

Client:

Contents

C60 Cleaning metalwork.....	1
C61 Repairing/ renovating/ conserving metal	4
H31 Metal profiled/ flat sheet cladding/ covering	14
H62 Natural slating	17
H71 Lead sheet coverings/ flashings	20
M60 Painting/ clear finishing.....	28
N16 Bird and vermin control systems	33

Client:

C60

Cleaning metalwork

Clauses

I To be read with preliminaries/ general conditions

General/ preparation

I10 Scope of work

- I. Existing cast iron: Removal of existing paint finishes and rust external and internally as clause 322

I20 Related repair and remedial works

- I. Work to be carried out before cleaning work:
 - I.1. Repairs to cast iron as Section C50.- Redecoration of cast iron as Section M60

I40 Removal of fittings

1. Timing: Before commencement of cleaning work.
2. Disturbance to surfaces: Minimize.
3. Items for disposal: None
4. Items to be kept for reuse: Electrical and electronic equipment removed by the Employer and held in safe store

I60 Protection

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

I72 Prevention of environmental pollution

1. Remove abrasive residues.
2. Take particular care to provide sufficient protection and tentage to prevent contamination of the atmosphere or river.
3. Procedure for preventing contamination as a result of grit blasting or UHPW process to be agreed with the PLA and Environment Agency as required.
4. Residue from blasting or UHPW process to be removed from site and disposed of in accordance with local authority and national legislation for industrial waste.

I90 Cleaning generally

1. Operatives: Appropriately trained and experienced for each type of cleaning work.
 - I.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.

Thomas Ford and Partners
14-02-2023

C60
Cleaning metalwork
To Collection £

Client:

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.

230 Trial samples

1. Trial sample reference: TS-1
 - 1.1. Surface: Existing painted cast iron
 - 1.2. Location/ Size: East facing side of Lighthouse Turret. Size: 600 x 600mm
 - 1.3. Type of soiling: Paint and rust
 - 1.4. Cleaning methods: Sponge-Jet dry abrasive cleaning as clause 322.
2. Records: Maintain written records for each trial area, including cleaning methods and conditions, to enable replication of results elsewhere.

Products/ equipment

322 Abrasive cleaning equipment

1. Manufacturer/ Supplier: Sponge-Jet Ltd. 235 Heritage Ave., Suite 2, Portsmouth, NH 03801 Tel. 603-431-6435
 - 1.1. Product reference: Sponge-Jet dry abrasive system. Submit proposals
2. Nozzle types: Submit proposals
3. Abrasives: - Submit proposals and subject to cleaning trial as clause 230.- Free from contamination by fines and oils

367 Rust remover

1. Do not use unless approved by Contract Administrator.

Application

452 Abrasive cleaning

1. Abrasive cleaning system equipment: As clause 322
2. Preparation grade: Blast clean surface of metalwork to BS 7079:Part A1, preparation grade Sa2½ .
 - 2.1. Surfaces: Free from visible oil, grease and dirt, and from mill scale, rust, paint coatings and foreign matter.
3. Application: Apply cleaning to all surfaces, taking care not to damage the metalwork.
 - 3.1. Ingrained deposits: Seek instructions for hand and power tool cleaning as clause 525
4. Equipment settings (including nozzle type and distance from surface): Adjust regularly to achieve optimum cleaning performance for each surface.
5. Detritus: Remove with clean water.

525 Hand and power tool cleaning

1. Removing dirt and heavy rust: Remove by mechanical scraping, needle gunning or brushing back to a sound surface.
2. Preparation grade: St3.

Client:

Completion/ preparation for remedial work

610 Protective coatings

1. Apply first coat of protection system to all exposed surfaces preferably before gingering occurs and in any case within 2 hours of cleaning or in time to allow initial coat to cure prior to rainfall.

620 Completion

1. Obtain CA's approval of cleaning to each area/surface and before removal of temporary protection.
2. After removal of temporary protection, thoroughly clean all glazing, window frames, doors, sills and other affected surfaces.
3. Check that all gutters, hoppers, downpipes and gulley are free from obstructions and debris arising from cleaning works.
4. Give notice before striking scaffolding, to allow for final inspections.

Ω End of Section

Client:

C61**Repairing/ renovating/ conserving metal**

Clauses

I To be read with preliminaries/general conditions

General

I10 Scope of work

1. Schedule:
 - 1.1. Replacing existing cast iron sections.- Repairs to existing cast iron sections- Repairs to existing wrought iron sections.- Repairs to existing steel gutters
2. Records of metalwork to be repaired: Before starting work, use measurements and photographs as appropriate to record defects, existing setting out conditions, joint widths, special features, etc.
3. Identification of metalwork to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of metal sections or parts of units to be worked on. Transcribe markings to drawings/ photographs.

I20 Site inspection

1. Purpose: To confirm nature and extent of repair/ renovation/ conservation work shown on drawings and described in survey reports and schedules of work.
2. Parties involved: Engineer, architect, contractor's representative and site foreman.
3. Timing: At least 2 working days before starting work.
4. Instructions issued during inspection: Confirm in writing, with drawings and schedules as required, before commencing work.

