

C40 Cleaning masonry/ concrete

To be read with Preliminaries/ General conditions.

GENERAL/ PREPARATION

110A SCOPE OF WORK ALL ELEVATIONS TO BUILDING

- 120 RELATED REPAIR AND REMEDIAL WORKS
 - " Work to be carried out before cleaning work: Pointing to cracks and joints in masonry, as section C41.
- 142 REMOVAL OF FITTINGS
 - " Timing: Before commencement of cleaning work.
 - " Disturbance to surfaces: Minimize.
 - " Items for disposal:
 - Brackets;
 - Fasteners; and
 - Metal clips.
 - " Items to be kept for reuse: none.
- 160 PROTECTION
 - " Surfaces not designated for cleaning: Prevent damage, including marking and staining.
 - " Openings: Prevent ingress of water, cleaning agents and detritus.
 - Vents and grilles: Seek instructions before sealing up.
 - " Temporary mechanical fastenings:
 - In masonry: Locate in joints.
 - In other surfaces: Seek instructions.
 - " Additional protection: Submit proposals .
- 175 CONTROL AND DISPOSAL OF WASH WATER AND DETRITUS
 - " Disposal: Safely. Obtain approvals from relevant Authority.
 - " Control of wash water: Collect and divert to prevent ingress and damage to building fabric and adjacent areas.
 - " Above and below ground drainage systems: Keep free from detritus and maintain normal operation.
- 190 CLEANING GENERALLY
 - " Operatives: Appropriately trained and experienced for each type of cleaning work.
 - Evidence of training: Submit on request.
 - " Control of cleaning: Confine cleaning processes and materials to designated areas.
 - Prevent wind drift.
 - " Detritus: Remove regularly. Dispose of safely.
 - " Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
 - " Modifications to cleaning methods and materials: Seek instructions.
- 215 RECORD OF CLEANING WORKS
 - " Written report: Record cleaning methods and procedures used for each type of surface and deposit.
 - Content: Relevant attributes of cleaning methods used including:
 - Equipment and settings.
 - Dwell times.
 - Number of applications.
 - Ambient temperatures.
 - " Additional documentation: None.
 - " Submission: At completion of cleaning works.

230 TRIAL SAMPLES
 " Trial sample reference: TS001.
 - Surface: Clay brick.
 - Location/ Size: 2m2.
 - Type of soiling: Paint.
 - Cleaning methods: Chemicals.
 " Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

PRODUCTS/ EQUIPMENT

300 COMPATIBILITY OF CHEMICAL PRODUCTS
 " Products: Compatible and produced by the same manufacturer.

312 SURFACE BIOCIDES
 " Types: Registered by the Health and Safety Executive (HSE) and listed on the HSE website under non-agricultural pesticides.
 " Compatibility with surface: Free from staining or other harmful effects.

362 CHEMICAL AGENTS FOR PAINT REMOVAL
 " Manufacturer: Submit proposals.
 - Product reference: Submit proposals.

APPLICATION

412 REMOVAL OF LOOSELY ADHERED DEPOSITS
 " Timing: Before commencement of other cleaning methods.
 " Surfaces: Prevent damage, including abrasion.

500 CHEMICAL CLEANING
 " Surfaces: Prevent damage, including discolouration, bleaching and efflorescence.
 " Product variables (including concentrations, dwell times and number of applications):
 Adjust for each surface to achieve optimum cleaning performance.
 " Application: To wetted surfaces.
 - Drying out: Prevent unless recommended otherwise by cleaning product manufacturer.
 " Removal of chemicals and neutralization: As recommended by product manufacturer, including rinsing with clean water.
 - Additional treatment: Where water rinsing is insufficient to neutralize surface, apply compatible neutralizing agent.
 - Surfaces and joints: Minimize absorption of chemicals. Prevent damage, including abrasion. .

120 RELATED REPAIR AND REMEDIAL WORKS

- Work to be carried out before cleaning work: Pointing to cracks and joints in masonry, as section C41.

160 PROTECTION

- Surfaces not designated for cleaning: Prevent damage, including marking and staining.
- Openings: Prevent ingress of water, cleaning agents and detritus.
 - Vents and grilles: Seek instructions before sealing up.
- Temporary mechanical fastenings:
 - In masonry: Locate in joints.
 - In other surfaces: Seek instructions.
- Additional protection: Submit proposals .

