’s wool insulation and plasterboard on the inside faces. These details will need to be confirmed by the Architect.
- 3.5.3.2 Rebuild the top of the stack to Architect’s details. Allow for repointing of the existing stack on the external south facing elevation. This will be along two joints. Use lime mortar for this purpose.
- 3.5.3.3 Replace the rusty stack tie with a stainless steel equivalent (Photo 12).
- 3.5.3.4 There is a rusty steel lintel that supports the shallow brick arch over the fireplace (Photo 13). Rust jacking has occurred which has caused the brickwork to deform. This was originally flat plate that had been bent to form an arch. Allow for this to be replaced with either a galvanised or stainless steel equivalent. It is a bespoke item that will need to be specially made. Size of existing member is 70 x 18 x 1350 long curved upwards.
- 3.5.3.5 Check and clean the iron strap to the spandrel bottom rail on the west side. Repaint and provide new fixings into the timber beams. Use a proprietary 3 coat paint system for this.
- 3.5.3.6 Some of the brickwork on this side has been hacked away to form a recess in the gable wall (Photo 14). Allow for these to be replaced and tied back to the existing brickwork. The affected area is about 1.8m high by 2.0m. Use matching bricks with lime mortar.
- 3.5.4 West Facing Internal Panel:
- 3.5.4.1 An area of 1.2m x 1.5m of internal brickwork has been removed from the south end (Photo 15). Replace with matching bricks and lime mortar.
- 3.5.4.2 Replace the jowel post under the tie beam near the south end. Resin anchor this to the brick wall. Use M10 Rawl KF-2 at 450 vertical centres with 150 masonry embedment depth (Photo 16).
- 3.5.4.3 The brick plinth is much higher on this side of the building with a timber plate at the base of the stud panel. Allow for repairs to each end of this plate with new 1.2m long matching sections half-lapped into the remaining timber.
- 3.5.4.4 Provide a splice repair to one of the door studs. Minimum 450 long with size to match the existing stud.
- 3.5.4.5 Provide 4No. splice repairs to wall studs in this panel at their bases. Minimum 450 high with sizes to match the existing studs.
- 3.5.4.6 The stud on the right hand side of the door is completely missing. Provide a new replacement.

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3.5.4.7 Replace the lintel over the door with a new matching member.		
3.5.4.8 Allow for replacement of the bottom wall plate along this wall 200 wide by 130 deep. Note the original has a half lap joint in the middle which might be replicated (Photo 17).		
3.5.4.9 Rake out and repoint the joints in the brick plinth wall along this elevation using lime mortar. This is about 5.0m x 0.8m in area.		
3.5.4.10 It may be necessary to deepen the brick foundation along this elevation on a hit and miss basis to work with the proposed scheme. This is not included in this schedule, and is in abeyance.		
3.5.4.11 Replace 4no. missing bricks in the brick return to the door at the south end. Use matching bricks with lime mortar.		
3.6 Repair the two holes in the floor slab. Provide compacted fill beneath the slab and ST.4 concrete for the 100 thick patches. This was where the two trial holes were dug.		
3.7 South Facing External Elevation:		
3.7.1 Cut out and replace 5no. damaged bricks. Replace with matching bricks and lime mortar (Photo 19).		
Sub total =		
VAT (@20%) =		
Total =		

**4.0 Limitations of Survey and Document**

- 4.1 The new architectural scheme to convert and extend the studio is not included in this schedule. This includes the new roof that will be installed over the original roof in the main part of the studio. Only repairs to the existing roof structure have been included.
- 4.2 Any proposed underpinning that may be required for the conversion is also not included.
- 4.3 Repairs to the existing concrete floor slab have been included in the schedule. Replacement with a new lower floor slab has not been included.
- 4.4 No architectural finishes (e.g. roof tiles) have been included. This document only deals with repairs to the existing structure as it currently was at the time of inspection.
- 4.5 No information regarding services such as electricity, water and drainage are included.
- 4.6 Any requirement for slope stabilisation near the studio has also not been included.
- 4.7 Repairs and replacement of any hard standing around the existing building has not been commented on as we are not currently sure what the final scheme will be for this.
- 4.8 No provision for any temporary works has been included in the schedule. These are to be designed and installed as required by the appointed Contractor.
- 4.9 It should be stated that we have not inspected woodwork or other parts of the structure unless specifically detailed in the report, which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the structure is free from defect.
- 4.10 This report has been carried out to the Client's requirements and no liability is intended or will be accepted from any third party whatsoever.
- 4.11 The limits of liability are restricted to the contents of this report. No opening up or investigation of foundations etc was carried out, the inspection being visual only.
- 4.12 No checks on load bearing capabilities have been carried out.

**APPENDIX A**

**Photographs**



Photograph 01 – Snapped rafter on NE side.



Photograph 02 – Damage to the west side of the roof.



**Photograph 03 – Missing rafter and purlin end. Also damage to joint between top rail and eaves plate, NW corner.**



**Photograph 04 – Split in tie beam nearest the south end.**



Photograph 05 – Spandrel panel at the north end.



Photograph 06 – Concrete covered brick plinth wall and previous cement repair to bottom timber wall plate, north gable.



Photograph 07 – Condition of eaves plate/top rail, east facing elevation.



Photograph 08 – Principal post on east facing elevation at junction with later brick extension.



**Photograph 09 – Previous cement repair to bottom timber plate, east facing elevation.**



**Photograph 10 – Left hand spandrel panel at the south gable.**





Photograph 11 – Right hand spandrel panel at the south gable.



Photograph 12 – Existing steel tie through the stack at the south end.



Photograph 13 – Rust jacking caused by the fireplace lintel.



Photograph 14 – Pocket cut into the south gable wall.



**Photograph 15 – Pocket cut into the brick wall on the west facing elevation.**



**Photograph 16 – Previous cement repair to base of principal post, west facing elevation towards the south end.**



Photograph 17 – Bottom wall plate on west side showing the half lapped joint.





Photograph 18 – Missing bricks in plinth wall, west facing elevation.

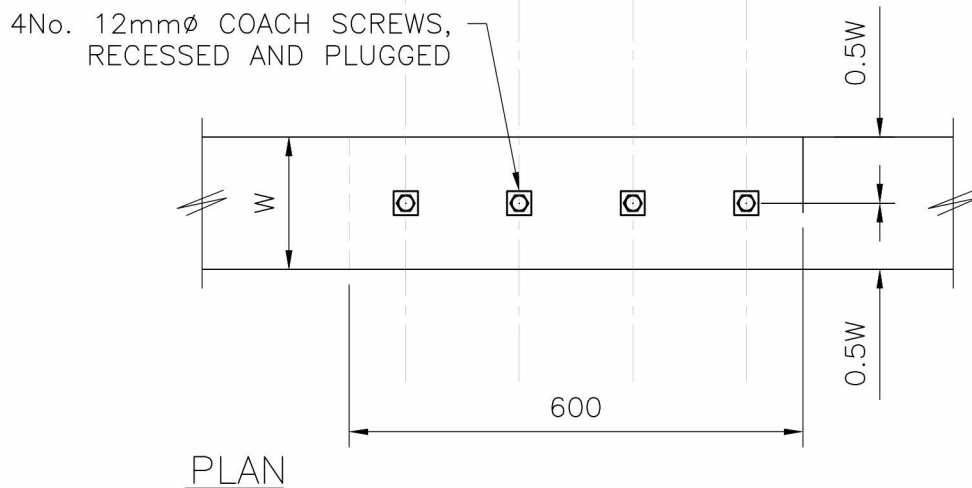
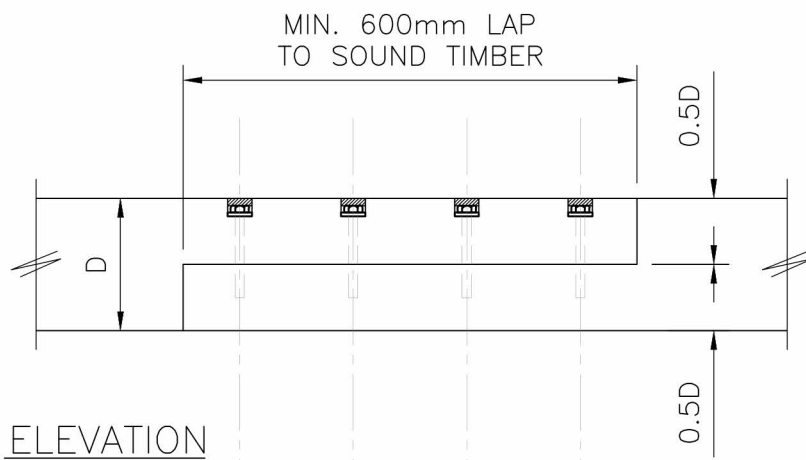


**Photograph 19 – External view of south facing gable.**



**APPENDIX B**

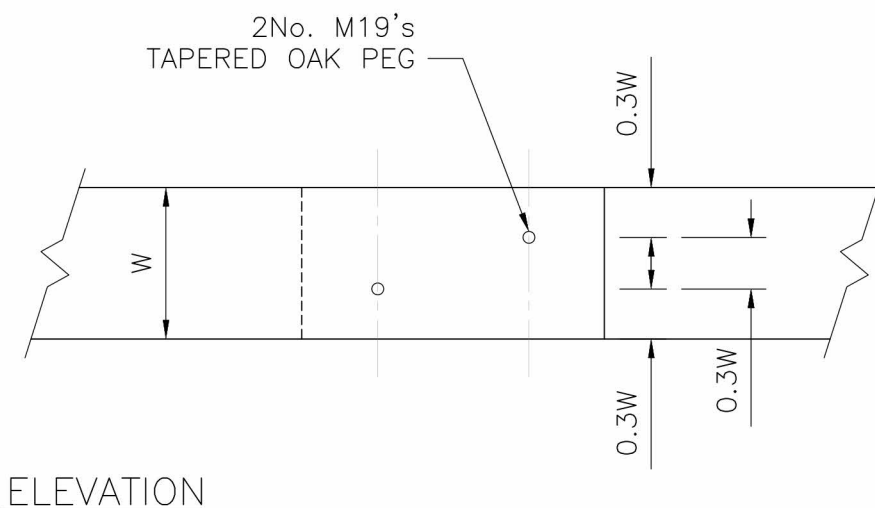
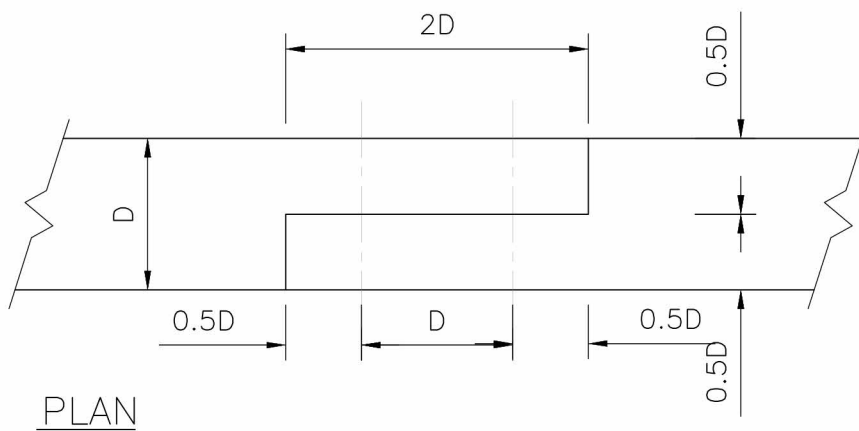
**Typical Repair Details**

