Atelier Mb Ltd

Leonardo Hotels

2045 Midland Hotel - West Entrance

2045 Repair Specification

12-06-2025

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C40
Cleaning masonry

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
12/06/2025		2045 Repair Specification		A	
12/06/2025		2045 Repair Specification			

Details of amended clauses

No changes to show.

General/ preparation

001 Methodology

1. Once scaffolding erected, carry out full survey of stonework area under consideration. Survey to be carried out by suitably skilled masonry expert. This survey should determine the characteristics of the existing stone. – and how vulnerable it is to acid attack or damage from abrasives.
2. Determine location, type, and severity of surface deposits.
3. Carry out TORC cleaning using the softest medium needed to remove heavy soiling and loose surface from damaged areas. This is done to ascertain whether there are any significant cracks which could affect the depth and type of indent repair.
4. Following indent repair work, carry out DOFF cleaning to remove any residual smoke and or other surface soiling as identified by the contractor and Conservation Architect on site.
5. If this process does not sufficiently remove the soiling, consider appropriate chemical cleaning trials – such as Proteger ProShield Noir Wash.
6. Contractor must sufficiently protect internal fabric from water ingress prior to carrying out cleaning techniques. Issue proposed methodology for sign off prior to proceeding.

110 Scope of work

1. Removal of soot staining, loose surface crust as a result of fire damage, localised melted material adhered to granite.
2. To be read in conjunction with TORC and DOFF NBS documents, and methodology by Mather and Ellis.

120 Related repair and remedial works

1. Work to be carried out before cleaning work: Stone indent repairs and redressing must take place after TORC and prior to DOFF cleaning.

142 Removal of fittings

1. Timing: Before commencement of cleaning work.
2. Disturbance to surfaces: Minimize.
3. Items for disposal: To be agreed
4. Items to be kept for reuse: Historic gate/door hinge fittings.

160 Protection

1. Additional Notes:: Provide and maintain throughout the cleaning works, effective protection and sealing to prevent:
   · Ingress of water, cleaning agents, debris and dust into the building via windows, doors, vents and other openings.
   · Damage to all components and finishes that can reasonably be protected during cleaning procedures, including lightning conductors, roof coverings, flashings, rainwater goods, glass, metal work, services equipment, signage and pavings.
   · Staining of surfaces from ferrous or other reactive metals.
2. Surfaces not designated for cleaning: Prevent damage, including marking and staining.
3. Openings: Prevent ingress of water, cleaning agents and detritus.
   3.1. Vents and grilles: Protect but do not seal up ventilation grilles, air bricks, or other ventilation openings without first seeking instructions.
4. Temporary mechanical fastenings
   4.1. In masonry: Locate in joints.
   4.2. In other surfaces: Seek instructions.
5. Additional protection:

165 PROTECTIVE MEMBRANES/BOARDS

1. · Use approved protective boards, sheetings, films, sealants and sealing tapes that do not stain protected materials and that can be readily removed after cleaning without damaging or staining the protected material.
   · Do not use temporary fastenings into components, masonry features and fittings without approval. When fixing into masonry, locate fastenings in joints

175 Control and disposal of wash water and detritus

1. Disposal: Safely. Obtain approvals from relevant Authority.
2. Control of wash water: Collect and divert to prevent ingress and damage to building fabric and adjacent areas.
3. · Discharge wash water to an approved foul drainage system. Check outlets, gullies, etc. regularly to ensure that they are not blocked
4. Above and below ground drainage systems: Keep free from detritus and maintain normal operation.
   4.1. .: Ensure that drains are clear on completion of cleaning work.

180 Cold weather

1. Cleaning procedures using water: Do not use when air temperature is at or below 5°C. Protect damp surfaces from frost.
2. Chemical cleaning agents: Do not use when surface temperatures are below those recommended by manufacturer.

190 Cleaning generally

1. Operatives: Appropriately trained and experienced for each type of cleaning work.
   1.1. Evidence of training: Submit on request.
2. Control of cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.
3. Detritus: Remove regularly. Dispose of safely.
4. Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
5. Modifications to cleaning methods and materials: Seek instructions.

210 HEALTH AND SAFETY

1. Take all necessary precautions to protect site operatives and the general public from health hazards associated with the materials and procedures for the cleaning method(s) used.

215 Record of cleaning works

1. Written report: Record cleaning methods and procedures used for each type of surface and deposit.
   1.1. Content: Relevant attributes of cleaning methods used including:
      1.1.1. Equipment and settings.
      1.1.2. Dwell times.
      1.1.3. Number of applications.
      1.1.4. Ambient temperatures.
2. Additional documentation: Survey before cleaning: Photogrammetric drawings of each elevation
3. Submission: At completion of cleaning works.

220 CONDITION OF SURFACES

1. Before commencing cleaning of each area, ensure that surfaces are in a suitable condition to be cleaned and that:
   - Walling and associated features/components are stable and that preparatory repair works are complete.
   - Fixtures and fittings have been removed.

230 Trial samples

1. Trial sample reference: TS 001 to 004
   1.1. Surface: Peterhead and Shap Granite, Dalbeattie Granite, Limestone.
   1.2. Location/ Size: TBA on site
   1.3. Type of soiling: Soot/smoke staining and thermal shock damage
   1.4. Cleaning methods: TORC
2. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.
3. · Provide the CA with a copy of trial sample records
   · Make arrangements to enable the CA and all other interested parties including Conservation Officers and other Heritage where listed. The CA should ascertain and take note of the agreed level of clean that all the interested parties have approved.
   · Obtain approval before commencing cleaning.

230 Trial samples Type A

1. Trial sample reference: TS 005
   1.1. Surface: Faience terracotta balcony
   1.2. Location/ Size: TBA on site
   1.3. Type of soiling: Soot/smoke staining and thermal shock damage.
   1.4. Cleaning methods: TORC
2. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.
3. · Provide the CA with a copy of trial sample records
   · Make arrangements to enable the CA and all other interested parties including Conservation Officers and other Heritage where listed. The CA should ascertain and take note of the agreed level of clean that all the interested parties have approved.
   · Obtain approval before commencing cleaning.

230 Trial samples Type B

1. Trial sample reference: TS 006 to 007
   1.1. Surface: Peterhead and Shap Granite, Dalbeattie Granite, Limestone
   1.2. Location/ Size: TBA on site
   1.3. Type of soiling: Melted material deposit adhered following fire.
   1.4. Cleaning methods: TORC
2. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.
3. · Provide the CA with a copy of trial sample records
   · Make arrangements to enable the CA and all other interested parties including Conservation Officers and other Heritage where listed. The CA should ascertain and take note of the agreed level of clean that all the interested parties have approved.
   · Obtain approval before commencing cleaning.

230 Trial samples Type C

1. Trial sample reference: TS 008 to 012
   1.1. Surface: Peterhead and Shap Granite, Dalbeattie Granite, Limestone, faience terracotta
   1.2. Location/ Size: TBA on site
   1.3. Type of soiling: Soot/smoke staining
   1.4. Cleaning methods: DOFF and chemical wash as required.
2. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.
3. · Provide the CA with a copy of trial sample records
   · Make arrangements to enable the CA and all other interested parties including Conservation Officers and other Heritage where listed. The CA should ascertain and take note of the agreed level of clean that all the interested parties have approved.
   · Obtain approval before commencing cleaning.

250 CLEANING GENERALLY

1. · Use operatives who are skilled Stonehealth Approved, having been trained and experienced with the equipment, materials and procedures for the type(s) of cleaning and surfaces specified. Provide evidence of their training and experience to the CA on request.
   · Confine cleaning to designated area(s)/surfaces. Do not allow cleaning agents or residues to stray onto adjacent or protected surfaces.
   · Clean, collect and safely dispose of debris from scaffolding, ledges, etc. at the end of each day. Prevent debris falling to lower levels.
   · Prevent marking of cleaned areas from dirt and debris splashing up from scaffold boards.