I30 Opening up

1. Purpose: To reveal previously concealed areas of structure or fabric not recorded during initial surveys.
2. Extent: Carefully scrape back paint and filler from rusted joints, cracks and the like ready for viewing by the engineer and architect.
3. Timing: Give notice before starting opening up.
 - 3.1. Period of notice: At least 2 working days.
4. Retained building structure/ fabric: Do not damage or destabilize.

I40 Record of work

1. General: Record work carried out to metal work clearly and accurately using written descriptions, sketches, drawings and photographs, as necessary.
2. Documentation: Submit on completion of the work.
 - 2.1. Number of sets: 2 (two).

I50 Materials generally

1. Grades of metals, section dimensions and properties to be to the appropriate British Standard. 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 be to the appropriate British Standard and, unless specified otherwise, to be of the same metal as the component, with matching coating or finish.

Client:

160 Repairs generally

1. Site inspection: Prior to commencing work agree extent of repair with the architect on site as clauses 120 and 130.

170 Metal supplier

1. Supplier: Submit proposals

Repairs/ alterations

210 Metal sections/ components - replacement

1. Description: Cast iron to turret cupola cornice
2. Defective metal: Remove complete as clauses 690 and 700
3. Replacement metal section/ component: Cast iron as clause 410
 - 3.1. Sizes/ profiles: To match existing
4. Purpose made metalwork: As Section Z11.
5. Joints generally: Bolted. Submit proposals
6. Jointing/ fixing to existing sections: To match existing joints and as detailed on the drawings
7. Finish as delivered: Primed as clause 820

240 Cast iron section repair - stitching of structural cracks

1. Defective metal:
 - 1.1. Preparation: Clean back to bare metal with dry abrasive cleaning system as Section C60. Remove stubborn/ severely rusted metal with additional needle gunning and wire brushing
2. Stitch repair system: Cold metal stitching system
3. Materials:
 - 3.1. Manufacturer/ supplier: Metalock Engineering UK Ltd., Coventry CV6 4QG. Tel. 02476 338205
 - 3.2. Product reference: Metalock. www.metalock.co.uk/Metalock.aspx
4. Operatives: Submit proposals from approved companies.
5. Finishing repair: Filled and finished flush as clause 750
 - 5.1. Filler: 2-pack epoxy as clause 540

260 Crack/ joint strengthening - studding

1. Defective metal: Cast iron
 - 1.1. Preparation: Clean back to bare metal with dry abrasive cleaning system as Section C60. Remove stubborn/ severely rusted metal with additional needle gunning and wire brushing
2. Studs:
 - 2.1. Type: Threaded rod
 - 2.2. Material: Mild steel
 - 2.3. Diameter: Submit proposals
 - 2.4. Purpose made metalwork: As Section Z11.
3. Holes in existing metal: Drill and thread hole carefully across crack/ joint. Remove drilling dust and debris and keep dry.
4. Studs: Insert as for bolted connections as clause ???
 - 4.1. Exposed stud ends: Grind flush with adjacent surface

Client:

5. Finishing repair: Filled and finished flush as clause 750

5.1. Filler: 2-pack epoxy as clause 540

270 Crack/ joint strengthening - angles/ plates/ straps

1. Defective metal: Cast iron window head

1.1. Preparation: Clean back to bare metal with dry abrasive cleaning system as Section C60. Remove stubborn/ severely rusted metal with additional needle gunning and wire brushing

2. Angles/ plates/ straps:

2.1. Type: Submit proposals

2.2. Material: Submit proposals

2.3. Sizes: Submit proposals

2.4. Location: Fixed across back/ inside face of crack/ joint

2.5. Purpose made metalwork: As Section Z11.

3. Fixing angles/ plates/ straps:

3.1. Holes in existing metal: Drill and thread holes carefully. Remove drilling dust and debris and keep dry.

3.2. Fixings: Mild steel bolts or machine screws as Section Z20

3.3. Exposed stud ends: Grind flush with adjacent surface

4. Finishing repair: Filled and finished flush as clause 750

4.1. Filler: 2-pack epoxy as clause 540

280 Crack repair - welding/ brazing

1. Description: To steel gutters

2. Defective metal: Existing galvanized steel box gutters

2.1. Preparation: Clean back to bare metal with dry abrasive cleaning system as Section C60. Remove stubborn/ severely rusted metal with additional needle gunning and wire brushing

3. Welding:

3.1. Methods/ systems: Submit proposals

3.2. Workmanship: As Section Z11.

4. Finishing weld repair: As Z11/711.

290 Patch repair

1. Description: To steel gutters

2. Defective metal: Existing galvanized steel box gutters

2.1. Preparation: Clean back to bare metal with dry abrasive cleaning system as Section C60. Remove stubborn/ severely rusted metal with additional needle gunning and wire brushing