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Rev —	Date 26.05.22	Revision ISSUE		Title HALVING JOINT		Drg No. 20385/SK100 —	





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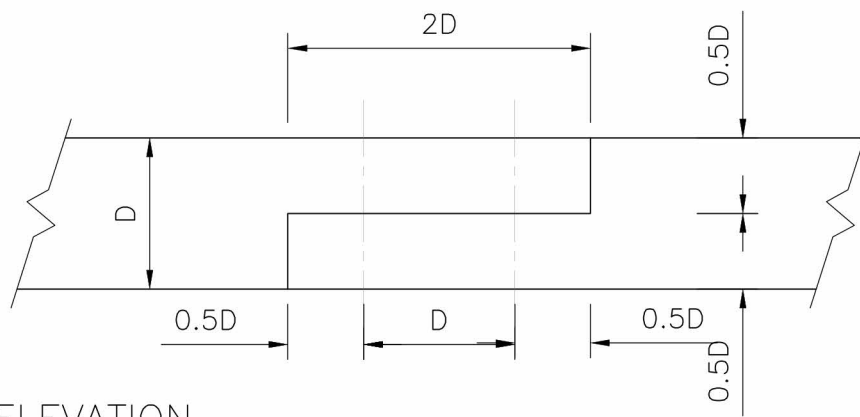
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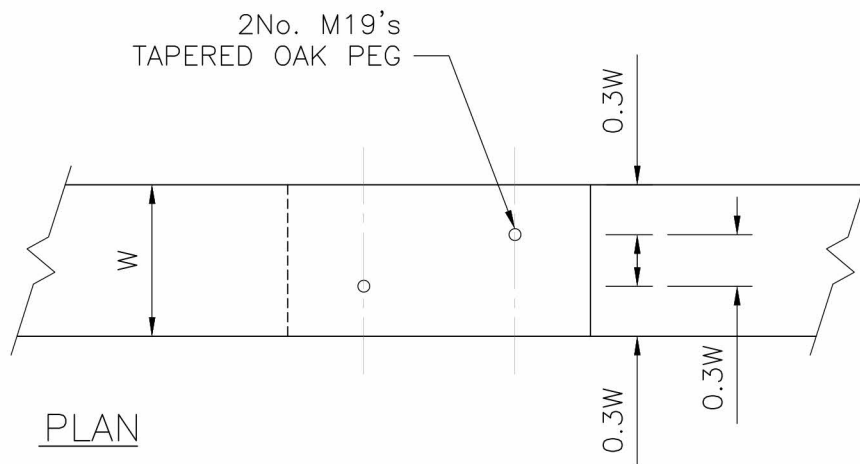
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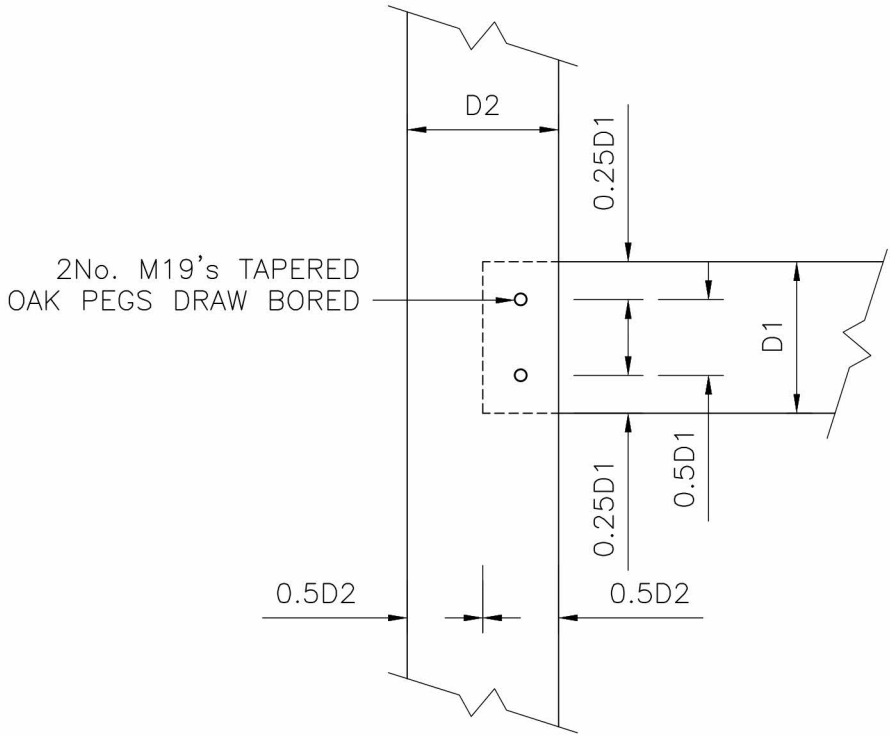


PLAN

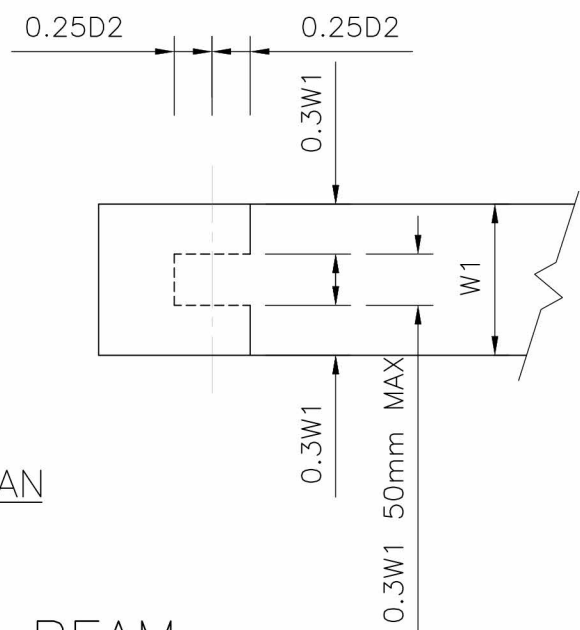
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Title COLUMN TO BEAM MORTISE & TENON JOINT						Drg No. 20385/SK103 —	



ELEVATION



PLAN

COLUMN TO BEAM  
MORTISE & TENON JOINT

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Project

POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF



The Morton Partnership  
Structural Engineers

Job no.

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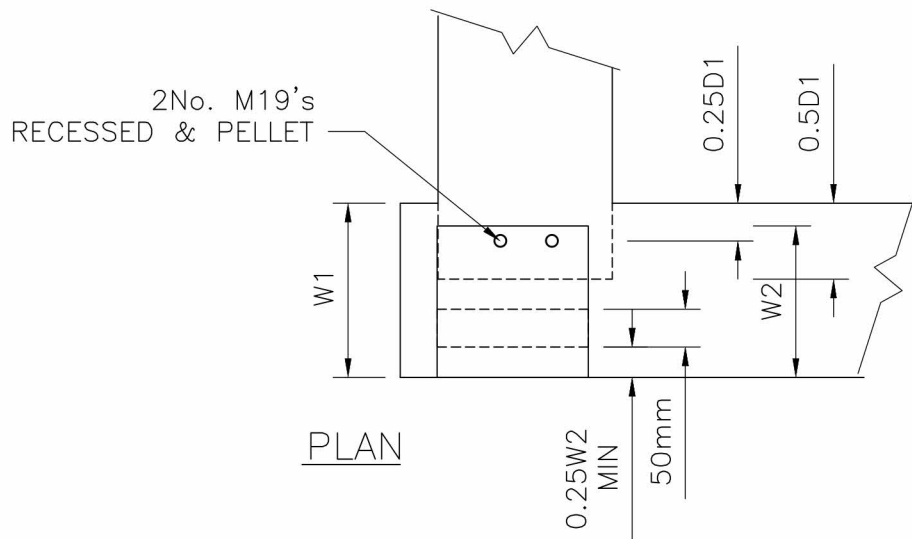
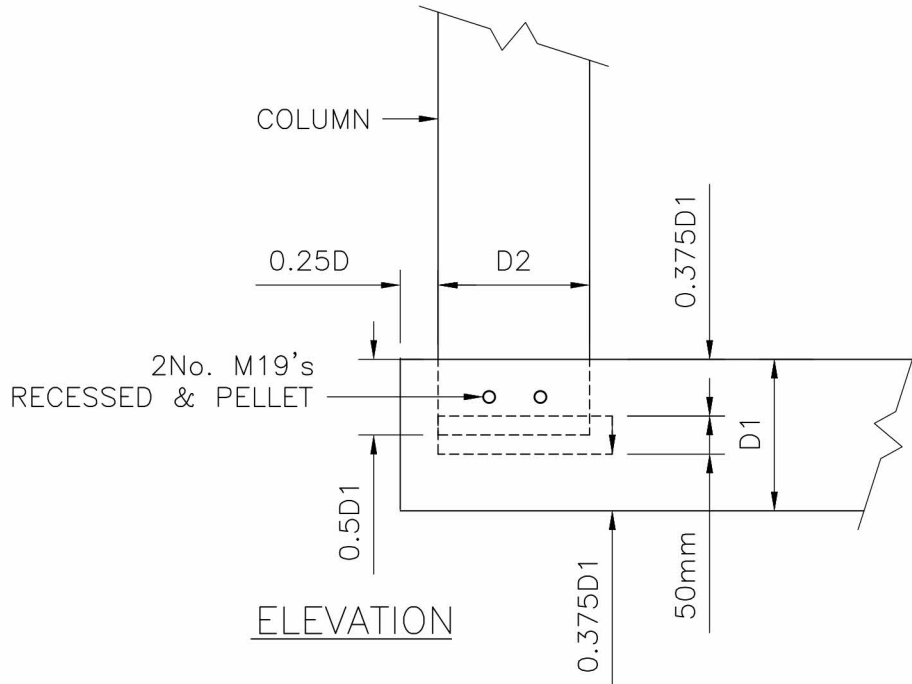