260 MONITORING

1. · Regularly monitor effects of each cleaning procedure against the degree of cleaning established by approval trial sample(s). Seek instructions immediately, wherever:
   o Disruption to the surface occurs
   o Anticipated level of surface cleaning is not being achieved
   o Discolouration or stains are revealed by cleaning.
   · Do not modify cleaning procedures or materials without approval from the CA

270 RECORDING CLEANING METHODS

1. · Maintain records of cleaning methods used for each area/surface. Include details of equipment type, cleaning agents, ambient temperature conditions and other variables as specified in the relevant method(s) of cleaning clauses(s)
   · On completion of cleaning, provide copies of records to the CA

280 CONTROL OF WATER

1. · Provide suitable temporary catchment boards/sheeting, gutters etc. to collect wash water and divert it to suitable discharge points. Location of catchment are(s) TBA
   · Do not let wash water build up at outlets or above levels of flashings or anywhere where there is risk of it penetrating and causing damage to the building fabric.
   · Ensure that water does not penetrate interiors and damage finishes, etc. Monitor interior of building and seek instructions when any signs of damp appear internally.

Products/ equipment

300 Compatibility of chemical products

1. Products: Compatible and produced by the same manufacturer.

310 BRUSHING AND SCRAPING

1. Before commencing any other methods of cleaning, remove loosely adhered deposits and heavy deposits of biological matter using suitable corrosion resistant brushes and scrapers/spatulas that do not abrade or gouge the surface. Do not use brushes with steel bristles.

321 TOOLING

1. To remove thick encrustations of dirt carbon and limescale etc. Is not permitted unless agreed in advance with CA and:
   - The work is carried out by skilled and experienced stone masons.
   - The original surface/detail is not removed unless agreed otherwise with the CA.

322 Abrasive cleaning equipment

1. Manufacturer/ Supplier: Not permitted.

342A Pressurized water cleaning equipment

1. See Also: To be read in conjunction with the stand alone specification document for TORC
2. Manufacturer: Stonehealth Ltd
   2.1. Contact details
      2.1.1. Address: G4/5 Draycott Business Park
      Cam
      Dursley
      Gloucestershire
      GL11 5DQ
      2.1.2. Telephone: +44 (0)1453 540600
      2.1.3. Web: www.stonehealth.com
      2.1.4. Email: info@stonehealth.com
   2.2. Product reference: TORC Gentle Vortex Cleaning System (With Auxiliary Pump)
3. Cleaning operations
   3.1. Cleaning methods: Gentle vortex cleaning system.
   3.2. Rinsing: As Cleaning schedule.
4. Power supply: Auxiliary pump.
5. WaterConsumption: 60 L/hour.
6. Ambient temperature: Not suitable for use below 5°C.
7. Volume: 3540 L/minute (125 CFM).
8. Dry weight: 240 kg.
9. Pump: 600 x 310 x 340 mm.
10. Surface to be Cleaned: Polished granite, honed limestone, rough granite.
11. Medium: Calcite (TBC).

352 Steam cleaning equipment Type A

1. See Also: To be read in conjunction with the stand alone specification document for DOFF
2. Manufacturer: Stonehealth Ltd
   2.1. Contact details
      2.1.1. Address: G4/5 Draycott Business Park
      Cam
      Dursley
      Gloucestershire
      GL11 5DQ

2.1.2. Telephone: +44 (0)1453 540600
2.1.3. Web: www.stonehealth.com
2.1.4. Email: info@stonehealth.com
2.2. Product reference: DOFF Steam Cleaning System
2.3. Surfaces to clean: Polished granite, honed limestone, textured granite.
3. Power supply:

362 Chemical agents

1. Description: Specialist commercial grade cleaner for the removal of carbon, soot and black mould from building **façades** and elevations.
2. Manufacturer: https://www.proshieldsolutions.com/
   2.1. Product reference: Proteger ProShield Noir Wash.

380 DOFF STEAM CLEANING

1. · Equipment type – Stonehealth DOFF
   · Apply steam at the lowest pressure and allow when removing paint the appropriate temperature that will remove/soften/loosen deposits without abrading or disrupting the surface(s). If a paint softener is required: see also 415. If removing biological growth it may be possible to be removed at a lower temperature but to ensure that the re-growth does not occur, the full temperature of 150ºC should be applied over the whole surface in order to kill off the spores. In such instances there is no need to use a chemical biocide.
   · For each area/surface, establish the optimum settings (temperature, volume and pressure), nozzle type and distance of nozzle from substrate. Keep a written record of these variables but allow an operator to vary
   · Assist removal of softened deposits with suitable corrosion resistant brushes and scrapers/spatulas that do not abrade or gouge the surface.

Application

412 Removal of loosely adhered deposits

1. Timing: Before commencement of other cleaning methods.
2. Surfaces: Prevent damage, including abrasion.

462 Water spray cleaning (mounted nozzles)

1. Surfaces: Minimize water run-off. Prevent damage.
2. Adjustment of washing cycle and nozzle positions: Regularly to achieve optimum cleaning performance.

472 Pressurized water cleaning

1. Surfaces: Prevent damage, including abrasion.
2. Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

482 Steam cleaning

1. Surfaces: Prevent damage, including abrasion.
2. Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

495 Testing ph values for chemical cleaning

1. pH indicator: To distinguish pH values between 1-14.

2. Testing before cleaning
   2.1. Clean rinsing water, wetted surfaces and joints: Test for pH. Record as 'control' values.
3. Testing after water rinsing and neutralization
   3.1. Wetted surfaces and joints: Record pH values.
   3.2. Acceptance criteria: Seek instructions

500 Chemical cleaning

1. Surfaces: Prevent damage, including discolouration, bleaching and efflorescence.
2. Product variables (including concentrations, dwell times and number of applications): Adjust for each surface to achieve optimum cleaning performance.
   For each area/surface, establish the lowest possible concentration of agent(s) and the shortest dwell times, number of applications, ambient temperatures and rinsing water temperatures.
3. Application: To wetted surfaces.
   Contain chemical agents and rinsing water/sprays within each treatment area. Do not allow agents or rinsing water/sprays to contact surfaces that are either excluded from cleaning or that have already been cleaned. Prevent wind drift.
   Before each application of agent, wet the surface and adjacent areas using clean water applied by low pressure spray. Test for pH of wetted surface as clause 495.
   3.1. Drying out: Prevent unless recommended otherwise by cleaning product manufacturer.
4. Removal of chemicals and neutralization: As recommended by product manufacturer, including rinsing with clean water.
   Rinse treated surfaces thoroughly and evenly with clean water working from the bottom of each area upwards. Do not use water spray pressures that will drive cleaning agents into, or cause disruption of, the surface material and joints.
   Carry out pH testing and neutralisation procedures as clauses 495.
   4.1. Additional treatment: Where water rinsing is insufficient to neutralize surface, apply compatible neutralizing agent.
   4.2. Surfaces and joints: Minimize absorption of chemicals. Prevent damage, including abrasion.

520 COMPLETION

1. · Obtain CA's approval of cleaning to each area/surface and before removal of temporary protection.
   · After removal of temporary protection, thoroughly clean all glazing, window frames, doors, sills and other affected surfaces.
   · Check that all gutters, hoppers, downpipes and gullies are free from obstruction and debris arising from cleaning works.
   · Give the CA 1 weeks notice before striking each stage of scaffolding, to allow for final inspections.
   · Refix the following fittings: historic gate/door brackets.
   Complete all necessary documentation, review and record final results with supportive drawings and photographs
2. Check that all gutters, hoppers, downpipes and gullies are free from obstruction and debris arising from cleaning works.
   Give the CA 5 working days notice before striking each stage of scaffolding, to allow for final inspections.
   Complete all necessary documentation, review and record final results with supportive drawings and photographs.