3. Welding:

3.1. Methods/ systems: Submit proposals

3.2. Workmanship: As Section Z11.

4. Existing metal: Cut out defective metal to square profiles.

5. Finishing weld repair: As Z11/711.

310 Recaulking defective joints

1. Description: Between cast iron components

Client:

2. Defective metal: Existing cast iron
 - 2.1. Preparation: Clean back to bare metal with dry abrasive cleaning system as Section C60. Remove stubborn/ severely rusted metal with additional needle gunning and wire brushing
 - 2.2. Corroded metal packings/ plates in the joints: Notify the CA immediately and seek instructions.
3. Prepared joints: Remove dust and debris.
4. Filler: Plastic steel repair putty as clause 530
5. Joints: Finished flush as clause 750

320 Face repair - non structural cracks

1. Defective metal: Cast iron
2. Method: Drilling and filling.
3. Filler: Repair putty as clause 530
4. Preparation:
 - 4.1. Surfaces: Thoroughly remove all corrosion.
 - 4.2. Ends of crack: Drill hole to terminate.
5. Finishing repair: Filled and finished flush as clause 750

330 Face repair - holes

1. Defective metal: Cast iron
2. Metal filler: 2-pack epoxy as clause 540
 - 2.1. Preparation and application: In accordance with manufacturer's instructions
3. Stopping: Where possible or necessary, the back of the hole is to be stopped with a plastic film to avoid loss of material into the hollow sections.
4. Finishing: Once cured the external surface of the filler is to be ground down level with the surface of the iron.
5. Sample: Provide a sample of a completed repair at an early stage for agreement as an agreed quality standard by the Engineer.

Repairing existing rusted ferramenta - Not Used

Products

410 Cast iron - for structural and non-structural replacement components

1. Generally: Unless otherwise stated, repair materials are to be selected on the basis of like with like repair.
2. Method of Manufacture: Obtain and submit to Contract Administrator for approval, details of the method to be used for iron manufacture.
3. Patterns for new castings: Submit to CA prior to use.
4. Surface Quality: The castings shall be removed from the moulds with every precaution to avoid warping or shrinkage defects detrimental to their good quality. The castings shall be sound and free from surface or other defects.
5. Surface Defects: Castings showing small imperfections, inseparable from the method of manufacture, which are not detrimental to their use, shall not be rejected on that account alone. By agreement between the Contract Administrator and the manufacturer, such defects may be rectified. Any dressing to remove imperfections shall not reduce the casting below the minimum thickness.
6. Grade of Iron: Use only Grade 250 flake graphite cast iron as specified by BS1452:1990.

Client:

430 Carbon steel sections and plates

1. Description: For repairs
2. Standard: To BS EN 10025-2.
3. Grade: Submit proposals
 - 3.1. Options: Submit proposals
4. Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.
5. Protection:
 - 5.1. Generally: Prime as M60
 - 5.2. Ends built into external walls: n/a

440 Stainless steel sections and plates

1. Description: For repairs
2. Standard: To BS EN 10088.
3. Grade: Submit proposals
4. Source: Obtain steel from a source accredited to a national or internationally accepted quality standard.

450 Carbon steel bolt assemblies

1. Description: Generally
2. Bolts: To BS 4190.
 - 2.1. Designation: Submit proposals
 - 2.2. Finish as delivered: Unless otherwise specified, galvanized
3. Nuts and washers: Material, grades and finishes to suit bolts.
 - 3.1. Washer size.
 - 3.1.1. In contact with timber: Diameter: 2 times bolt diameter; thickness: 0.2 times bolt diameter.
 - 3.1.2. In contact with steel section/ plate (required when surface finish may be damaged by nut or bolt head rotating): To BS 4320.

460 Stainless steel bolt assemblies

1. Description: Generally
2. Bolts: To BS EN ISO 3506-1.
 - 2.1. Designation: A2
3. Nuts and washers: To suit grade of bolt.
 - 3.1. Washer size:
 - 3.1.1. In contact with timber: Diameter: 2 times bolt diameter; thickness: 0.2 times bolt diameter.
 - 3.1.2. In contact with steel section/ plate (required when surface finish may be damaged by nut or bolt head rotating): To BS 4320.

470 Screws

1. Description: Generally
2. Standard: As section Z20.
3. Material: Mild steel/ Stainless steel
4. Tensile strength (minimum): 550 N/mm² / Not applicable
5. Finish as delivered: Galvanized / None

Client:

480 Bolts and nuts

1. Manufacturer and reference: Submit sample and manufacturer's details to CA for approval prior to use.

520 Cold welding

1. Type: Cold Welding System.
2. Manufacturer/ supplier: Durmetal Limited, 110 Lupus Street, London SW1V 4AJ.
 - 2.1. Product reference: Durmetal Cold Welding System Repair Kit

530 Plastic steel repair putty

1. Repair putty:
 - 1.1. Manufacturer: Devcon UK, Rushden Northamptonshire NN10 6GL. Tel: 0870458 7388.
 - 1.2. Product reference: Plastic steel repair putty subject to sample repairs.
2. Preparation: As recommended by the manufacturer
 - 2.1. Priming solution: Devcon Cleaner Blend 300
3. Finish: Finish surface smooth and flush with surrounding material.