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SOLE PLATE/ CORNER POST CONNECTION



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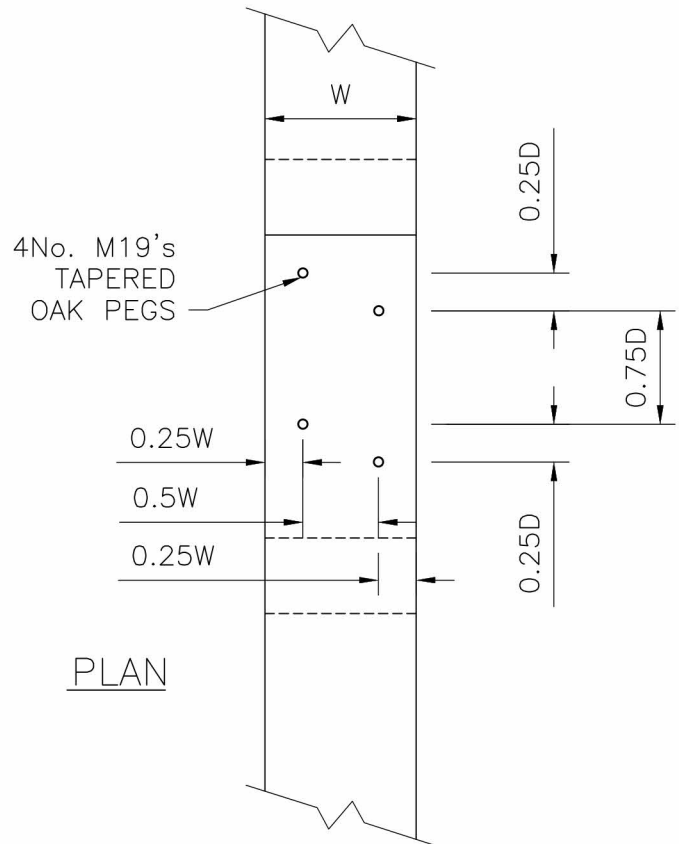
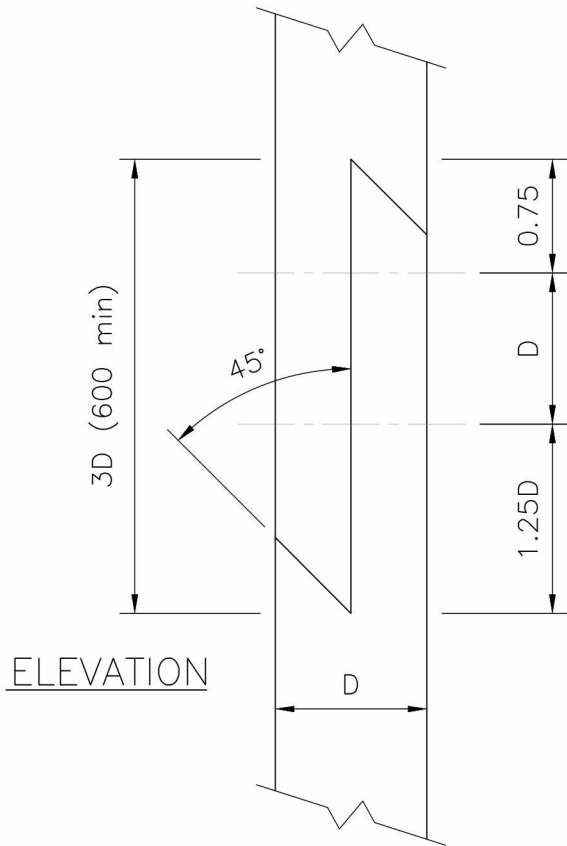
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SOLE PLATE/ CORNER POST CONNECTION



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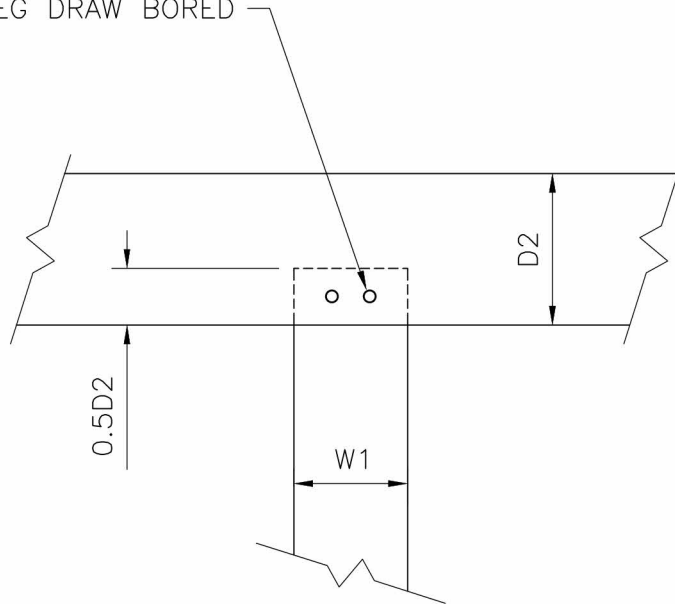


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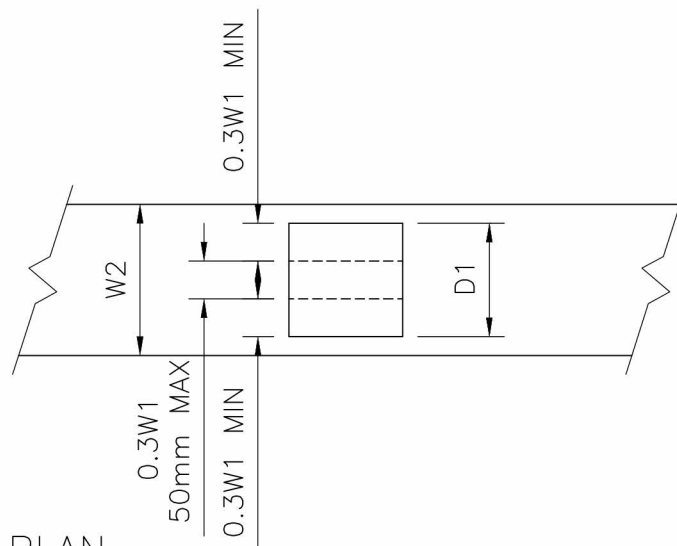
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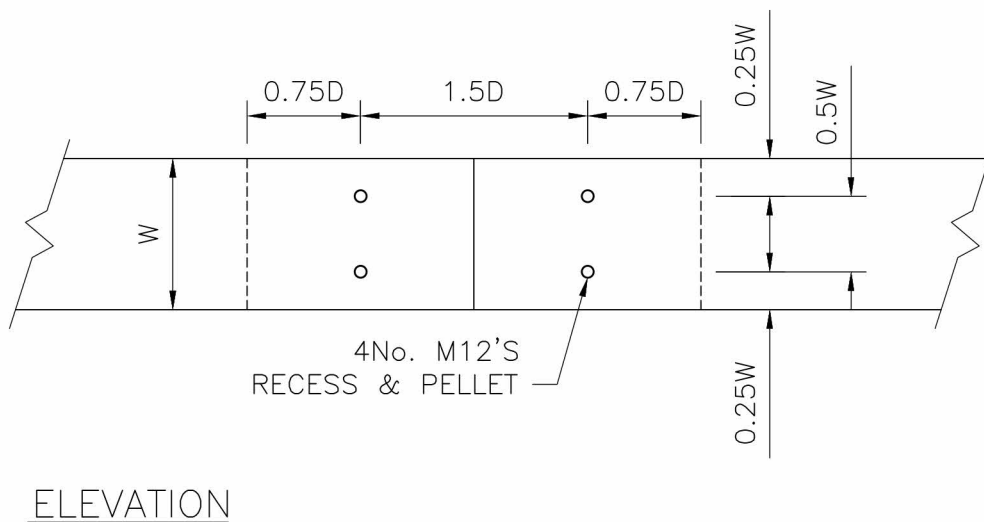
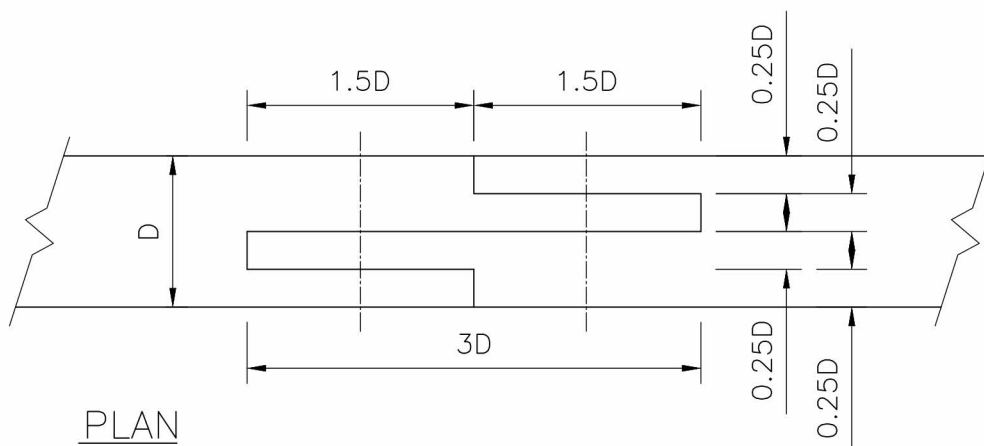