Ω End of Section

C41
Repairing/ renovating/ conserving masonry REVISED

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
12/06/2025		2045 Repair Specification		A	
12/06/2025		2045 Repair Specification			

Details of amended clauses

Change	Code	Prefix	Title	Suffix
REVISED	C41/001		Methodology - Stone Replacement	
ADDED	C41/002		Methodology - Terracotta Repairs	
ADDED	C41/003		Methodology - Brick Reorientation/Replacement	
REVISED	C41/110		Scope of work	
REVISED	C41/190		Control samples	
REVISED	C41/215		Material samples	
ADDED	C41/259		Brick Repair and Replacement	
ADDED	C41/260		Bricks (Repair and Replacement)	
ADDED	C41/265		Salvaged and second hand bricks	
REVISED	C41/340		Replacement of stone	
ADDED	C41/610		Mortar repair of cracks - to Terracotta	
REVISED	C41/820		Pointing	

Generally/ preparation

001 Methodology - Stone Replacement REVISED

1. To be read in conjunction with the Mather and Ellis Methodology and specification documents.
2. Retain as much of the original sound stone as possible.
3. Replacement masonry must match the existing material in all respects and be determined following review of suitable samples on site only.
4. During cleaning and survey work as detailed in NBS Cl C40, determine areas of friable/eroded masonry and extent of damage.
5. Agree with CA where damaged or missing masonry needs to be replaced using a matching stone indent. In accordance with works schedule document.
6. Where replacement masonry is required, the minimal amount of fabric must be removed, and be replaced with matching material as above. Ensure a sound structural fixing back to the main substrate is carried out in accordance with structural engineer details and calculations.
7. Any removal or disturbance of existing stone should be minimised and adjacent fabric protected from damage and or movement as a result. If there are any concerns with regards to the stability of the structure before or during the works, these must be reported to the CA and the works halted until an inspection and appropriate course of action can be take.
8. All bedding, repointing, and face finishing to be carried out on a like for like basis in the context of the surrounding fabric. Any deviations must be reviewed by the CA prior to proceeding.

002 Methodology - Terracotta Repairs ADDED

1. To be read in conjunction with the Mather and Ellis Methodology and specification documents.
2. Retain as much of the original sound terracotta as possible.
3. Replacement terracotta tiling must match the existing faience terracotta in all respects and be determined following review of suitable samples on site only.
4. During cleaning and survey work as detailed in NBS Cl C40, determine areas of damage to the existing terracotta.
5. Agree with CA where damaged or missing terracotta needs to be replaced. In accordance with works schedule document.
6. Where replacement terracotta is required, whole units must be replaced with a matching replacement as above. Ensure a sound structural fixing back to the main substrate is carried out in accordance with structural engineer details and calculations.
7. Where surface repairs are required - due to cracking, this is to be carried out in accordance with cl xxxx and the detailed methodology provided by the contractor.
8. Any removal or disturbance of surrounding sound terracotta should be minimised and adjacent fabric protected from damage and or movement as a result. If there are any concerns with regards to the stability of the structure before or during the works, these must be reported to the CA and the works halted until an inspection and appropriate course of action can be take.
9. All bedding, repointing, and face finishing to be carried out on a like for like basis in the context of the surrounding fabric. Any deviations must be reviewed by the CA prior to proceeding.

003 Methodology - Brick Reorientation/Replacement ADDED

1. Localised cracked brick - to be turned around and reinserted. Replacement only where bricks are damaged beyond reuse.
2. Retain as much of the original sound brick as possible.
3. Replacement masonry must match the existing material in all respects and be determined following review of suitable samples on site only.
4. During cleaning and survey work as detailed in NBS Cl C40, determine areas of friable/eroded masonry and extent of damage.

5. Where replacement masonry is required, the minimal amount of fabric must be removed, and be replaced with matching material as above. Ensure a sound structural fixing back to the main substrate is carried out in accordance with structural engineer details and calculations.
6. Carefully remove defective brick. Remove mortar with a sharp tungsten-tipped chisel and hammer, or saw blade. Hand tools only. Where mortar does not fall away, drill a series of small holes to break up the joint filling.
   Clean out cavity and dampen with water mist.
   Reinstall brick using previous internal face as new outer face. Or if the brick is too damaged, insert replacement brick.
7. All bedding, repointing, and face finishing to be carried out on a like for like basis in the context of the surrounding fabric. Any deviations must be reviewed by the CA prior to proceeding.

110 Scope of work REVISED

1. Schedule: Repair and/or replace as determined suitable, stone, brick and terracotta damaged by fire damage to the West Entrance - in accordance with Schedule of Works and associated documentation.
2. Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
3. Identification of masonry units to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced. Transcribe markings to drawings/ photographs.

111 REVIEW OF SCOPE OF REPAIR WORK UPON CLOSE INSPECTION

1. Provide access scaffolding and lighting as required to all areas where stone repair is to be made to enable the conservation architect and Conservation officer to make a close inspection with the stonemason.
2. Agree nature and extent of the cutting out and preparation of voids
3. Make a record of these instructions. measure and record relevant details as cl
4. Identify each masonry unit that is to be removed, replaced or repaired with a code number cross-referenced to drawings/photographs.
5. Adequately record the characteristics of existing masonry in areas affected by repair works. Use measurements and photographs as appropriate to record bonding patterns, joint widths, special features, etc.
6. Instructions issued during inspection: Confirm in writing, with drawings and schedules as required, before commencing work

125 Removal of fittings/ fixtures

1. Items to be removed, and reinstated on completion of repair work: Gate brackets embedded into stone wall.
   - 1.1. Identification: Attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe refixing instructions, where applicable.
   - 1.2. Treatment following removal: Remove rust using hand tools. Apply zinc rich rust inhibitor
   - 1.3. Storage: Protect against damage, and store until required.
     - 1.3.1. Storage location: On site - Submit proposals
   - 1.4. Reinstatement: Refit in original locations using original installation methods. Use existing fixing positions.
2. Items unsuitable or not required for reuse: Stone
   - 2.1. Disposal: Submit proposals
3. Masonry fabric and surfaces: Do not damage during removal and replacement of fittings/ fixtures.

140 Record of work

1. General: Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.
2. Specific records: Full measured drawings of stones to be replaced. Note bond, joint size, style and texture of pointing and any special or unusual features for replication.
3. Documentation: Submit on completion of the work.
   3.1. Number of sets: One - Electronic, pdf format.

Workmanship generally

150 Power tools

1. Usage for removal of mortar: Not permitted

155 Putlog scaffolding

1. Usage: Not permitted

160 Protection of masonry units and masonry

1. Masonry units: Prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.
2. Masonry: Prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.

165 Structural stability

1. General: Maintain stability of masonry. Report defects, including signs of movement that are exposed or become apparent during the removal of masonry units.

170 Disturbance to retained masonry

1. Retained masonry in the vicinity of repair works: Disturb as little as possible.
2. Existing retained masonry: Do not cut or adjust to accommodate new or reused units.
3. Retained loose masonry units and those vulnerable to movement during repair works: Prop or wedge so as to be firmly and correctly positioned.

180 Workmanship

1. Skill and experience of site operatives: Appropriate for types of work on which they are employed.
   1.1. Documentary evidence: Submit on request.
   1.2. OPERATIVES: Use operatives who are skilled and experienced with the materials and procedures required for the types of repairs specified. Provide evidence of their training and previous experience to the CA on request.

185 Adverse weather

1. General: Do not use frozen materials or lay masonry units on frozen surfaces.
2. Air temperature: Do not bed masonry units or repoint:
   2.1. In hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising.
   2.2. In nonhydraulic lime:sand mortars in cold weather, unless approval is given.
3. Temperature of the work: Maintain above freezing until mortar has fully set.

4. Rain, snow and dew: Protect masonry by covering during precipitation, and at all times when work is not proceeding.
5. Hot conditions and drying winds: Prevent masonry from drying out rapidly.
6. New mortar damaged by frost: Rake out and replace.

190 Control samples REVISED

1. General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder: Cleaning - see C40, stone repairs, repointing, surface repairs to terracotta, replacement finished terracotta samples.

Materials/ production/ accessories

215 Material samples REVISED

1. Representative samples of designated materials: Arrange for representative samples to be delivered to site for inspection by the architect prior to placing orders.
   1.1. Designated materials: Peterhead, Shap and Dalbeattie granite, limestone, 2 no. types of mortar (wall, and arch). Replacement brick
   1.2. SAND SAMPLE(S): : Sands for bedding and pointing.
2. Retention of samples: Unless instructed otherwise, retain samples on-site for reference. Protect from damage and contamination.

220 Recording profiles

1. Profiles: Take measurements from existing masonry units, as instructed, to allow accurate matching of replacements.
2. Recording in situ: If there are no suitable joints to allow use of inserts, seek instructions.
3. Drawings and templates: Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.
   Fixing details numbered to correspond to the numbers on the stones.
   Method statement for installation giving due regard to H&S issues.

221 Setting Out and Drawings

1. Setting out points are to be taken from the existing building prior to carrying out repair work. Survey reference points should be taken and recorded to enable the correct placement of repairs.
2. Advise CA or any discrepancies in the alignment of existing work prior to carrying out repairs.