540 Metal filler

1. Metal Filler: 2-part epoxy filler.
 - 1.1. Manufacturer: Contractor's choice
 - 1.2. Product reference: Submit proposals
2. Preparation: As recommended by the manufacturer

Execution

600 Workmanship

1. Skill and experience of operatives: Appropriate for types of work on which they are employed.
 - 1.1. Documentary evidence: Submit on request.
2. Purpose made metalwork: As Section Z11.
3. Repairs and fabrication generally: Repair and fabricate components carefully and accurately to match original construction and ensure compliance with design and performance requirements.
4. Bi-metallic corrosion: Do not permit contact between dissimilar metals in components which are to be fixed where moisture may be present or occur.
5. Finishing: Finished components to be rigid and free from distortion, cracks, burrs and sharp arrises. Moving parts must move freely and without binding.
6. Corner joints: Unless specified otherwise, mitre corner junctions of identical sections.

610 Temporary supports/ propping

1. General: Provide adequate temporary support at each stage of repair work to prevent damage, oversteering or uncontrolled collapse of any part of the structure.
2. Bearings for temporary supports/ propping: Suitable to carry loads throughout repair operations.

615 Erecting/ hoisting equipment on site

1. Erection equipment fixed to permanent structure: Not permitted.
2. Lifting and winching sections on site: Submit proposals.

Client:

620 Protection of metal sections and metalwork before and during installation

1. Storage: Keep dry, under cover, clear of the ground and with good ventilation. Support sections/ components on regularly spaced, level bearers on a dry, firm base.
2. Handling: Do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.

645 Control samples

1. General: Complete an area of each of the following types of work, and arrange for inspection before proceeding with the remainder: - Cast iron casting of Turret cupola cornice as clause 210.- Cold metal stitching repair as clause 240.- Recaulking defective joints as clause 310.- Surface filling as clause 750

650 Dimensions/ profiles generally

1. Site dimensions: Take as necessary before starting fabrication.
 - 1.1. Discrepancies with drawings: Report without delay and obtain instructions before proceeding.
2. Profiles: Take measurements from existing metal sections, as instructed, to allow accurate matching of replacements.
3. Drawings and templates: Prepare as necessary. Templates must be clearly and indelibly marked to identify use and location.

655 Inspection of drawings, templates, casts, etc

1. Timing: Before starting production of metal units associated with the following items:
 - 1.1. Cast iron casting of Turret cupola cornice as clause 210
2. Period of notice (minimum): One week

660 Fabrication and erection tolerances

1. Fabrication:
 - 1.1. Accuracy: Fabricate ironwork to ensure specified requirements of alignment, level and verticality of erected ironwork can be met.
 - 1.2. Thickness: The thickness of a member is not to deviate from its intended thickness by more than $\pm (1+0.05t)$ where 't' is thickness of member.
 - 1.3. Length: The length of a member is not to deviate from its intended length by more than $\pm 3\text{mm}$.
 - 1.4. Straightness: A member shall not deviate from straightness by more than $0.00125 \times \text{length}$ over any part of its length.
2. Erection:
 - 2.1. Standard: To BS EN 1090-2:2008.
 - 2.2. Existing work: Line up replacement sections/ components with existing work.
 - 2.3. New work: Plumb, line and level components using prepared steel shims to maintain correct distance between components at all levels.

670 Site welding

1. Usage: Permitted only where indicated on drawings.
2. Working conditions:
 - 2.1. Suitable and safe. Do not weld when surfaces are wet or when ambient temperature is below 0°C .
 - 2.2. Insitu site welding will be subject the completion a 'hot works permit' form and compliance with its requirements.
3. Welding and brazing generally: As Section Z11.

Client:

690 Disturbance to retained metalwork

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

700 Dismantling metalwork for repair and reuse

1. Method statements: Submit proposals before commencing.
2. Defects in existing construction: When not otherwise specified:
 - 2.1. Notification: Report immediately to the CA and seek instructions.
3. Metalwork to be repaired/ reused: Remove carefully and in one piece and as follows:
 - 3.1. Fixings: Release bolts and screws and drive out pins and wedges. Locate and release primary fixings with controlled addition of heat where necessary to minimise damage or distortion.
 - 3.2. Drilling out fixings: When permitted and only as a last resort.
 - 3.3. Tenons: Never cut tenons or primary elements.
4. Treatment:
 - 4.1. Clean off old mortar, organic growths and dirt.
 - 4.2. Blast cleaning: As section C60.
 - 4.3. Identification: Mark each unit clearly and indelibly on a concealed face, indicating its original position in the construction. Transcribe makings to drawings/ photographs.