PLAN

WALL & SOLE PLATE TO POST  
TENON JOINT CONNECTION



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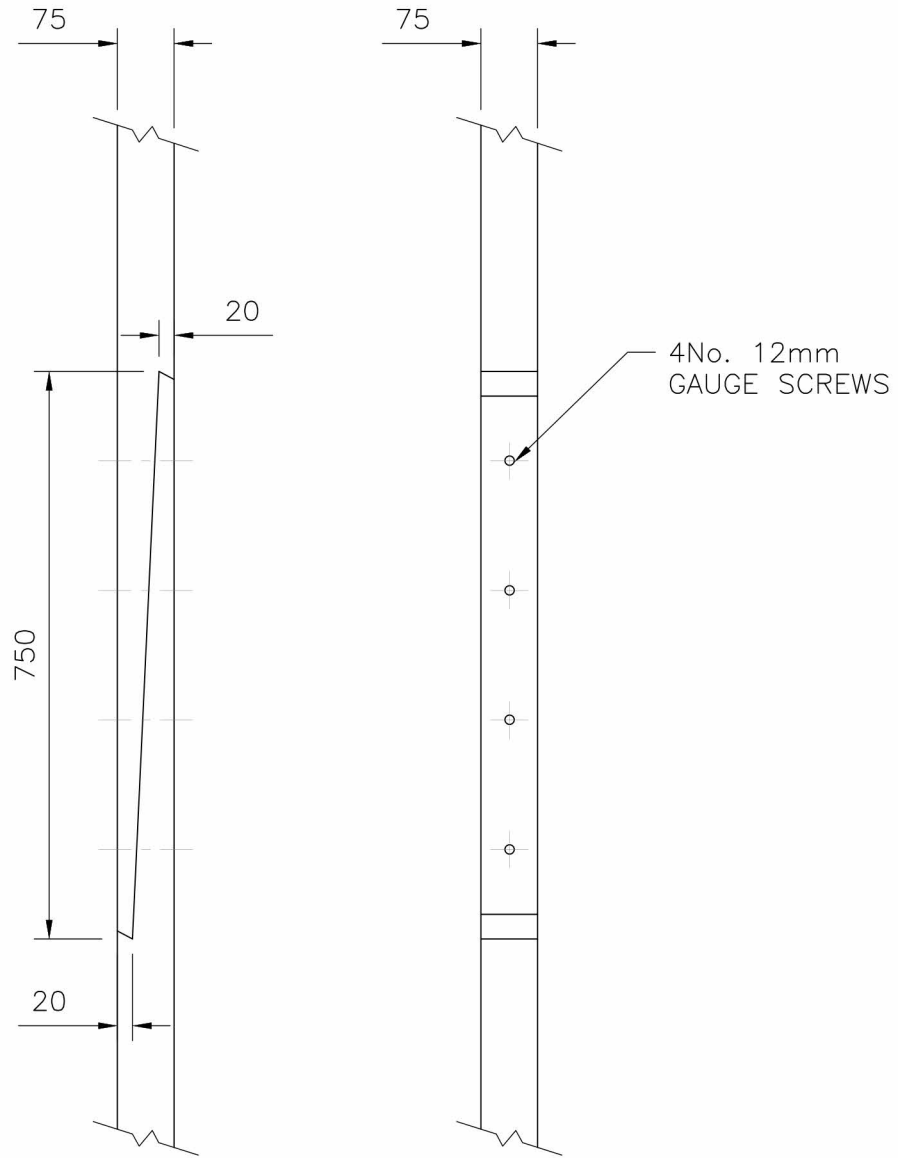
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## WALL PLATE CONNECTION DETAIL

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Title PURLIN SPLICE DETAIL						Drg No. 20385/SK108 —	





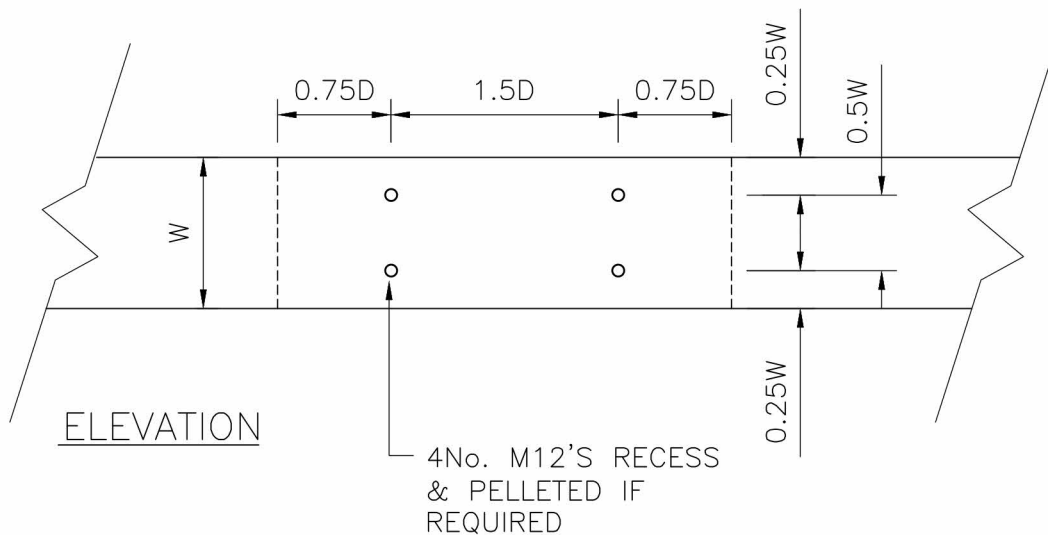
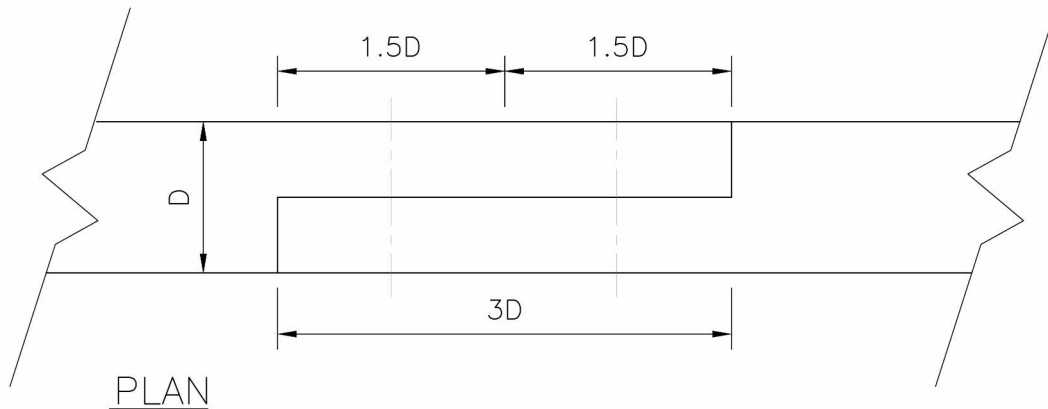
TOP VIEW

SIDE VIEW

PURLIN SPLICE DETAIL


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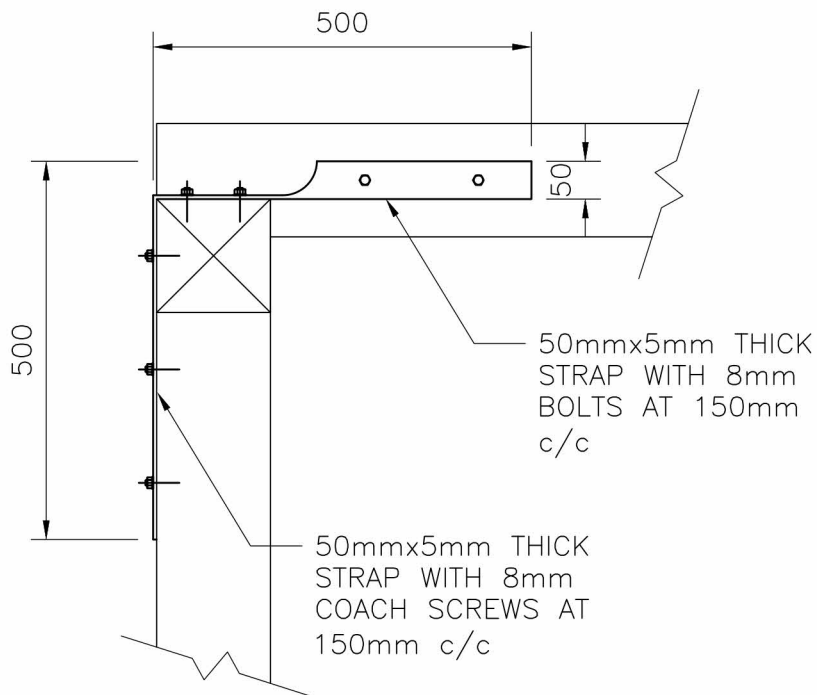
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Title BEAM SPLICE DETAIL						Drg No. 20385/SK109 —	



BEAM SPLICE DETAIL  
NOT TO SCALE





Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
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—	26.05.22	ISSUE					
Title TIE BEAM TO POST RESTRAINT STRAP						Drg No. 20385/SK110 —	

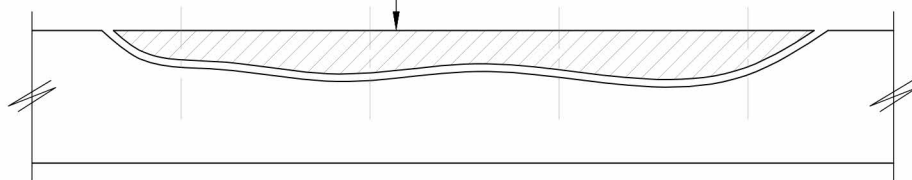


TIE BEAM TO POST RESTRAINT STRAP

SCALE 1:10


Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 <b>The Morton Partnership</b> Structural Engineers BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Job no. 20385	Rev —	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. —	Scale. 1:10 (A4)	
Rev —	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			
Title TIMBER FACE REPAIR						Drg No. 20385/SK111 —	