230 Inspection of drawings, templates, casts, etc.

1. Timing: Before starting production of masonry units associated with the following items: Archway.
2. Period of notice (minimum): One week

231 GUARANTEE

1. Obtain and submit written guarantee that all new stone is from the quarry and bed as specified/agreed following site samples.

232 INSPECTION OF MASONRY UNITS

1. Before dispatch to site, inspect and check units to ensure they match the material sample and comply with drawings and specification
2. Give min 1 weeks notice to allow architect to attend workshop and inspect before site delivery.

233 Transport and Material Handling

1. The contractor must ensure that the stone is carefully stacked and protected during transit to minimise risk of damage.
2. Store stone on a clean, dry, free-draining surface and prevent contact with soil.
3. Fair-faced stone is to be stored in stacks on battens, protected with non-staining materials. Protect from moisture penetration and freezing with non-staining material. Stack stone to minimise handling as pieces are selected and transferred for building in.
4. Provide adequate lifting plant to unload and handle stones into position. Have due regard for H&S/CDM regulations and submit methodology for approval prior to commencing.

240 Stone

1. Standard: To BS EN 771-6
2. Supplier: Submit proposals - ideally from the original quarry if still in operation. For each type, stone from only one quarry bed is to be used throughout the project.
3. Type: Peterhead granite, Shap granite, Dalbeattie granite, limestone.
4. Quality: Free from vents, cracks, fissures, discolouration, or other defects that may adversely affect strength, durability or appearance. Thoroughly seasoned, dressed and worked in accordance with shop drawings prepared by the supplier.
   4.1. Carving: Stone for carving work to be selected to have a consistent grain and colour throughout. Supply sufficient quantity of stone for the carver to have ample scope.
5. Finish: To match existing. Free from any defects on the faces visible in the completed work that could affect the appearance of the stonework.
6. Preparation: Stone is to be seasoned at the time of delivery to suit the purpose for which it is to be used.
7. Samples: Submit samples for approval prior to commencing fabrication. The samples are to match the existing stone in colour, texture, shape, size and surface finish as closely as possible. Where a particular stone has not been specified, the stone samples should be closely related geologically to the stone to be matched.

245 Replacement stone units

1. Sizes and profiles: To match existing masonry. Maintain existing joint widths.
2. Cut and Dress:: Finishes surfaces to match those of existing surrounding stones; stone bond and joint lines are maintained; meeting surfaces are compatible and free from hollows or rough surfaces; joints between stones to match existing and within stones repair joints are minimal. No mitred joints at corners. Sufficient stone is to be allowed for, to enable working to existing bed and perpend joints, in particular on quoin stones.
3. Sinkings for fixings, joggles and lifting devices: Accurately aligned and positioned in relation to existing masonry.
4. Marking: Mark each block/ dressing clearly and indelibly on a concealed face to indicate the natural bed and position in the finished work. Mark each stone before it leaves the quarry. Where it is not possible to determine the bed of the stone after extraction, the bed should be marked before quarrying and subsequently marked on each stone as cut.

250 Stone orientation

1. Orientation of natural bed
   1.1. In plain walling: Horizontal.
   1.2. In projecting stones and copings: Vertical and perpendicular to wall face.
   1.3. In arches: Perpendicular to line of thrust.
   1.4. Quoins: horizontal in quoin stone or end stones which are to be specially selected compact non-laminated stones.

255 Ashlar blocks/ Dressings

1. Cutting and dressing stone: To true and regular surfaces, free from hollow or rough areas.
   1.1. Profiles and Finishes: Generally where new stone is being installed to replace existing stonework, profiles and finishes are to match the existing.
      1.1.1. Faces: All faces to be free from hollow or rough edges. Any saw marks are to be removed from exposed faces; where necessary, this work is to be done prior to construction to ensure accurate alignment of the finished work.
         1.1.1.1. In-situ: Final dressing off to be carried out *in situ* to ensure accurate alignment with existing adjacent stones. Do not dress off existing stones to suit new.
         1.1.1.2. Fixings: Chase out mortices for joggles, dowels and cramps before delivery of stone to site.

259 Brick Repair and Replacement ADDED

1. Individual facing bricks to be replaced where there is significant cracking or missing material such that the masonry is no longer performing within the wall. Refer to NBS Cl C41

260 Bricks (Repair and Replacement) ADDED

1. Standard: To BS EN 771-1.
2. Type: New to match existing – submit samples for approval prior to commencing works. Bricks to match existing as closely as possible in terms of strength, shape, dimensions, texture and colour. Bricks tested to BS EN 771-1:2011
3. Manufacturer: Submit proposals.
   3.1. Product reference: Submit proposals.
4. Size: To match existing

265 Salvaged and second hand bricks ADDED

1. Source: Submit proposals
2. Condition
   2.1. Free from matter such as mortar, plaster, paint, bituminous materials and organic growths.
   2.2. Sound, clean and reasonably free from cracks and chipped arrises.

275 Replacement terracotta units

1. Standard: CE marked to BS EN 771-1
2. Manufacturer/ Supplier: Darwen Terracotta or similar approved.
3. Quality: Free from imperfections that will adversely affect durability.
4. Finish: Glazed to match existing
5. Colour/ Texture: To match existing.
6. Dimensions: Match dimensions of existing units within agreed manufacturing tolerances.
7. Holes for fixings: Accurately aligned and positioned.
8. Drain holes: Provide where there is any risk of water entering voids in exposed blocks in copings, cornices and projecting features, etc.
9. Marking: Mark each unit clearly and indelibly on a concealed face to indicate position in the finished work.

281 Fixings

1. Description: For replacement stonework
2. Type: Submit proposals.

3. Material: Non-ferrous 304 grade Austenitic stainless steel to BS 8221-2
4. Size, strength and number: As necessary to resist loads likely to occur during the life of the building, and to prevent lateral displacement or pulling apart of the construction.

Dismantling/ rebuilding - Not Used

Replacements and insertions

330 Preparation for replacement masonry

1. Defective material: Carefully remove to the extent agreed to sound hard surfaces. Do not disturb, damage or mark adjacent retained masonry.
   Cut out decayed stonework to accept new stones of minimum depth of 100 mm. Where necessary, stones are to be of sufficient depth to ensure that the existing pattern of joints is preserved and that carved or moulded stones are adequately bedded. In particular, quoins, jambs, copings and the like are to match existing sizes.
   Ensure that no damage occurs to existing adjacent stones that are to be left *in situ*. Techniques that cause excessive vibration should be avoided.
2. Piecing In: Where specified, cut out decayed stonework to specified extent to accept new stone of minimum depth 100 mm and otherwise as necessary to suit the location. Joint widths are to be kept extremely fine.
3. Propping: Stonework is to be adequately propped during the course of the works.
4. Existing metal fixings, frame members, etc.: Report when exposed.
5. Recesses: Remove projections and loose material by brushing, or vacuuming.; leave joint surfaces in a suitable condition to receive replacement units. Protect from adverse weather if units are not to be placed immediately.

340 Replacement of stone REVISED

1. Description: Refer to elevations and as agreed on site.
2. Stone: As cl 240/245
3. Bedding depths: Min. 100mm - to match existing
4. Mortar: As section Z21.
   4.1. Standard: BS EN 998-2
   4.2. Mix: Refer to approved mixes in sample sheet.
5. Fixings: Replace corroded fixings, as clause 410
6. Joints: To match existing
7. Other requirements:

350 Stone inserts

1. Description: As required. Refer to drawings and SOW
2. Stone: as cl 240/245
3. Finish: Flush and to match existing.
4. Preparation and insertion: As clause 395. Remove minimal existing stone to achieve sound hard square profiled surface - nominal 100mm if practical. Do not use power tools. Seek instructions if stone if stone left would be unstable.
5. Mortar: As section Z21.
   5.1. Standard: BS EN 998-2
   5.2. Mix: Refer to Mather and Ellis Specification. The final mix should be based on site sampling and be slightly softer and more porous than the stone itself. It should match the existing mortar (as identified on site) in terms of colour, texture, and strength.

5.3. Sand source/ type: For pricing allow for clean, well graded sharp - Nostafield sand. Final selection subject to site trials to match existing.