710 Re-erecting metalwork sections/ assemblies

1. Generally: Ensure that each part of ironwork to be joined is stable, will remain so until the joint is made and that the joined ironwork will also be stable.
2. Additional bolts holes or weldments: Submit proposals
3. Site Cutting and Drilling: Submit proposals
4. Fixings:
 - 4.1. Methods: Reassemble components using original method of fixing unless otherwise specified.
 - 4.2. New fixings: Where new are required, these are to be of the same dimensions as the original unless otherwise specified.
 - 4.3. Threaded fixings (bolts, screws etc.): Prepare and clean out existing fixing holes prior to reassembly. Where possible, reuse existing thread forms.
5. Jointing:
 - 5.1. Priming of components before reassembly: Submit proposals
 - 5.2. Sequence of assembly: Reassemble components in the reverse order to which they were dismantled.
 - 5.3. Treatment of meeting faces of components before assembly: Jointing compound as clause -----

730 Bolted connections

1. Phased connections: Submit proposals
2. Holes:
 - 2.1. Drifts: Do not distort or enlarge holes when using drifts. Do not use drifts of larger diameter than hole.
 - 2.2. Misalignment of holes: Report to the CA.

Client:

- 2.3. Reaming of existing holes: Only when permitted by the CA. Ream hole to correct position and use larger bolt.
3. Bolting: Place bolts in holes without force. Driving of bolts is not permitted.
4. Washers: Generally place under nuts. Place under heads of bolts when heads instead of nuts are turned to tighten fasteners.
5. Tightening Bolts Generally:
 - 5.1. Lubricants used to prevent bolts seizing on bolts: Use only high pressure lubricant taking care to prevent spread on to adjacent surfaces.
 - 5.2. Tightening bolts: Tighten to ensure surfaces are drawn firmly together. Where a gap remains at the joint which may affect the joint integrity take apart any such joint, insert packing and re-tighten.
 - 5.3. After tightening: At least two threads are to project beyond the nut, or lock nut when fitted, and at least one thread (in addition to the thread runout) is to remain clear between the nut and the unthreaded bolt shank.

750 Surface filling

1. Description: -to external surfaces
2. Fill: Cracks, holes, etc. on completion of repairs and prior to priming.
 - 2.1. Extent: Agree extent of filling on site with the CA prior to commencing work.
3. Filler:
 - 3.1. Plastic steel repair putty: As clause 530
 - 3.2. Metal filler: As clause 540
4. Finish: Finish surface smooth and flush with surrounding material.

780 Inspection and testing of replacement ironwork

1. Inspection: Provide facilities to enable safe access for the Contract Administrator to inspect ironwork in respect of surface condition, dimensional and shape tolerances.
2. Manufacturers' Test Certificates: When requested by Contract Administrator, submit two copies of manufacturers' test certificates and analyses for ironwork.

Protective coatings

820 Shop priming for

1. Description: New cast iron castings
2. Use/ location: New cast iron castings for Turret cornice
3. Shop preparation:
 - 3.1. Generally: Blast cleaning to BS EN ISO 8501-1, preparation grade: Sa 2½
 - 3.2. Welds/ edges/ areas with surface imperfections: To BS EN ISO 8501-3, preparation grade: P3
4. Primer: As M60/I42
 - 4.1. Manufacturer: As M60/I42
 - 4.2. Product reference: As M60/I42
 - 4.3. Dry film thickness: Submit proposals
5. Special requirements: n/a

830 Preparation generally

1. Timing: Before applying coating ensure that fabrication is complete and all fixing holes have been drilled, unless otherwise specified.

Client:

2. Preparation: Remove all paint, grease, flux, rust, burrs and sharp arrises.
3. Finishing: Make good all defects which would show after application of coating and finish surfaces smooth. Thoroughly degrease and clean down. Remove any consequent rusting back to grade St 2. Prime without delay.

840 Offsite preparation and painting

1. Working area: Covered and properly lit, heated and ventilated.
2. Sequence of working: Select from the following and submit proposals:
 - 2.1. Fabricate, blast clean, prime.
 - 2.2. Blast clean, fabricate, remove flash rust with a light overall sweep blast, prime.
 - 2.3. Blast clean, apply weldable prefabrication primer, fabricate, prime.
3. Prefabrication primer (option 3): Type recommended by manufacturer of post fabrication primer.
 - 3.1. Thickness of post fabrication primer coat: May be reduced if and as recommended by manufacturer.

850 Concealed/ inaccessible surfaces

1. Surfaces inaccessible after assembly: Apply full treatment and coating system including, if necessary, local application of site coatings.

860 Uncoated and galvanized fasteners

1. Treatment: After steelwork erection and before applying site coatings, thoroughly degrease and clean.
2. Uncoated fasteners: Without delay, coat to match adjacent shop painted areas.
3. Galvanized fasteners: Etch prime.

870 Painting - environmental conditions

1. General requirements prior to starting coating work:
 - 1.1. Surfaces: unaffected by moisture or frost.
 - 1.2. Steel temperature: At least 3°C above dew point, with conditions stable or improving, and not high enough to cause blistering or wrinkling of the coating.
 - 1.3. Relative humidity: Below 85%.