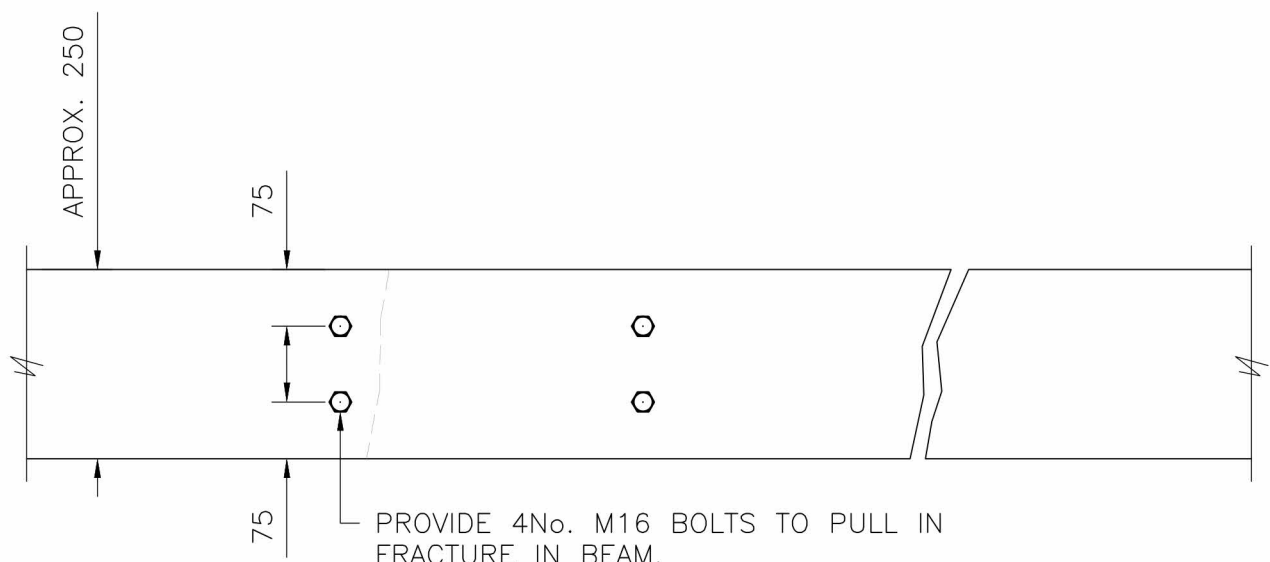
CLEAN/CUT OUT DECAYED TIMBER TO TOP OF WALL PLATE AND SCRIBE IN NEW OAK PACKER. SECURE WITH 10mmØ COACH SCREWS AT 250mm CENTRES, RECESSED AND PLUGGED.



TIMBER FACE REPAIR DETAIL

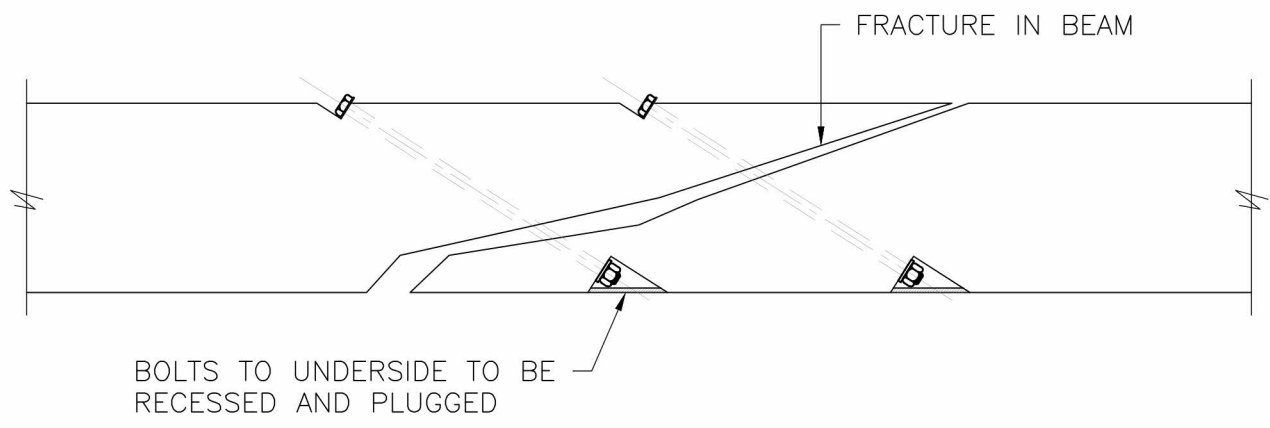
SCALE 1:10

Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Job no. 20385	Rev -	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. -	Scale. 1:10 (A4)	
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Title BEAM FRACTURE REPAIR DETAIL						Drg No. 20385/SK112 -	



PROVIDE 4No. M16 BOLTS TO PULL IN FRACTURE IN BEAM.  
 USE ROCKBOND (OR SIMILAR) EPOXY TIMBER MORTAR TO INFILL LARGE VOIDS ONCE FRACTURE IS REPAIRED.

PLAN

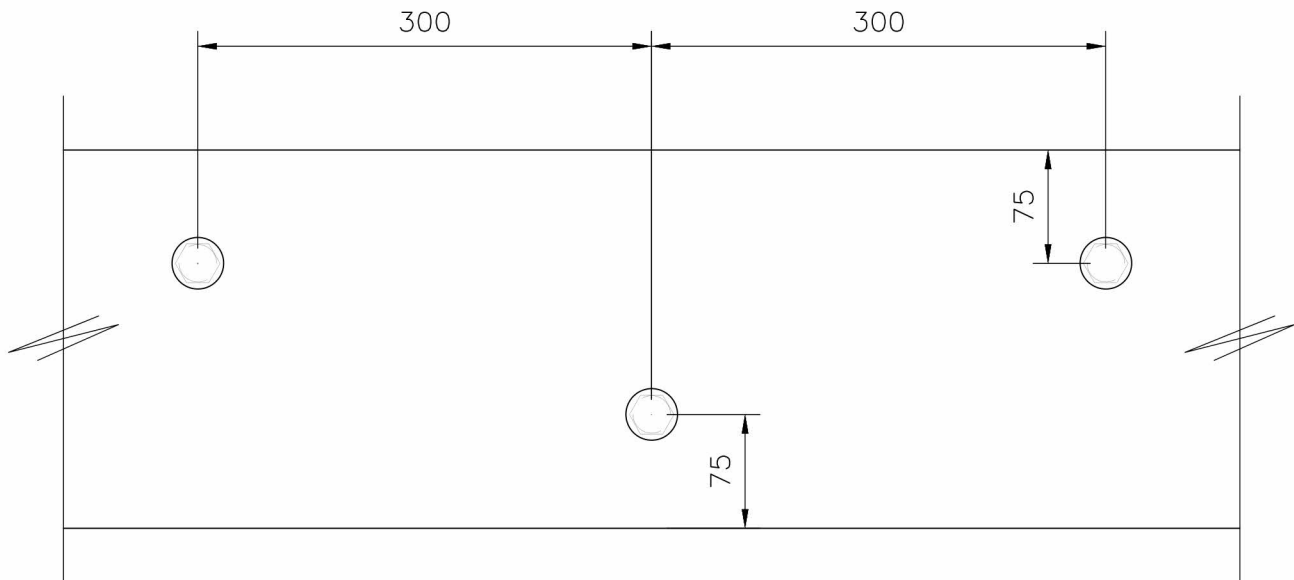


BOLTS TO UNDERSIDE TO BE RECESSED AND PLUGGED

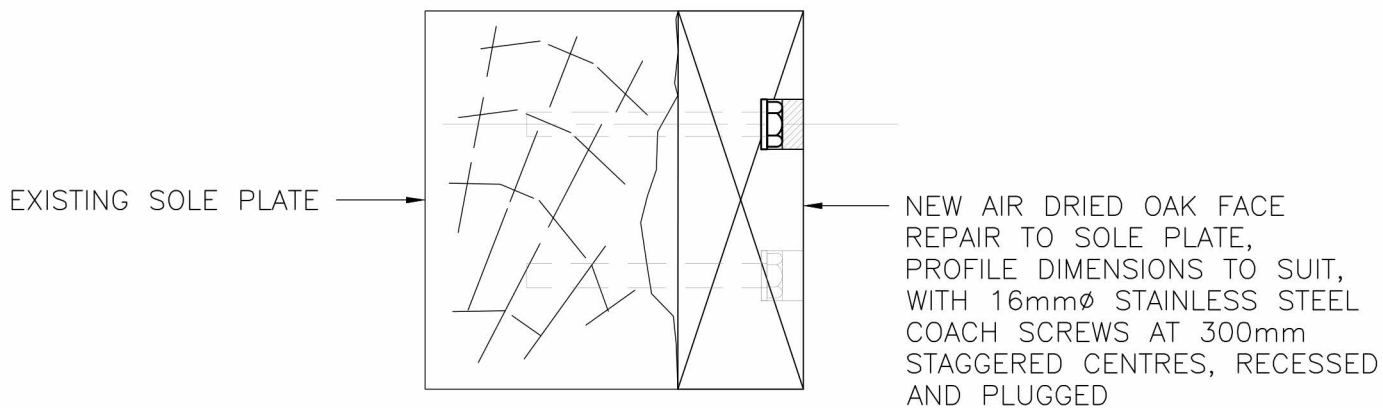
ELEVATION

BEAM FRACTURE REPAIR DETAIL  
 SCALE 1:10

Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 <b>The Morton Partnership</b> Structural Engineers
Job no. 20385	Rev —	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. —	Scale. 1:5 (A4)	BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Rev —	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			
Title SOLE PLATE FACE REPAIR						Drg No. 20385/SK113 —	