6. Fine sand to approval
7. Fixings: Replacement cramps, as clause 410
8. Joints: Very fine.
9. Other requirements: Stop work and notify immediately of any structural movement.
10. Sound Loose Stones: Before removal, record position.
    Where sound single stones are loose, the stone is to be pinned followed by repacking the joints with mortar. If the joints are too fine for repacking then the joints are to be grouted to ensure that all voids around the stone are filled.
    Where removal of loose sound stones is easy and repacking of joints is not practicable, groove exposed faces of concealed surfaces prior to grouting with hydraulic lime as per pointing.

385 Laying replacement masonry units

1. Exposed faces of new material: Keep to agreed face lines.
2. Faces, angles and features: Align accurately. Set out carefully to ensure satisfactory junctions with existing masonry and maintain existing joint widths.
3. Joint surfaces: Dampen to control suction as necessary.
4. Laying units: On a full bed of mortar, all joints filled.
5. Exposed faces: Keep clear of mortar and grout.
   Turn back scaffold boards at night and during heavy rain.

390 Grouting joints

1. Grout mix: Nonhydraulic lime with pozzolanic admixture; mix subject to site trials
2. Joints that cannot be fully filled with bedding mortar: Grout thoroughly around replacement masonry units.
3. Grouting: Keep grout back from exposed face to allow for the depth of pointing, using an approved temporary sealing material. Prevent grout staining exposed face.

395 Installing stone inserts

1. Pockets to receive inserts
   1.1. Cut out accurately. Undercut sides of pocket where necessary to provide space for bonding material.
   1.2. Adjust depth so that insert stands proud of existing stone for finishing in situ.
   1.3. Clean out thoroughly.
2. Inserts: Cut to the smallest rectangular shape necessary to replace the defective area and provide a firm seating. Install accurately and securely.
   2.1. Exposed faces: Keep clear of bonding material.
3. Existing joint widths: Maintain. Do not bridge joints.

400 Filling terracotta blocks

1. Voids in blocks: Fill with uncompacted, semidry, 1:1-2 bedding mortar:coarse aggregate mix, of uniform consistence.
2. Coarse aggregate: Submit proposals.

405 Bonded dowels

1. Description: As required to stabilise existing, and fit new stone.
2. Standard: To BS EN 1090-1
3. Dowels: Steel to European Standard indicated in BS EN 1090-2 - or submit proposals.

4. Adhesive: Epoxy resin - submit proposals
5. Holes for dowels: Suitably sized and accurately aligned in masonry background and in rear of replacement/ insert stone; clean and dry.
6. Other requirements: Do not use adhesive to bond stones at joints unless instructed.

410 Corroded metal fixings

1. Removal: Cut out carefully, causing the least possible disturbance to surrounding masonry. Remove associated rust debris.
2. Replacement: Compatible fixings as clause 281.

420 Temporary distance pieces for joints in ashlar stonework

1. Material: Lead or stainless steel.
2. Removal: When mortar/ grout is sufficiently strong to take loading without compression.

Tooling/ dressing stone in situ

455 Descaling stone

1. Requirement: Carefully remove loose scaling and powdering from stones to the extent agreed.
2. Method: Suitable bristle brushes or carborundum blocks. Do not use wire brushes.

Mortar repairs

510 Preparation for mortar repairs

1. Repair area: Scribe area of masonry to be removed using straight horizontal and vertical lines parallel to joints. Where repair area abuts joints, maintain existing joint widths and do not bridge joints.
2. Decayed masonry: Cut back carefully to a minimum depth of 20 mm to a sound background. Where the depth of removal exceeds 50 mm, seek instructions.
3. Precautions: Do not weaken masonry by removing excessive material. Do not damage adjacent masonry.
4. Top and vertical reveals of repair area: Undercut.

515 Reinforcement for mortar repairs

1. Material: Austenitic stainless steel, phosphor bronze or copper alloy wire, submit proposals diameter.
2. Armatures: Form to suit profiles of mortar repair and provide effective reinforcement.
3. Cover to reinforcement: Not less than 18 mm.
4. Installation: Drill holes into background to receive reinforcement, and bond firmly with a suitable epoxy resin.

Crack repairs/ ties/ reinforcement

610 Mortar repair of cracks - to Terracotta ADDED

1. Description: As required- refer to schedule and drawings.
2. Mortar: As section Z21.
   2.1. Standard: BS EN 998-2
   2.2. Mix: As per site samples:
   2 Waddington
   1 white silica
   1 3.5NHL lime

2 tablespoon black natural earth pigment
½ an equal measure of clinker.

3. Preparation: Clean out cracks to remove debris, dust and dirt. Dampen recesses, as necessary, to control suction.
4. Repair Mortar: Monolite Class R2 Lightweight Repair Mortar
5. Applying mortar: Press well into cracks so that they are fully filled. Ensure that mortar does not encroach upon exposed faces. Finish mortar flush with masonry face.
6. Other requirements: Finish repair with colour-matched natural pigments or mineral paints - subject to site trials.

640 Pinning

1. Description: As required to sandstone - see schedule and drawings.
2. Dowels/ Pins
   - 2.1. Standard: TBA with S.E. / To BS EN 1090-1
   - 2.2. Type: Stainless steel. Submit proposals/TBA with S.E.
   - 2.3. Diameter: Submit proposals/TBA with S.E.
   - 2.4. Additional requirements: Allow provisionally for three dowels per stone Penetration into background not less than 100 mm
3. Resin: Low viscosity resin to approval
4. Holes: Drill carefully, sloping downwards into background. Remove drilling dust and debris and keep dry.
5. Filling holes
   - 5.1. Check that dowel lengths are correct before filling with resin.
   - 5.2. Use sufficient resin so that when the dowel is inserted the resin is dispersed to achieve an effective repair.
6. Exposed faces: Keep clean and free from resin stains. Use temporary plugging material and/ or isolating membranes as necessary.
7. Clearances: Keep ends of ties and resin back from face of masonry.
8. Making good after resin has cured: Stone plugs, as clause 692

692 Making good to tie and dowel insertion holes using core drilled plugs

1. Plugs: Cut plug from masonry face before drilling hole for each tie/ dowel. Where resulting plug is unusable, prepare plug from matching material.
   - 1.1. Plug diameter: Smallest practicable.
2. Holes: Clean.
3. Method of securing plug:
4. Joints: Fine and flush.
5. Finished appearance: Obtain approval for first one holes before completing remainder.

Grouting rubble filled cores - Not Used

Pointing/ repointing

810 Preparation for repointing

1. Existing mortar: Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of not less than 18-25mm.
   - 1.1. Loose or friable mortar: Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.
2. Raked joints: Remove dust and debris.

820 Pointing REVISED

1. Description: STONEWORK and terracotta generally - as per schedule.
2. Preparation of joints: Carefully brush away loose mortar Dampen joints, as necessary, to control suction, as cl 810.
3. Mortar: As section Z21.
   3.1. Standard: BS EN 998-2
   3.2. Mix: Refer to approved samples.
   3.3. Sand source/ type: Refer to approved samples.
4. Joint profile/ finish: To match existing
5. Other requirements: Non-hydraulic lime putty may be obtained from an approved supplier or prepared by the traditional method of slaking lump lime. Lime putty must comply with BS 890 and BS 6463. Hydrated non-hydraulic lime is *not* to be used unless specified. No additives of any sort shall be incorporated in the mortar.

840 Pointing with tools/ Irons

1. Preparation:: Using hand tools only, rake out all loose jointing material to a depth of not less than twice the joint width. All raking/cutting shall leave a clean, square face at the back of the joint, so as to provide optimum contact with the new mortar. Carefully clean out prepared face with bristle brush and flush with clean water - avoid unnecessary saturation, and work from top to bottom. Sound pointing must be left undisturbed. Where cement mortar is to be removed - the technique is to be agreed with the CA and site trials carried out to limit damage to surrounding stone.
2. Dampen:: Thoroughly dampen masonry prior to commencing repointing. Re-wet with hand spray as required - without leaving water to pool in prepared joint.
3. General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled. Press firmly to ensure full compaction across depth of joint. The contractor should be aware that it may be necessary for him to fabricate pointing irons to undertake the works. Begin at the top of the wall and work downwards. Avoid getting mortar on the finished faces of stonework - clean off immediately to prevent staining.
4. Face of masonry: Keep clear of mortar. Use suitable temporary adhesive tape on each side of joints where necessary. Finish joints neatly.