880 Paint coatings

1. Surfaces to be coated: Clean, dust free and suitably dry. Previous coats to be adequately cured.
2. Multiple coats of same material: Use different tints to assist checking of complete coverage.
3. Penultimate coat: Colour recommended by paint manufacturer to suit top coat colour.
4. Finish required: Smooth and even, of uniform thickness and colour, free from defects.
5. Stripe coat: External angles, nuts, bolt heads, rough weld seams, and areas difficult to coat:
 - 5.1. Apply an additional stripe coat of: primer and undercoat

Completion

910 Mechanically fastened joints

1. General: Inspect accessible joints and tighten fasteners if necessary.
 - 1.1. Timing: On Completion and at end of Defects Liability Period or Rectification Period.

Ω End of Section

Client:

H3 I**Metal profiled/ flat sheet cladding/ covering**

Clauses

2 To be read with preliminaries/ general conditions.

Types of cladding/ covering system

110 Metal

1. Description: Cupola roof to turret
2. Support structure: Existing wrought iron rods and cast iron cornice frame
 - 2.1. Bearing width (minimum): Investigate conditions and submit proposals
 - 2.2. Pitch: Not applicable
3. External sheets: Flat copper sheet to BS EN 506: 2008.
 - 3.1. Manufacturer: Contractor's choice
 - 3.1.1. Product reference: Contractor's choice
 - 3.2. Material: Copper sheet
 - 3.3. Thickness (nominal): Submit proposals
 - 3.4. Finish side 1 (outer): Epoxy coating as M60/I44
 - 3.4.1. Colour: tba
 - 3.5. Finish side 2 (inner): Epoxy coating as M60/I44
 - 3.5.1. Colour: RAL 9010
 - 3.6. Additional requirements: None
4. Additional requirements: None
5. Accessories: Finial ventilator base to existing weathervane.- Ventilation slot width: 25 minimum.- Insect mesh: As shown on drawings.- Fixing: Bottom fixed to roof sheets. Top welded to existing weathervane
6. Primary cladding/ covering sheet fasteners: Submit proposals
 - 6.1. Fastener profile location: Submit proposals
 - 6.2. Number of fasteners per sheet width:
 - 6.2.1. Eaves and end laps: As shown on drawing's
 - 6.2.2. Intermediate supports: Purpose made brass clips fixed to existing wrought iron supports as shown on drawings
7. End laps size (minimum): As shown on drawings
8. Sealing laps
 - 8.1. End laps: One row of partially cross linked butyl rubber sealant tape
 - 8.2. Side laps: One row of partially cross linked butyl rubber sealant tape
9. Stitching laps
 - 9.1. End laps: Self drilling stainless steel screws with assembled stainless steel EPDM elastomer faced sealing washer
 - 9.2. Side laps: As for end laps
10. Spacers: Not applicable
 - 10.1. Fasteners: n/a
11. Breather membrane: Not required

Client:

- 12. Thermal insulation: Not required
- 13. Vapour control layer: Not required
- 14. Acoustic insulation: Not required
- 15. Lining sheets: Not required

137 Metal

- 1. Description: Infill panels to lighthouse turret
- 2. Support structure: Existing cast iron turret frame
 - 2.1. Preparation: Cleaned as Section C60; repaired as Section C61; repainted as Section M60.
- 3. External sheets: Corrugated stainless steel sheet to BS EN 508-3: 2008, traditional pattern
 - 3.1. Manufacturer: Contractor's choice
 - 3.1.1. Product reference: Contractor's choice
 - 3.1.2. Profile: 76.2mm pitch x 18mm depth of corrugation.
 - 3.2. Material: Austenitic stainless steel designation X5CrNiMo17-12-2 number 1.4401 (316)
 - 3.3. Thickness (nominal): 0.7 mm
 - 3.4. Finish: External and internal faces:
 - 3.4.1. Finish and delivered: Primed ready for site applied coating.
 - 3.4.2. Site applied coating: Epoxy coating as M60/I44.
 - 3.4.3. Colour: To be advised
- 4. Fixing and support:
 - 4.1. Supporting backing framework: Top, bottom, sides and mid-rail in 25 x 25mm stainless steel angle.
 - 4.1.1. Purpose made metalwork: As Section Z11.
 - 4.2. Fixings: As Section Z20.
 - 4.2.1. Type/ size: Countersunk machine screws with nuts. Size: Submit proposals.
 - 4.2.2. Fixing holes in support structure: Holes in existing cast iron frames reused; and prepared and recoated as Section C61.
- 5. Additional requirements: None
- 6. Sealing laps
 - 6.1. End laps: Not applicable
 - 6.2. Side laps: One row of partially cross linked butyl rubber sealant tape
- 7. Stitching laps
 - 7.1. Side laps: Self drilling stainless steel screws with assembled stainless steel EPDM elastomer faced sealing washer
- 8. Spacers: Not applicable
 - 8.1. Fasteners: n/a

General requirements - Not Used

Design/ performance requirements - Not Used

Fixing cladding/ roof covering

215 Painting structure

- 1. Sequence: Paint outer surface of supporting structure before fixing cladding/ covering.