- 180 COLD WEATHER
- Cleaning procedures using water: Do not use when air temperature is at or below 5°C. Protect damp surfaces from frost.
 - Chemical cleaning agents: Do not use when surface temperatures are below those recommended by manufacturer.
- 190 CLEANING GENERALLY
- Operatives: Appropriately trained and experienced for each type of cleaning work.
 - Evidence of training: Submit on request.
 - Control of cleaning: Confine cleaning processes and materials to designated areas. Prevent wind drift.
 - Detritus: Remove regularly. Dispose of safely.
 - Monitoring: Frequently check results of cleaning compared to approved trial samples. If results established by trials are not achieved, seek instructions.
 - Modifications to cleaning methods and materials: Seek instructions.
- 215 RECORD OF CLEANING WORKS
- Written report: Record cleaning methods and procedures used for each type of surface and deposit.
 - Content: Relevant attributes of cleaning methods used including:
 - Equipment and settings.
 - Dwell times.
 - Number of applications.
 - Ambient temperatures.
 - Additional documentation: None.
 - Submission: At completion of cleaning works.
- 230 TRIAL SAMPLES
- Trial sample reference: Brock and Stone.
 - Surface: Clay brick and Sandstone.
 - Location/ Size: sample.
 - Type of soiling: Atmospheric soiling.
 - Cleaning methods: Steam.
 - Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

PRODUCTS/ EQUIPMENT

- 352 STEAM CLEANING EQUIPMENT
- Manufacturer: Contractor's choice .
 - Product reference: Submit proposals .
- 412 REMOVAL OF LOOSELY ADHERED DEPOSITS
- Timing: Before commencement of other cleaning methods.
 - Surfaces: Prevent damage, including abrasion.
- 482 STEAM CLEANING
- Surfaces: Prevent damage, including abrasion.
 - Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.

C41

Repairing/ Renovating/ Conserving masonry

C41 Repairing/ Renovating/ Conserving masonry

To be read with Preliminaries/ General conditions

GENERALLY/ PREPARATION

120 SITE INSPECTION

- Purpose: To confirm type and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
- Parties involved: Client/Architect/Contractor.
- Timing: Prior to start on site.
- Instructions issued during inspection: To be noted and issued on AI.

125 REMOVAL OF FITTINGS/ FIXTURES

- Items to be removed, and reinstated on completion of repair work: All none original signage/fire alarm and vents and cables. Unless otherwise stated for disposal or storage on site.
 - Identification: Attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe refixing instructions, where applicable.
 - Treatment following removal: As scheduled good all holes with coloured mortar to match brick or stone.
 - Storage: Protect against damage, and store until required.
Storage location: To be determined by client.
 - Reinstatement: Refit in original locations using original installation methods.
- Items unsuitable or not required for reuse: any signage/fire alarm and vents and cables.
 - Disposal: To approved site.
- Masonry fabric and surfaces: Do not damage during removal and replacement of fittings/ fixtures.

130 REMOVAL OF PLANT GROWTHS FROM MASONRY

- Plants, root systems and associated soil/ debris: Carefully remove from joints, voids and facework.
- Removal of roots: Where growths cannot be removed completely without disturbing masonry seek instructions.
- Unwanted plants close to masonry: Where removal of root system is not possible or desirable, cut through stem as close to the ground as possible. Remove bark from stump and apply herbicide paste. Leave stump to wither.

140 RECORD OF WORK

- General: Record work carried out to masonry clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.
- Specific records: To be kept on site.
- Documentation: Submit on completion of the work.
 - Number of sets: 1 Electronic 1 paper .

WORKMANSHIP GENERALLY

150 POWER TOOLS

- Usage for removal of mortar: Not permitted .