860 Brushed finish to joints

1. Timing: After initial mortar set has taken place remove laitance and excess fines by brushing, to give a coarse texture. Do not compact mortar.

900 Protection and cleaning

1. -Protect works from direct sun and rain, well ventilated and moist min 10 deg C for min 4 weeks until face cured.
   - Turn back scaffold boards adjacent to brick faces at night and during heavy rain.
   -Remove any staining immediately.
   -Do not carry out works below 5deg and falling. Recommence at 3deg and rising.
   -Keep daily max/min temperature records on site during October-April (and beyond should frost be forecast).
   901 Completion
   - Give at least one weeks notice of completion to allow inspection prior to scaffold removal.
   - Remove all tools, plant and equipment and used materials and debris.

Ω End of Section

H71
Lead sheet fully supported roof and wall coverings/ flashings ADDED

Summary

Revision history

Date	No.	Title	Status	Revision	Note
12/06/2025		2045 Repair Specification		A	
12/06/2025		2045 Repair Specification			

Details of amended clauses

This section has been added to the specification.

Types of leadwork

100 Lead Puddle Fixing ADDED

1. Description: Liquid lead fixing of existing gate brackets back into new stone sockets.
2. Type of lead: Molten

fgfg gfggfgf ggfgf ADDED

1.

General requirements/ preparatory work

510 Workmanship generally ADDED

1. Standard: In accordance with BS EN 14783 and BS EN 12588 and to BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Training Academy.
2. Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
3. Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.
4. Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
5. Protection: Prevent staining, discolouration and damage by subsequent works.

516 Lead-welding ADDED

1. In situ lead-welding: Is permitted, subject to completion of a 'hot work permit' form and compliance with its requirements.

610 Suitability of substrates ADDED

1. Condition: Dry and free of dust, debris, grease and other deleterious matter.

Fixing lead - Not Used

Jointing lead - Not Used

Ω End of Section

L30
Stairs/ ladders/ walkways/ handrails/ balustrades

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
12/06/2025		2045 Repair Specification		A	
12/06/2025		2045 Repair Specification			

Details of amended clauses

No changes to show.

Preliminary information/ requirements

130 Site dimensions

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
   1.1. Designated items: Stone cut out and inserts.

Components

585 Slip-resistant rebate inserts Type A

1. Manufacturer: Quantick Safety Systems Limited
   1.1. Contact details
      1.1.1. Address: Unit 1 Hortswood Farm
      Long Lane
      Wrington
      Bristol
      North Somerset
      United Kingdom
      BS40 5SP
      1.1.2. Telephone: +44 (0)1934 864360
      1.1.3. Web: www.quanticksystems.co.uk
      1.1.4. Email: info@quanticksystems.co.uk
   1.2. Product reference: Carborundum Stair Tread Inserts (QIS10 - 10 mm Carborundum Non Slip Stair Tread Inserts)
2. Material: Resin bound carborundum in a PVC carrier.
3. Format: Pre-finished strip (for insertion).
4. Thickness (minimum): 8.0 mm.
5. Slip resistance – water wet (minimum): PTV of 86 (wet).
6. Colour:
7. Predrilled holes:
8. Accessories:
9. Length:
10. Width: 10 mm.

Installation

640 Installation generally

1. Fasteners and methods of fixing: To section Z20.
2. Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
3. Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.
4. Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

670 Installation of tread inserts/ nosings

1. Treads: Fully cured, sound and level.
2. Fixing

2.1. Location/ position: As drawing

2.2. Fixings: As manufacturer's recommendations

2.2.1. Centres: As manufacturer's recommendations

Completion - Not Used

Ω End of Section

L40
General glazing. - Window Film ADDED

Summary

Revision history

Date	No.	Title	Status	Revision	Note
12/06/2025		2045 Repair Specification			

Details of amended clauses

This section has been added to the specification.

General requirements

155 Glass generally ADDED

1. Standards: To BS 952-1 and the relevant parts of:
   1.1. BS EN 572-9 for basic soda lime silicate glass.
   1.2. BS EN 1748-1-1 for borosilicate glass.
   1.3. BS EN 1748-2-1 for ceramic glass.
   1.4. BS EN 1863-2 for heat-strengthened soda lime silicate glass.
   1.5. BS EN 12150-2 for thermally toughened soda lime silicate safety glass.
   1.6. BS EN 12337 for chemically strengthened soda lime silicate glass.
   1.7. BS EN 13024-2 for thermally toughened borosilicate safety glass.
   1.8. BS EN 14449 for laminated glass and laminated safety glass.
2. Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
   2.1. Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

Types of glazing

610 Plastics window films Type A ADDED

1. Manufacturer: Lustalux or equal approved.
   1.1. Contact details
      1.1.1. Address: https://www.lustalux.co.uk/buy-online/product/ch5-very-dark-tinted-window-film/?_gl=1*11zdr5f*_up*MQ..*_gs*MQ..&gclid=CjwKCAjw9anCBhAWEiwAqBJ-czEmm6OCopublsiNpGlQLgfNu9KOi5MMiget4vgpy6jjXo2SIvGWCRoC-eUQAvD_BwE&gbraid=0AAAAAD_ge3uLpIaBtSO6ALfs0ZhNg033F
   1.2. Product reference: **95% Tinted Window Film**
2. Purpose: Privacy
3. Fire performance: To BS EN 13501-1:2018, Class B-s1, d0.
4. Material: Polymeric vinyl.
5. Colour: Black
6. Warranty: 10years
7. Installation: Preparation and application all in accordance with manufacturer recommendations.

Ω End of Section

L40
General glazing ADDED

Summary

Revision history

Date	No.	Title	Status	Revision	Note
12/06/2025		2045 Repair Specification			

Details of amended clauses

This section has been added to the specification.

General requirements

150 Workmanship and positioning generally ADDED

1. Glazing generally: In accordance with BS 6262 series.
2. Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
3. Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.
4. Materials
   - 4.1. Compatibility: Glass/ plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.
   - 4.2. Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

152 Preparation ADDED

1. Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing; ensure compliance with any certified installation requirements.

155 Glass generally ADDED

1. Standards: To BS 952 and relevant parts of:
   - 1.1. BS EN 572 for basic soda lime silicate glass.
   - 1.2. BS EN 1096 for coated glass.
   - 1.3. BS EN 1748-1 for borosilicate glass.
   - 1.4. BS EN 1748-2 for ceramic glass.
   - 1.5. BS EN 1863 for heat strengthened soda lime silicate glass.
   - 1.6. BS EN 12150 for thermally toughened soda lime silicate safety glass.
   - 1.7. BS EN 12337 for chemically strengthened soda lime silicate glass.
   - 1.8. BS EN 13024 for thermally toughened borosilicate safety glass.
   - 1.9. BS EN ISO 12543 for laminated glass and laminated safety glass.
2. Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
   - 2.1. Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

165 Heat soaking of thermally toughened glass ADDED

1. Standard: To BS EN 14179-1 and -2.
   - 1.1. Holding period (minimum): To manufacturer recommendations - min 2 hours.
2. Certified evidence of treatment: Submit.

180 Bead fixing with pins ADDED

1. Pin spacing: Regular at maximum 150 mm centres, and within 50 mm of each corner.
2. Exposed pin heads: Punched just below wood surface.

181 Bead fixing with screws ADDED

1. Screw spacing: Regular at maximum 225 mm centres, and within 75 mm of each corner.

Types of glazing

210 Putty fronted single glazing ADDED

1. Description: Replacement glass to existing window frame.
2. Pane material: 4.5mm toughened Goetheglas ,
https://www.pearsonsglassheritage.co.uk/pages/our-glass
3. Surround: Existing timber frame
   3.1. Sealer: Paint primer
4. Type of putty: Linseed oil
5. Thermal performance (U-value maximum): Manufacturer standard
6. Glass installation
   6.1. Glass: Located centrally in surround using setting and location blocks, and secured with putty as recommended by glazing supplier.
   6.2. Finished thickness of back bedding after inserting glazing (minimum): 1.5 mm.
   6.3. Front putty: Finished to a smooth, neat triangular profile stopping 2 mm short of sight line. Surface lightly brushed to seal putty to glass and left smooth with no brush marks.
7. Installation: Replacement glass should be cut about 3mm
smaller than the frame, to allow for thermal movement. Putty to be profiled to ensure water will not be trapped in the frame.
8. Sealing putty: Seal as soon as sufficiently hard but not within 7 days of glazing. Within 28 days apply either:
   8.1. The full final finish, suitably protected until completion and cleaned down and made good as necessary, or
   8.2. Two coats of primer applied locally to the compound, to be followed nearer completion with the full specified finish.
9. Opening lights: Keep in closed position until putty has set sufficiently to prevent displacement of glazing when opened.