Client:

219 Fasteners

1. Unspecified fasteners: Recommended for the purpose by the cladding/ covering manufacturer.

223 Prevention of electrolytic action

1. Isolating tape: Type recommended by cladding/ covering manufacturer.
 - 1.1. Location: To contact surfaces of supports and sheets of dissimilar metals.

410 Fixing sheets generally

1. Cut edges: Clean true lines.
2. Penetrations: Openings to minimum size necessary.
 - 2.1. Edge reinforcement: Not applicable
3. Sheet orientation: Exposed joints of side laps away from prevailing wind unless shown otherwise on drawings.
4. Sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap.
5. Fasteners: Drill holes. Position at regular intervals in straight lines, centred on support bearings.
 - 5.1. Position of fasteners in oversized drilled holes: Central.
 - 5.2. Fasteners torque: Sufficient to correctly compress washers.
6. Debris: Remove dust and other foreign matter before finally fixing sheets.
7. Completion: Check fixings to ensure watertightness and that sheets are secure.

550 Sealing laps on external sheets

1. Sealant tape: Types recommended by sheet manufacturer.
 - 1.1. Position: Below fixing positions in straight unbroken lines, parallel to and slightly back from edge of sheet.
2. Seal quality: Effective, continuous and not overcompressed.
3. End laps: Sealant tape positions: Sealant tape positions:.
 - 3.1. Single line tape: Immediately below line of fasteners.
 - 3.2. Second line tape (where specified): Slightly set back from edge of external sheet.
4. Side laps: Sealant tape positions: Sealant tape positions:.
 - 4.1. Single line tape: Outside line of fasteners.
 - 4.2. Second line tape (where specified): On other side of fasteners.

Ω End of Section

Client:

H62

Natural slating

Clauses

2 To be read with preliminaries/ general conditions.

Types of slating

110 Roof slating with counterbattens

1. Description: To replace existing slate coverings
2. Substrate: Existing timber sarking boards.- Preparation: New plywood sarking as K11/615
3. Pitch: Approximately 25°
4. Underlay: Premo Forte vapour permeable underlay, manufactured by Klover Ltd, Loughborough LE12 9DE, Tel. 01509 500660
 - 4.1. Recycled content: N/A
 - 4.2. Direction: Parallel to eaves.
 - 4.3. Head-lap (minimum): 150 mm
5. Counterbattens:
 - 5.1. Size: 38 x 19 SW and as clause 245
 - 5.2. Fixing: 38mm stainless steel wood screws at min 300mm centres
6. Battens:
 - 6.1. Size: 50 x 25 SW and as clause 245
 - 6.2. Fixing: 65 x 3.35mm galvanised round plain shank nails shot fired to reduce impact vibration
7. Slates:
 - 7.1. Supplier: Welsh Slate Ltd., Bangor Gwynedd LL57 4YG, Tel. 01248 600656. Email: scott.garner@welshslate.com. Website: <http://www.welshslate.com/>
 - 7.1.1. Product reference: Penrhyn Heather Blue or Ffestiniog
 - 7.2. Type: Welsh
 - 7.3. Size: 500 x 300mm x 6mm thick
 - 7.4. Head-lap (minimum): 100mm for severe exposure
 - 7.5. Fixing: Two nails each slate.
8. Accessories: Lead flashings and slates as Section H71

Slating generally

210 Basic workmanship

1. General: Fix slating and accessories to make the whole sound and weathertight at earliest opportunity.
2. Setting out: To true lines and regular appearance, with neat fit at edges, junctions and features.
3. Fixings for slating accessories: As recommended by manufacturer.
4. Gutters and pipes: Keep free of debris. Clean out at completion.

217 Workmanship skills

1. Operatives: Appropriately skilled and experienced for the type and quality of work.
2. Registration: With Construction Skills Certification Scheme.

Thomas Ford and Partners
14-02-2023

Client:

3. Evidence: Operatives must produce evidence of skills/ qualifications when requested.

- 3.1. Requirement: (CSCS) Heritage Skills Card.

220 Removing existing slating

1. General: Carefully remove slates, battens, underlay, etc. with minimum disturbance of adjacent retained slating.
2. Undamaged slates: Set aside for reuse.

240 Underlay

1. Handling: Do not tear or puncture.
2. Laying: Maintain consistent tautness.
3. Vertical laps (minimum): 100 mm wide, coinciding with supports and securely fixed.
4. Fixing: Galvanized steel, copper or aluminium 20 x 3 mm extra large clout head nails.
5. Eaves: Where exposed, underlay must be BS 8747, Annex B, type 5U, or equivalent UV durable type.
6. Penetrations: Use proprietary underlay seals or cut underlay to give a watertight fit around pipes and components.
7. Ventilation paths: Do not obstruct.