- 160 PROTECTION OF MASONRY UNITS AND MASONRY
- 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.
 - 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
- 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
- Retained masonry in the vicinity of repair works: Disturb as little as possible.
 - Existing retained masonry: Do not cut or adjust to accommodate new or reused units.
 - 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
- Skill and experience of site operatives: Appropriate for types of work on which they are employed.
 - Documentary evidence: Submit on request.
- 185 ADVERSE WEATHER
- General: Do not use frozen materials or lay masonry units on frozen surfaces.
 - Air temperature: Do not bed masonry units or repoint:
 - In cement gauged mortars when ambient air temperature is at or below 3°C and falling or unless it is at least 1°C and rising, unless mortar has a minimum temperature of 4°C when laid and the masonry is adequately protected.
 - 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.
 - In nonhydraulic lime:sand mortars in cold weather, unless approval is given.
 - Temperature of the work: Maintain above freezing until mortar has fully set.
 - Rain, snow and dew: Protect masonry by covering during precipitation, and at all times when work is not proceeding.
 - Hot conditions and drying winds: Prevent masonry from drying out rapidly.
 - New mortar damaged by frost: Rake out and replace.

MATERIALS/ PRODUCTION/ ACCESSORIES

- 210 ADVANCE REGISTRATION
- Material registered in advance by the Employer: Obtain from the supplier named in Preliminaries section A56.
 - Ordering: Supersede the Employer's registration and take over responsibility by an order to the supplier covering price, supply and delivery to suit the progress of the work.
- 215 MATERIAL SAMPLES
- Representative samples of designated materials: Submit before placing orders.
 - Designated materials: Brickwork/Stone.
 - Retention of samples: Unless instructed otherwise, retain samples on site for reference. Protect from damage and contamination.

220 RECORDING PROFILES

- Profiles: Take measurements from existing masonry units, as instructed, to allow accurate matching of replacements.
- Recording in situ: If there are no suitable joints to allow use of inserts, seek instructions.
- Drawings and templates: Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.

240 STONE

- Supplier: Submit Proposals.
- Type: Portland stone to match existing.
- 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.
- Finish: To match existing.

245 REPLACEMENT STONE UNITS

- Sizes and profiles: To match existing masonry. Maintain existing joint widths.
- Sinkings for fixings, joggles and lifting devices: Accurately aligned and positioned in relation to existing masonry.
- Marking: Mark each block/ dressing clearly and indelibly on a concealed face to indicate the natural bed and position in the finished work.

250 STONE ORIENTATION

- Orientation of natural bed:
 - In plain walling: Horizontal.
 - In projecting stones and copings: Vertical and perpendicular to wall face.
 - In arches: Perpendicular to line of thrust.

260A BRICKS REPLACEMENT

- Manufacturer: Bricks to match existing.
 - Product reference: TBC.
- Size: To match existing.
- Special shapes: To match existing.
- Recycled content: TBC.

265 SALVAGED AND SECOND HAND BRICKS

- Source: Contractor to submit proposals.
- Condition:
 - Free from matter such as mortar, plaster, paint, bituminous materials and organic growths.
 - Sound, clean and reasonably free from cracks and chipped arrises.

DISMANTLING/ REBUILDING

310 DISMANTLING MASONRY FOR REUSE

- Masonry units to be reused: Remove carefully and in one piece.
 - Treatment: Clean off old mortar, organic growths and dirt, and leave units in a suitable condition for rebuilding.
 - Identification: Mark each unit clearly and indelibly on a concealed face, indicating its original position in the construction. Transcribe makings to drawings/ photographs.

REPLACEMENTS AND INSERTIONS

330 PREPARATION FOR REPLACEMENT MASONRY

- Defective material: Carefully remove to the extent agreed. Do not disturb, damage or mark adjacent retained masonry.
- Existing metal fixings, frame members, etc: Report when exposed.
- Redundant metal fixings: Remove.
- Recesses: Remove projections and loose material; 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 TO ELEVATION

- Stone: Portland stone as clause 240 .
- Bedding depths: Flush to match existing .
- Mortar: As section Z21.
 - Mix: Hydraulic Lime to match existing .
 - Sand source/ type: To match existing .
- Fixings: None .
- Joints: To match existing .
- Other requirements: None .

365 REPLACEMENT OF BRICKS Where noted once scaffolding is erected and inspection and survey has occurred

- Bricks: Reclaimed brick as clause 265.
- Mortar: As section Z21.
 - Mix: As section Z21.
 - Sand source/ type: Well graded crushed stone to approval.
- Fixings: Not required.
- Joints: To match existing.
- Other requirements: None.