Ω End of Section

M60
Painting/clear finishing REVISED

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
12/06/2025		2045 Repair Specification		A	
12/06/2025		2045 Repair Specification			

Details of amended clauses

Change	Code	Prefix	Title	Suffix
ADDED	M60/175		Solvent-based finishing coats	Type A
ADDED	M60/001		Methodology - Balustrade	
ADDED	M60/210		Coating materials	
DELETED	M60/240		Surfaces not to be coated	
DELETED	M60/250		Surfaces to be cleaned but not coated	
DELETED	M60/451		Previously coated surfaces – blast cleaning	

Coating systems

150 Eggshell/ satin paint

1. Description: To existing metal gate brackets
2. Manufacturer: Johnstones
   2.1. Product reference: Quick Dry
   Steel and Cladding Topcoat
3. Surfaces: Previously decorated
   3.1. Preparation: Remove all loose and defective coatings Degrease and provide key Ensure surfaces are clean and dry
4. Initial coats: As recommended by manufacturer
   4.1. Number of coats: 1
5. Undercoats: Quick Dry
   Zinc Phosphate Primer
   5.1. Number of coats: 1
6. Finishing coats: Quick Dry
   Steel and Cladding Topcoat
   6.1. Number of coats: 1

175 Solvent-based finishing coats Type A ADDED

1. Manufacturer: Hammerite, brand of ICI Paints/AkzoNobel
   1.1. Contact details
      1.1.1. Address: Wexham Road
      Slough
      Berkshire
      SL2 5DS
      1.1.2. Telephone: +44 (0)333 222 7070
      1.1.3. Web: www.hammerite.co.uk
      1.1.4. Email: project.support@akzonobel.com
   1.2. Product reference: Hammerite Direct To Rust Metal Paint Satin Finish
2. Composition: Manufacturer's standard.
3. Sheen: Satin.
4. Colour: Black
5. Execution: Brush application.
6. Format: Contractor's choice.
7. Coverage: Brush (two coats): 4.5 m²/L.
8. Viscosity: 5,37 cm²/s.
9. Application: Brush
   9.1. Number of coats: To manufacturer recommendations.

Generally

001 Methodology - Balustrade ADDED

1. Carefully brush down existing paint in localised areas of the balustrade using a wire brush, removing loose
   or flaking material.
2. Where feasible, remove paint back to bare metal in areas showing signs of ongoing rust to allow for treatment.

3. Repaint prepared areas using black Hammerite or equivalent rust-resistant metal paint, ensuring a durable finish and protection against future corrosion.

210 Coating materials ADDED

1. Manufacturers: Obtain materials from any of the following:
2. Selected manufacturers: Submit names before commencement of coating work.

215 Handling and storage

1. Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
2. Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

220 Compatibility

1. Coating materials selected by contractor
   1.1. Recommended by their manufacturers for the particular surface and conditions of exposure.
   1.2. Compatible with each other.
   1.3. Compatible with and not inhibiting performance of preservative/fire-retardant pretreatments.

280 Protection

1. 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

Preparation

400 Preparation generally

1. Standard: In accordance with BS 6150.
2. Refer to any pre-existing CDM Health and Safety File.
3. Refer to CDM Construction Phase Plan where applicable.
4. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
5. Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
6. Substrates: Sufficiently dry in depth to suit coating.
7. Efflorescence salts: Remove.
8. Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
9. Surface irregularities: Remove.
10. Joints, cracks, holes and other depressions: Fill flush with surface, to provide smooth finish.
11. Dust, particles and residues from preparation: Remove and dispose of safely.
12. Water based stoppers and fillers
    12.1. Apply before priming unless recommended otherwise by manufacturer.
    12.2. If applied after priming: Patch prime.
13. Oil based stoppers and fillers: Apply after priming.
14. Doors, opening windows and other moving parts
    14.1. Ease, if necessary, before coating.
    14.2. Prime resulting bare areas.

440 Previously coated surfaces generally

1. Preparation: In accordance with BS 6150, clause 11.5.
2. Contaminated or hazardous surfaces: Give notice of:
   - 2.1. Coatings suspected of containing lead.
   - 2.2. Substrates suspected of containing asbestos or other hazardous materials.
   - 2.3. Significant rot, corrosion or other degradation of substrates.
3. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
4. Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
5. Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
6. Alkali affected coatings: Completely remove.
7. Retained coatings
   - 7.1. Thoroughly clean to remove dirt, grease and contaminants.
   - 7.2. Gloss-coated surfaces: Provide key.
8. Partly removed coatings
   - 8.1. Additional preparatory coats: Apply to restore original coating thicknesses.
   - 8.2. Junctions: Provide flush surface.
9. Completely stripped surfaces: Prepare as for uncoated surfaces.

490 Previously coated steel or iron

1. Defective paintwork: Remove to leave a firm edge and clean bright metal.
2. Sound paintwork: Provide key for subsequent coats.
3. Corrosion and loose scale: Take back to bare metal.
4. Residual rust: Treat with a proprietary removal solution.
5. Bare metal: Apply primer as soon as possible.
6. Remaining areas: Degrease.

Application

711 Coating generally

1. Application standard: In accordance with BS 6150, clause 9.
2. Conditions: Maintain suitable temperature, humidity and air quality during application and drying.
3. Surfaces: Clean and dry at time of application.
4. Thinning and intermixing of coatings: Not permitted unless recommended by manufacturer.
5. Overpainting: Do not paint over intumescent strips or silicone mastics.
6. Priming coats
   - 6.1. Thickness: To suit surface porosity.
   - 6.2. Application: As soon as possible on same day as preparation is completed.
7. Finish
   - 7.1. Even, smooth and of uniform colour.
   - 7.2. Free from brush marks, sags, runs and other defects.
   - 7.3. Cut in neatly.
8. Doors, opening windows and other moving parts: Ease before coating and between coats.

Deleted clauses

~~240 Surfaces not to be coated~~ DELETED

~~250 Surfaces to be cleaned but not coated~~ DELETED

~~451 Previously coated surfaces – blast cleaning~~ DELETED

Ω End of Section

V90
Electrical systems

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
12/06/2025		2045 Repair Specification		A	
12/06/2025		2045 Repair Specification			

Details of amended clauses

No changes to show.

General - Not Used

System performance

260 Design of external lighting system

1. Description: Replacement 2 no. lighting columns to either side of entrance
2. Purpose: Illumination of fire escape
3. Design and detailing: Complete for the external lighting system.
4. Standards: To SLL Code for lighting and BS 5489-1
5. Maintained average illuminance: Submit proposals to match existing.
6. Minimum illuminance at any point: Submit proposals to match existing.
   6.1. Uniformity: Submit proposals to match existing.

270 Control of external luminaires

1. Individual control: Not required
2. Group control: Submit proposals to match existing.

Products

511 Lamps generally

1. Manufacturer: Submit proposals
   1.1. Lamps of the same type and rating: Same manufacturer.
2. Standards
   2.1. Light-emitting diodes (LEDs): To BS EN IEC 62031

Execution

610 Electrical installation generally

1. Standard: In accordance with BS 7671, as amended

655 Installing steel conduit and fittings

1. Fixing: Fix securely. Fix boxes independently of conduit
2. Conduit drainage: Provide drainage outlets at lowest points
3. Location: Summit proposals. - hidden from view. Fix into mortar joints only where necessary.
4. Connections to boxes, trunking, equipment and accessories: Screwed couplings, adaptors, connectors and glands: Attach rubber bushes at open ends.
5. Mounting and support: Submit proposals
6. Earth protection: Ensure that satisfactory continuity is maintained between the separate sections of conduit, equipment and accessories

680 Cable routes

1. Cables generally: Conceal wherever possible

685 Installing cables

1. General: Install cables neatly and securely. Protect against accidental damage, adverse environmental conditions, mechanical stress and deleterious substances.
2. Timing: Do not start internal cabling until building enclosure provides permanently dry conditions
3. Jointing: At equipment and terminal fittings only.