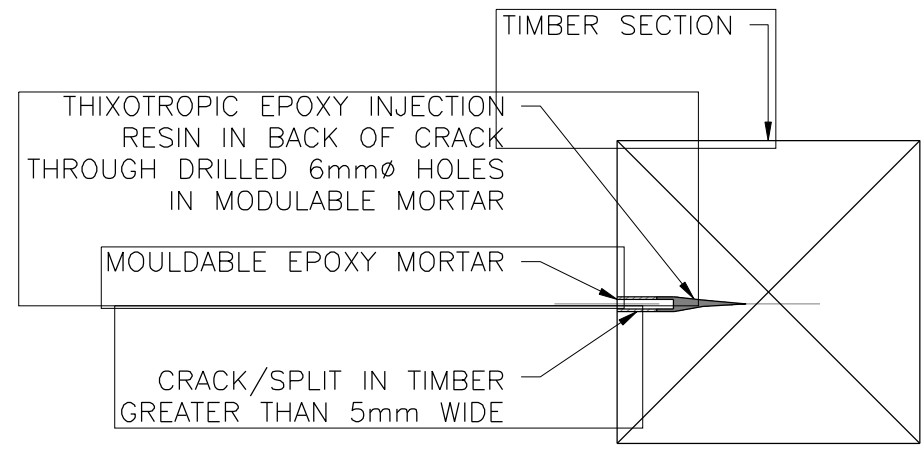
FRONT ELEVATION



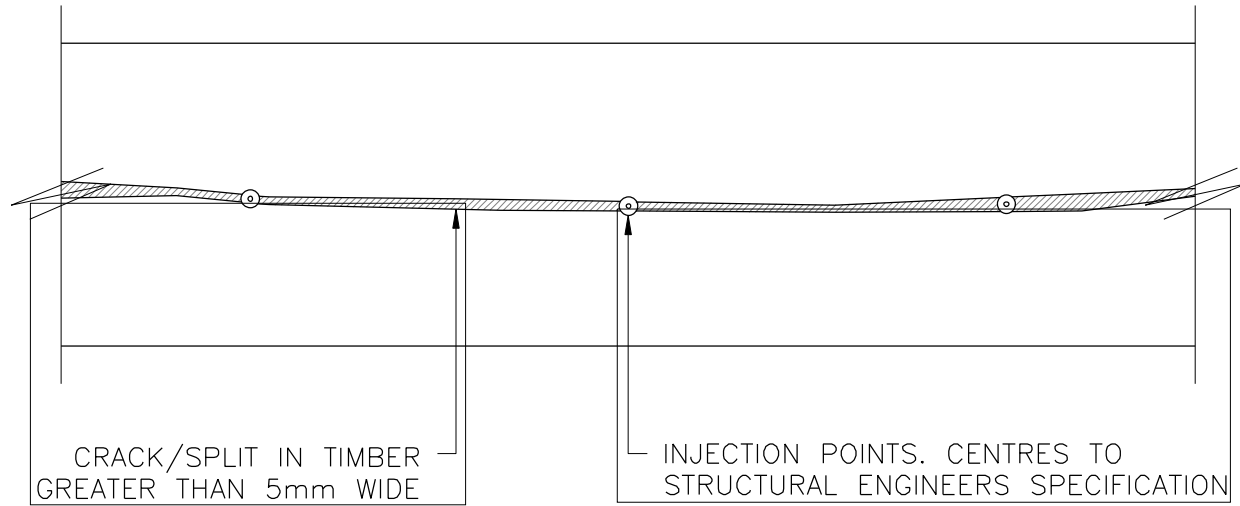
SECTION

SOLE PLATE FACE REPAIR

SCALE 1:5



TYPICAL SECTION



METHOD STATEMENT

-CLEAN OUT CRACKS OR SPLITS WITH A SAW BLADE AND VACUUM OUT ALL THE SAWDUST.

-FILL THE CRACKS WITH MOULDABLE EPOXY MORTAR.

-WHEN THE MORTAR HAS SET DRILL SMALL HOLES, ABOUT 6mmØ THROUGH THE EPOXY INTO THE BACK OF THE CRACK OR SPLIT. BLOW, OR VACUUM OUT THE DUST.

-DIRECTLY INJECT THIXOTROPIC EPOXY INJECTION INTO THE HOLE, UNTIL THE RESIN FLOWS FROM THE ADJACENT HOLE.

-CONTINUE UNTIL ALL THE HOLES HAVE BEEN INJECTED AND CAN OFF EACH WITH MOULDABLE EPOXY MORTAR.

-SAND OFF ANY EXCESS MORTAR AND COLOUR FINISH TO SUIT THE TIMBER.

IF THE CRACKS OR SPLITS ARE MORE THAN 30% THROUGH THE TIMBER IT MAY BE NECESSARY TO 'STITCH' THE TWO HALVES WITH DOWELS. THE CRACKED AREAS SHOULD BE CROSS DRILLED AND EPOXY-GLASS OR STEEL RODS FITTED IN THIXOTROPIC EPOXY INJECTION RESIN. REFER TO STRUCTURAL ENGINEER'S ADVICE FOR NUMBER AND CENTRES OF THE RODS.

- NOTES:-
1. ALL DIMENSIONS TO BE CHECKED ON SITE AND NO MEASUREMENTS TO BE SCALED OFF THIS DRAWING.
  2. IN CASE OF ANY DISCREPANCY THE ENGINEERS ARE TO BE NOTIFIED IMMEDIATELY.
  3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND SERVICE ENGINEER'S DRAWINGS AND SPECIFICATIONS.

REPORT ISSUE

ISSUE	PV	26.05.22
REV	AMENDMENT	CHK DATE

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Structural Engineers

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PROJECT: POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF

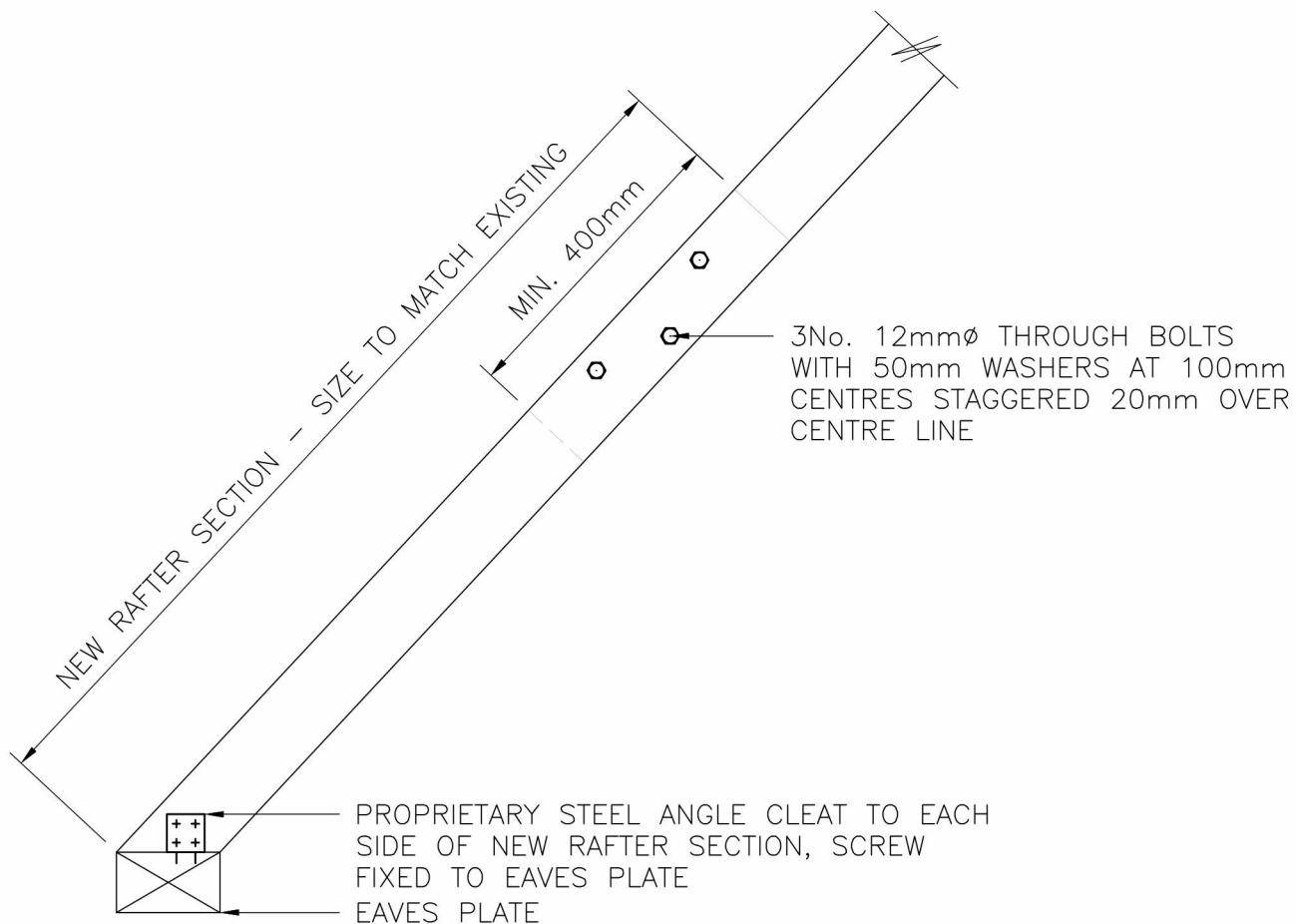
TITLE: RESIN REPAIR TO CRACK IN TIMBER SECTION

SCALE: SCALE 1:5 (A3) DRAWN BY: MM  
DATE: MAY 2022 CHECKED BY: PV



DRG No. 20385/SK114 (-)

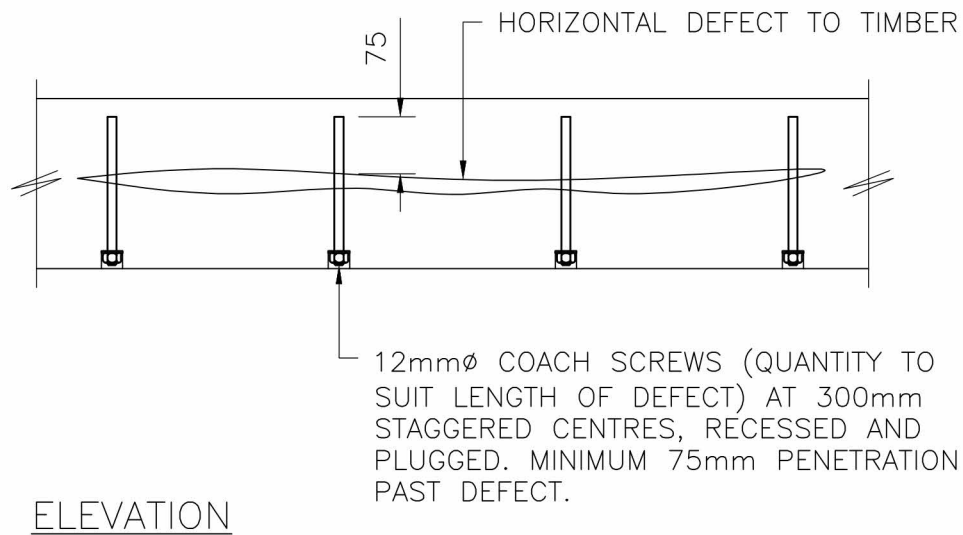
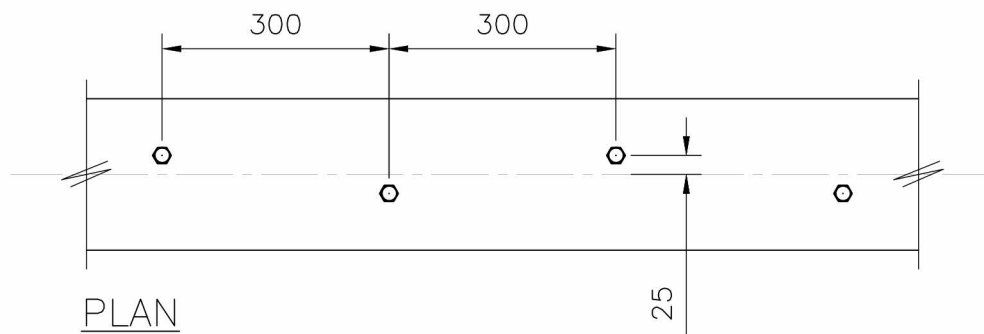


Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 <b>The Morton Partnership</b> Structural Engineers
Job no. 20385	Rev —	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. —	Scale. 1:10 (A4)	BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Rev —	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			
Title COMMON RAFTER SPLICE REPAIR						Drg No. 20385/SK115 —	





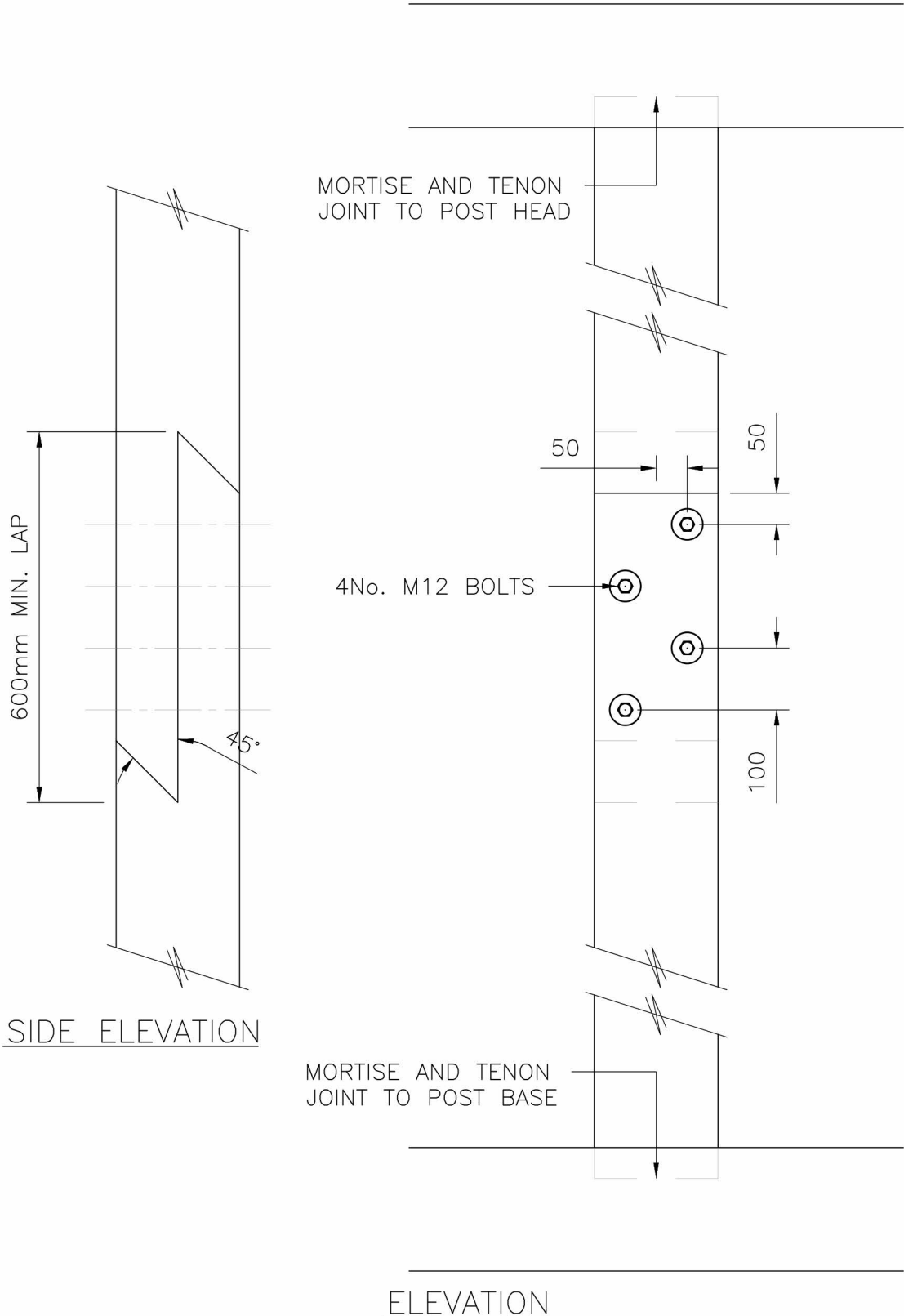
COMMON RAFTER SPLICE REPAIR  
SCALE 1:10

Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Job no. 20385	Rev —	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. —	Scale. 1:10 (A4)	
Rev —	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			
Title BOLT REPAIR TO HORIZONTAL DEFECTS						Drg No. 20385/SK116 —	




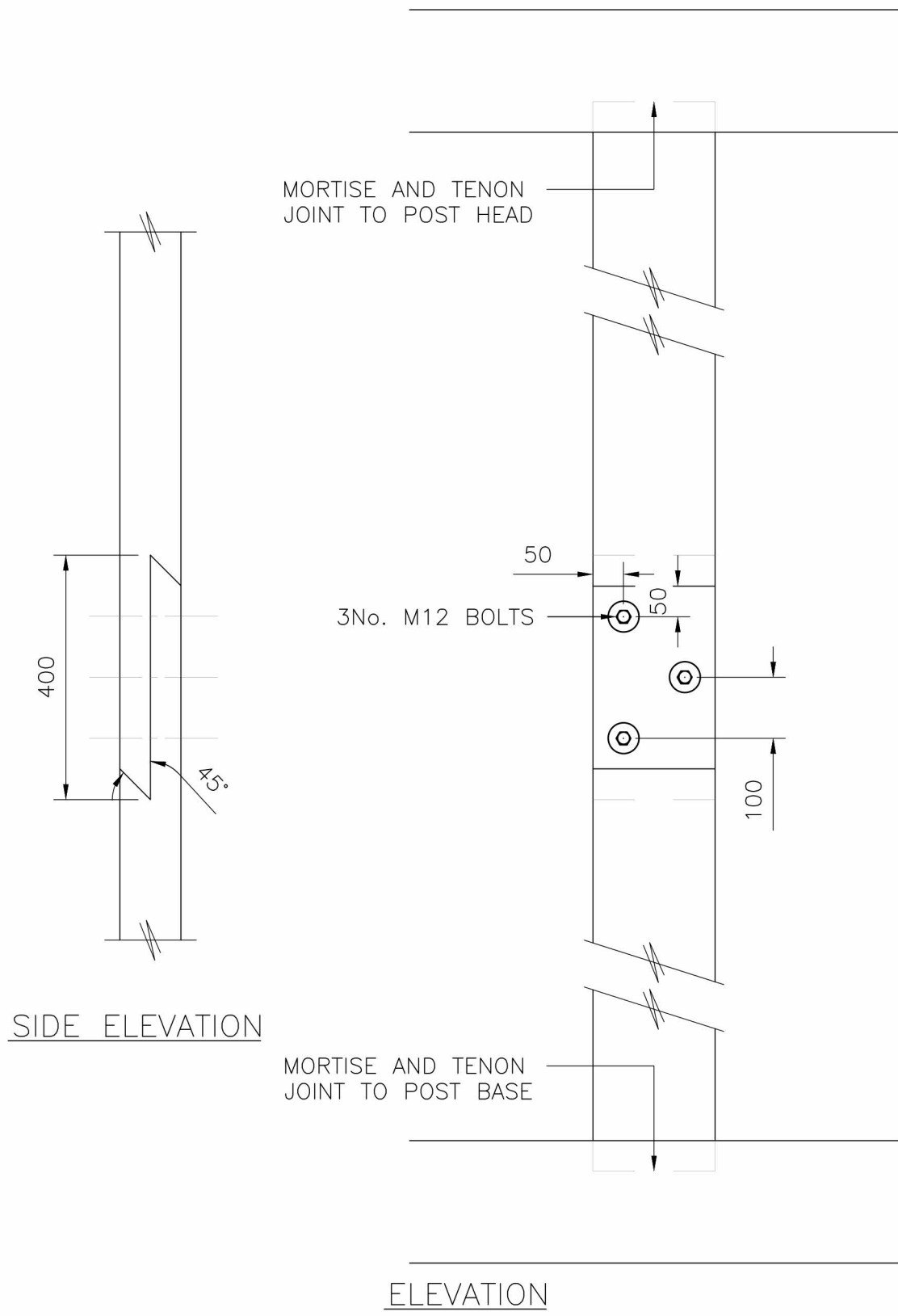
BOLT REPAIR TO HORIZONTAL DEFECT  
SCALE 1:10


Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Job no. 20385	Rev -	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. -	Scale. 1:10 (A4)	
Rev -	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			
Title PRINCIPLE POST SPLICE REPAIR						Drg No. 20385/SK117 -	