385 LAYING REPLACEMENT MASONRY UNITS

- Exposed faces of new material: Keep to agreed face lines.
- Faces, angles and features: Align accurately. Set out carefully to ensure satisfactory junctions with existing masonry and maintain existing joint widths.
- Joint surfaces: Dampen to control suction as necessary.
- Laying units: On a full bed of mortar, all joints filled.
- Exposed faces: Keep clear of mortar and grout.

390 GROUTING JOINTS

- Grout mix: To match existing.
- Joints that cannot be fully filled with bedding mortar: Grout thoroughly around replacement masonry units.
- 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

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

TOOLING/ DRESSING STONE IN SITU

450 WEATHERING LEDGES AT JOINTS

- Locations: Where stones project or are recessed.
- Requirement: Carefully weather the ledge, to approval.
- Method: Suitably graded carborundum blocks or tooling as appropriate.

MORTAR REPAIRS

510 PREPARATION FOR MORTAR REPAIRS

- 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.
- 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.
- Precautions: Do not weaken masonry by removing excessive material. Do not damage adjacent masonry.
- Top and vertical reveals of repair area: Undercut.

520 MORTAR REPAIRS TO EXISTING JOINTS

- Undercoats: As section Z21.
 - Mix: To match existing 1:1:6.
 - Sand source/ type: Fine sand to approval.
 - Building up: In layers where necessary, each layer not exceeding 12 mm.
- Finishing coat: To match approved samples.
 - Mix: 1:3 nonhydraulic lime putty:sand and stone dust.
 - Sand source/ type: Fine sand to approval.
 - Finished thickness: To match existing.
 - Finish: To match existing.
- Reinforcement: Not required.

540 APPLYING MORTAR

- Surfaces to receive mortar: Clean, and free from dust and debris. Dampen to control suction.
- Applying coats: Build up in layers to specified thickness. Apply mortar firmly, ensuring good adhesion with no voids. Form a mechanical key to undercoats by combing or scratching to produce evenly spaced lines.
Allow each layer to achieve an initial set before applying subsequent coats. Prevent each layer from drying out rapidly by covering immediately with plastics sheeting and/ or dampening intermittently with clean water.
- Finishing mortar coat: Form accurately to required planes/ profiles, and finish flush with adjacent masonry.
- Protection: Protect completed repairs from adverse weather until mortar has set.

CRACK REPAIRS/ TIES/ REINFORCEMENT

630 TIES GENERALLY

- Tie system manufacturer: To SE details and spec.
 - Product reference: To SE details and spec.
- Type/ Diameter: To SE details and spec.
- Grout: To SE details and spec.
- Holes: Drill carefully and accurately, in locations shown on drawings, to suit types and lengths of tie. Remove drilling dust and debris.
- Adjacent masonry: Do not damage during drilling. Keep cavities behind facings free from debris.
- Tie installation:
 - Expansion type anchor fixings: Set to the correct torque.
 - Bonded ties: Grouted.
 - Ends of ties: Keep back from face of masonry to allow for making good.
- Exposed masonry faces: Clean and free from grout/ mortar stains.
- Making good: To match existing.

POINTING/ REPOINTING

810 PREPARATION FOR REPOINTING

- Existing mortar: Working from top of wall downwards, remove mortar carefully, without damaging adjacent masonry or widening joints, to a minimum depth of 30 mm.
 - Loose or friable mortar: Seek instructions when mortar beyond specified recess depth is loose or friable and/ or if cavities are found.
- Raked joints: Remove dust and debris.

820 POINTING GENERALLY

- Preparation of joints: Clean existing mortar out to twice depth of joint and wet thoroughly.
- Mortar: As section Z21.
 - Mix: 1:3 ready-mixed nonhydraulic lime putty:sand.
 - Sand source/ type: Crushed stone fine pointing sand to approval.
- Joints profile/ finish: To match existing.
- Other requirements: None.

840 POINTING WITH TOOLS/ IRONS

- General: Press mortar well into joints using pointing tools/ irons that fit into the joints, so that they are fully filled.
- 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

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