4. Cables passing through walls: Sleeve with conduit bushed at both ends

745 Installing external luminaires

1. Locations: Submit proposals
2. Seals: Check for particle ingress and clean

Completion

820 Cleaning

1. Electrical equipment: Clean immediately before handover

830 Inspection and testing generally

1. Standard: In accordance with BS 7671, as amended
2. Notice before commencing tests (minimum): 24 hours
3. Labels and signs: Fix securely before system is tested
4. Certificates: Submit
   4.1. Number of copies: One

870 Inspection and testing of external lighting systems

1. Switching: Check correct operation of photoelectric control units, time switches and other switching devices over at least one switching cycle
2. Orientation: Adjust luminaires to achieve optimal performance

Ω End of Section

Z11
Purpose made metalwork

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
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12/06/2025		2045 Repair Specification			

Details of amended clauses

No changes to show.

To be read with preliminaries/ general conditions.

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

320 Steel long and flat products

1. Hot rolled structural steels (excluding structural hollow sections and tubes): To BS EN 10025-1.
2. Fine grain steels, including special steels: To BS EN 10025-3 and -4.
3. Steels with improved atmospheric corrosion resistance: To BS EN 10025-5.

330 Steel plate, sheet and strip

1. Plates and wide flats, high yield strength steel: To BS EN 10025-6.

340 Hot rolled steel plate, sheet and strip

1. Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
2. Carbon steel sheet and strip for cold forming: To BS EN 10111.
3. Narrow strip, formable steel and steel for general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

350 Cold rolled steel plate, sheet and strip

1. Steel sections: To BS EN 10162.
2. Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
3. Carbon steel flat products for cold forming: To BS EN 10130 and BS EN 10131.
4. Uncoated carbon steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
5. Narrow strip steel for general engineering purposes: To BS EN 10132-1, -2, and -3.
6. Carbon steel flat products for vitreous enamelling: To BS EN 10209.

360 Coated steel flat products

1. Hot dip zinc coated carbon steel sheet and strip for cold forming: To BS EN 10346 and BS EN 10143.
2. Hot dip zinc coated structural steel sheet and strip: To BS EN 10143 and BS EN 10346.
3. Hot dip zinc-aluminium (za) coated sheet and strip: To BS EN 10346.
4. Hot dip aluminium-zinc (az) coated sheet and strip: To BS EN 10346.
5. Organic coated flat products: To BS EN 10169.

370 Steel structural hollow sections (SHS)

1. Non alloy and fine grain steels, hot finished: To BS EN 10210-1 and -2.
2. Non-alloy and fine grain steels, cold formed welded: To BS EN 10219-2.
3. Weather resistant steels, hot finished: To BS 7668.

380 Other steel sections

1. Equal flange tees: To BS EN 10055.

2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
   5.1. Seamless circular: To BS EN 10297-1.
   5.2. Seamless cold drawn: To BS EN 10305-1.
   5.3. Welded and cold sized square and rectangular: To BS EN 10305-5.
   5.4. Welded circular: To BS EN 10296-1.
   5.5. Welded cold drawn: To BS EN 10305-2.
   5.6. Welded cold sized: To BS EN 10305-3.

400 Stainless steel products

1. Chemical composition and physical properties: To BS EN 10088-1.
2. Sheet, strip and plate: To BS EN 10088-2.
3. Semi-finished products bars, rods and sections: To BS EN 10088-3.
4. Wire: To BS EN 1088-3.
5. Tubes
   5.1. Welded circular: To BS EN 10296-2.
   5.2. Seamless circular: To BS EN 10297-2.

410 Aluminium alloy products

1. Designations
   1.1. Designation system, chemical composition and forms: To BS EN 573-1, -2, -3 and -5.
   1.2. Temper designations: To BS EN 515.
2. Sheet, strip and plate: To BS EN 485-1 to -4.
3. Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
4. Extruded rods, bars, tubes and profiles: To BS EN 755-1 and -2.
5. Drawn wire: To BS EN 1301-1, -2 and -3.
6. Rivet, bolt and screw stock: To BS 1473.
7. Structural sections: To BS 1161.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.
2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
   2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

527 Welding

1. Description: Steel lighting columns
2. Welding procedures
   2.1. Method and standard: to BS EN 1011

2.2. Welding Procedure Specification (WPS): Submit before commencement of welding

3. Preparation
   3.1. Joint preparation: Clean thoroughly.
   3.2. Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
4. Jointing
   4.1. Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
   4.2. Dissimilar metals: Not applicable
   4.3. Strength requirements: Welds to achieve design loads.
   4.4. Heat straightening: Submit proposals
   4.5. Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
   4.6. Tack welds: Use only for temporary attachment.
   4.7. Jigs: Provide to support and restrain members during welding.
   4.8. Filler plates: Submit proposals
   4.9. Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
   4.10. Weld terminations: Clean and sound.

555 Brazing

1. Standard: To BS EN 14324.
2. Testing
   2.1. Destructive testing: To BS EN 12797.
   2.2. Nondestructive testing: To BS EN 12799.

Finishing

710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
2. Butt joints: Smooth, and flush with adjacent surfaces.
3. Fillet joints: Neat.
4. Grinding: Grind smooth where indicated on drawings.

745 Preparation for application of coatings

1. General: Complete fabrication, and drill fixing holes before applying coatings.
2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

750 Liquid organic coating for aluminium alloy components

1. Standard: To BS 4842.

760 Zinc and cadmium plating of iron and steel surfaces

1. Zinc plating: To BS EN ISO 2081.
2. Cadmium plating: To BS EN ISO 2082.

770 Chromium plating

1. Standard: To BS EN ISO 1456.

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
   2.1. Vent and drain holes: Provide in accordance with BS EN ISO 14713-1 and -2. Seal after sections have been drained and cooled.
   2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
   2.3. Welding slag: Remove.
   2.4. Component cleaning: To BS EN ISO 8501-3.
   2.5. Grade:

790 Vitreous enamelling

1. Standard: To BS EN ISO 28722.
2. Substrate metal: Steel to BS EN 10209.

Completion

910 Documentation

1. Submit
   1.1. Manufacturer's maintenance instructions.
   1.2. Guarantees, warranties, test certificates, record schedules and log books.

920 Completion

1. Protection: Remove.
2. Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

Ω End of Section

Z21
Mortars

Summary

Revision history

Date	No.	Title	Status	Revision	Note
13/05/2024		2045 Repair Specification			
12/06/2025		2045 Repair Specification		A	
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Details of amended clauses

No changes to show.

Cement gauged mortars - Not Used

Lime:sand mortars

310 Lime:sand mortar mixes

1. Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

320 Sand for lime:sand masonry mortars

1. Type: Sharp, well graded.
   1.1. Quality, sampling and testing: To BS EN 13139.
   1.2. Grading/ Source: As specified elsewhere in relevant mortar mix items.

330 Ready prepared lime putty

1. Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
   1.1. Maturation: In pits/ containers that allow excess water to drain away.
   1.2. Density of matured lime putty: 1.3-1.4 kg/litre.
2. Maturation period before use (minimum):

340 Pozzolanic additives for nonhydraulic lime:sand mortars

1. Manufacturer/ Supplier: Submit proposals
   1.1. Product reference:
2. Mixing: Mix thoroughly into mortar during knocking up.

345 Admixtures for hydraulic lime:sand mortars

1. Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
2. Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

360 Making lime:sand mortars generally

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
3. Contamination: Prevent intermixing with other materials, including cement.

370 Site prepared nonhydraulic lime:sand mortars

1. Mixing: Mix materials thoroughly by compressing, beating and chopping. Do not add water.
   1.1. Equipment: Roller pan mixer or submit proposals.
2. Maturation period before use (maximum): Seven days

390 Knocking up nonhydraulic lime:sand mortars

1. Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.
   1.1. Equipment: Roller pan mixer or submit proposals.

400 Making hydraulic lime:sand mortars

1. Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.

1.1. Water quantity: Only sufficient to produce a workable mix.

2. Working time: Within limits recommended by the hydraulic lime manufacturer.

Ω End of Section

Specification created using NBS Chorus