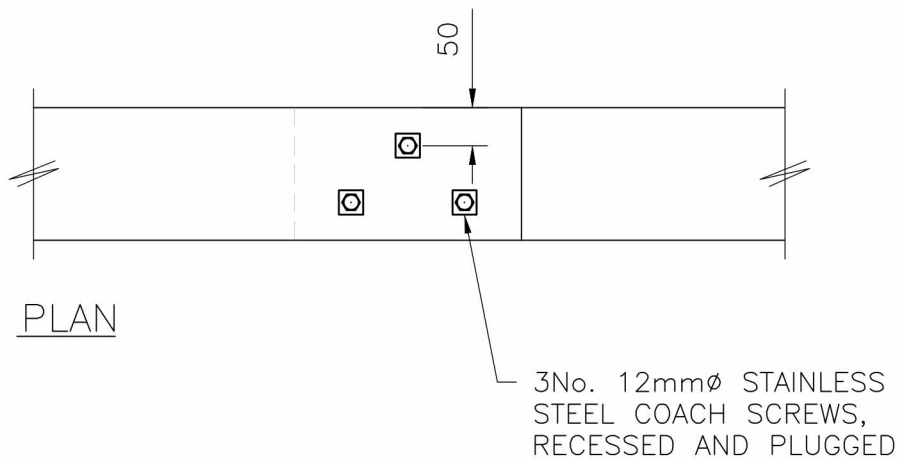
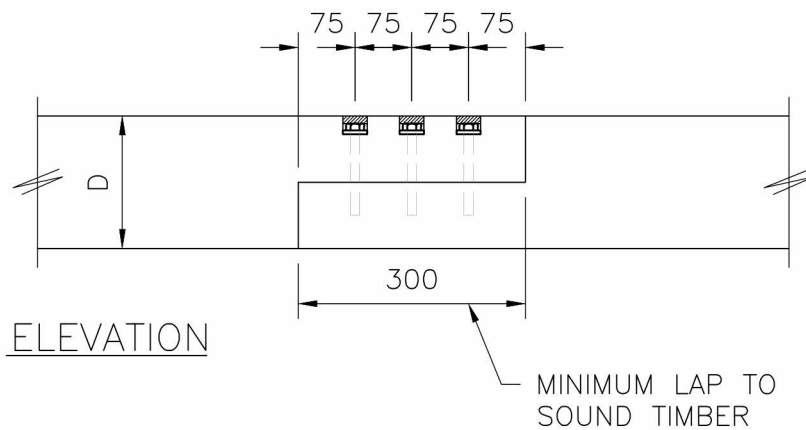







Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							 BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX
Job no. 20385	Rev -	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. -	Scale. 1:10 (A4)	
Rev -	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			
Title COMMON STUD SPLICE REPAIR						Drg No. 20385/SK118 -	

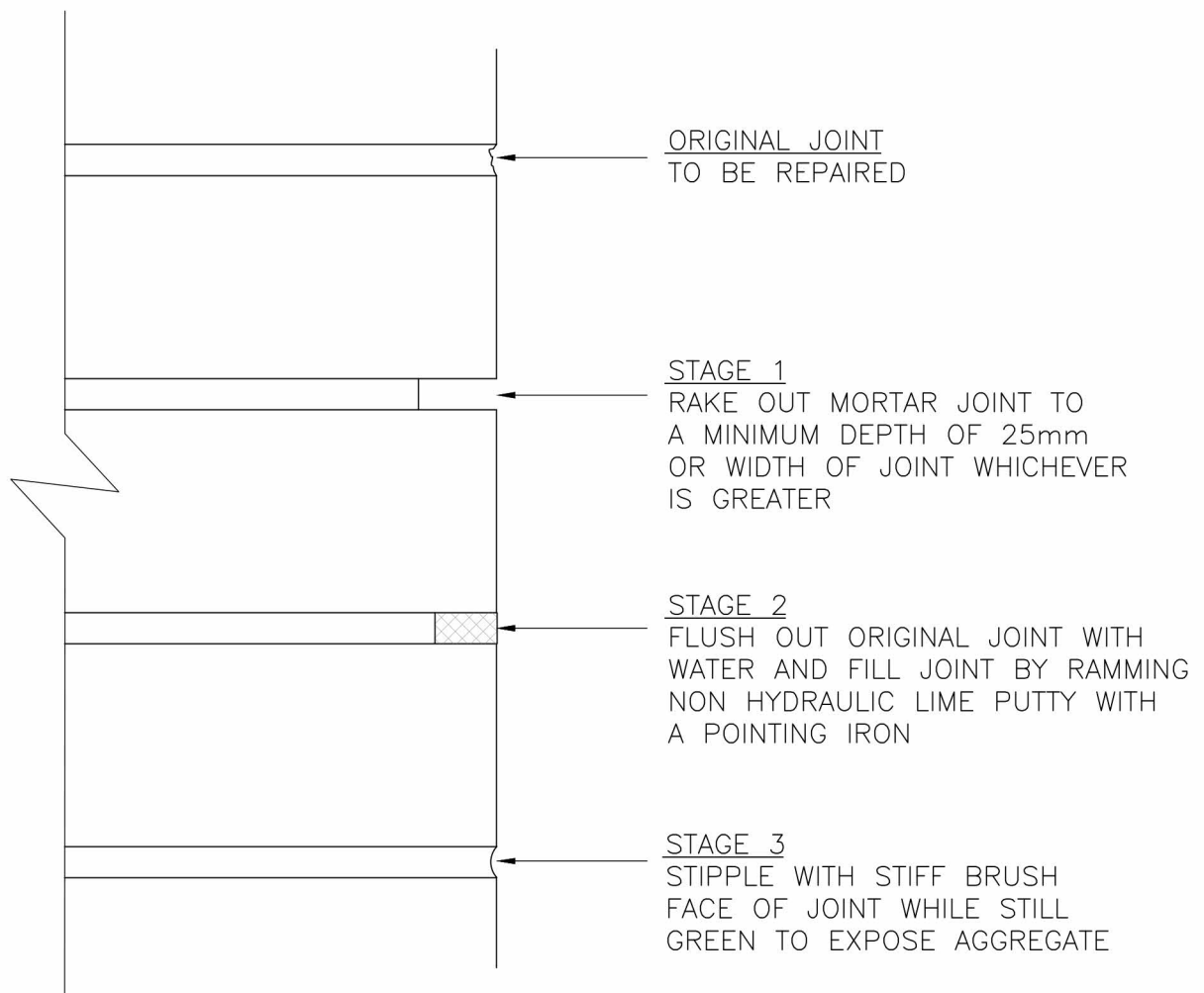


Project POUND FARM STUDIO, HADLEIGH RD, HIGHAM, CO7 6LF							
Job no. 20385	Rev —	Date MAY '22	Drawn By MM	Chkd. By PV	Sheet no. —	Scale. 1:10 (A4)	
BRUNEL HOUSE, NORWICH ROAD, HALESWORTH, SUFFOLK. IP19 8HX		Rev —		Date 26.05.22		Revision ISSUE	
Title TIE-BEAM SPLICE REPAIR						Drg No. 20385/SK119 —	



TIE-BEAM SPLICE REPAIR  
SCALE 1:10

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Rev —	Date 26.05.22	Revision ISSUE		<b>REPORT ISSUE</b>			 	
Title TYPICAL REPOINTING TO BRICKWORK							Drg No. 20385/SK120 —	



REPOINTING TO BRICKWORK DETAIL  
NOT TO SCALE

**APPENDIX C**

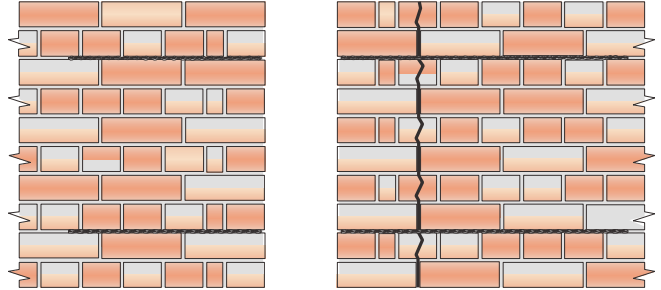
**Typical HeliBar Repair Details**

# Repair of a Crack Near a Corner in a Solid Wall using HeliBars

## METHOD STATEMENT

1. Using a twin-bladed, diamond-tipped wall chaser with vacuum attachment, cut slots into the horizontal mortar joints to the specified depth and at the required vertical spacing. Ensure that NO mortar is left attached to the exposed brick surfaces in order to provide a good masonry/grout bond.
2. Remove ALL dust and 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 prior to commencing step 5.
3. Mix HeliBond cementitious grout using a power mixer and load into the Helifix Pointing Gun CS.
4. Fit the appropriate mortar nozzle.
5. Inject a bead of HeliBond grout, approx. 15mm deep, into the back of the slot.
6. Push the 6mm HeliBar into the grout to obtain good coverage.
7. 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.
8. The crack within the wall should be weather-proofed using an appropriate Helifix bonding agent e.g. HeliBond or CrackBond, depending on the width of the crack and the surface made good or left ready for any decoration.
9. Clean tools with clean, fresh water.

*N.B. Pointing may be carried out as soon as is convenient after the HeliBond has started to gel.*



## RECOMMENDED TOOLING

- For cutting slots up to 40mm deep .....Twin bladed cutter with vacuum attachment
- For mixing HeliBond .....3-jaw-chuck drill with mixing paddle
- For injection of HeliBond into slots .....Helifix Pointing Gun CS with mortar nozzle
- For smoothing pointing .....Standard finger trowel

## Specification Notes

The following criteria are to be used unless specified otherwise:

- A. Depth of slot into the masonry to be 35mm to 40mm.
- B. Height of slot to be equal to full mortar joint height, with a minimum of 8mm. For thin mortar joint specifications refer to the Helifix Technical Dept.
- C. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.
- D. Normal vertical spacing is 450mm (6 brick courses).
- E. Where a crack is less than 300mm from the end of a wall or an opening the HeliBar is to be continued for at least 100mm around the corner and bonded into the adjoining wall.
- F. In hot conditions ensure the masonry is well wetted or primed to prevent premature curing of the HeliBond due to rapid de-watering. Ideally additional wetting of the slot, or priming with HeliPrimer WB, should be carried out just prior to injecting the HeliBond grout.
- G. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.

The above specification notes are for general guidance only and Helifix reserves the right to amend details/notes as necessary.

## GENERAL NOTES

If your application differs from this repair detail or you require specific advice on your particular project, call the Helifix Technical Sales Team on **020 8735 5222**. Our Technical Department can provide you with a full support service including:

- Advice, assistance and recommendations on all structural repair matters
- Devising and preparing complete repair proposals for specific situations
- An insurance-backed warranty via our Approved Installers scheme