245 Battens/ counter battens

1. Timber: Sawn softwood.
 - 1.1. Species: To BS 5534, clause 4.12.1.
 - 1.2. Permissible characteristics and defects: Not to exceed limits in BS 5534, annex C.
 - 1.3. Grading: Factory pre-graded with site grading of knots and wane
 - 1.4. Moisture content at time of fixing and covering (maximum): 22%.
2. Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
 - 2.1. Type: Non-metallic organic solvent

255 Counter battens on rigid sarking

1. Fixing: Through rigid sarking into rafters at not more than 300 mm centres.

265 Batten fixing

1. Setting out: Align parallel to ridge in straight horizontal lines to gauge of slates. Align on adjacent areas.
2. Batten length (minimum): Sufficient to span over three supports.
3. Joints in length: Square cut. Butt centrally on supports. Joints must not occur more than once in any group of four battens on one support.
4. Additional battens: Provide where unsupported laps in underlay occur between battens.
5. Fixing: Each batten to each support. Splay fix at joints in length.

275 Slate fixing

1. Setting out: Lay slates with an even overall appearance with slightly open (maximum 5 mm) butt joints. Align tails.
2. Slate thickness: Consistent in any one course. Lay with thicker end as tail.
3. Ends of courses: Use extra wide slates to maintain bond and to ensure that cut slates are as large as possible. Do not use slates less than 150 mm wide.
4. Top course: Head-nail short course to maintain gauge.

Client:

5. Fixing: Centre nail each slate twice through countersunk holes 20-25 mm from side edges.
 - 5.1. Nails: Copper clout to BS 1202-2 or aluminium clout to BS 1202-3.
 - 5.2. Nail dimensions: Determine in accordance with BS 5534 to suit site exposure, withdrawal resistance and slate supplier's recommendations.

Performance - Not Used

Roof slating edges/ junctions/ features

305 Generally

1. Fittings and accessories: As recommended by slate supplier, do not improvise.
 - 1.1. Exposed fittings and accessories: To match slate colour and finish.
2. Cut slates: Cut only where necessary, to give straight, clean edges.
3. Flashings: Fix with or immediately after slating. Form neatly.

365 Unventilated eaves

1. Underlay support: Timber tilting fillet as clause 245
 - 1.1. Continuous to prevent water retaining troughs.
2. Gutter: Dress underlay or underlay support tray to form drip into gutter.
3. Undercourse and first course slates: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

615 Metal valleys

1. Underlay: Cut to rake. Dress over tilting fillets to lap onto metal valley. Do not lay under metal.
2. Roof slates: Cut extra wide slates adjacent to valley to fit neatly.
 - 2.1. Valley width between slates: minimum 150 mm

670 Top edge abutments

1. Underlay: Turn up not less than 100 mm at abutments.
2. Top slate courses: Fix close to abutments.

850 Roof slope terminals

1. Ventilator slates: Lead sheet as Section H71
 - 1.1. Manufacturer: Contractor's choice
 - 1.1.1. Product reference: Contractor's choice
 - 1.2. Connect to soil and vent pipes, and kitchen and bathroom ventilation pipes.

Vertical slating edges/ junctions - Not Used

Ω End of Section

Client:

H71**Lead sheet coverings/ flashings**

Clauses

2 To be read with preliminaries/ general conditions.

Types of leadwork

230 Valley gutter lining to slate/ tile roofs

1. Underlay: Reinforced building paper as clause 646
2. Type of lead: Rolled to BS EN 12588
 - 2.1. Thickness: 2.50 or 2.65 mm (Code 6)
3. Pretreatment: Apply chalk enriched paint to underside as clause 672
4. Laying: Over and beyond tilting fillets.
5. Lengths: Not more than 1500 mm.
 - 5.1. Cross joints: Lapped not less than 250 mm.
6. Fixing: Welt edges. Nail top edge of each sheet. Dress bottom end neatly into eaves gutter.

247 Wood roll expansion joint between slate roofs

1. Substrate: Existing timber sarking boards.
 - 1.1. Preparation: New plywood sarking as K11/615.
2. Core: Rounded timber.
 - 2.1. Size: 70 x 45mm ('King' roll)
 - 2.2. Shape: Tapered to a flat base 30 mm wide.
 - 2.3. Fixing: To ridge/ hip board with brass or stainless steel screws at not more than 600 mm centres, with base not less than 5 mm above slates.
3. Underlay: Reinforced building paper as clause 646.
4. Lead secret gutter lining:
 - 4.1. Type of lead: Rolled to BS EN 12588.
 - 4.2. Thickness: 3.00 or 3.15 mm (Code 7)
 - 4.3. Pre-treatment: Apply chalk enriched paint to underside as clause 672.
 - 4.4. Lengths: Not more than: 1500 mm
 - 4.5. Laps: Not less than 220mm.
 - 4.6. Overall girth: Adequate for not less than 75 x 25mm secret gutters with welted edge over slating battens and under slates.
5. Laying: Dressed over continuous slating battens with welted edge
 - 5.1. Fixing: Welt edges. Nail top edge of each sheet. Dress bottom end neatly into eaves gutter.
 - 5.2. Fixings: Clips as clause 715 at laps.
6. Head: Lead ridge roll capping as clause 316.
 - 6.1. Secure wings using continuous lead clip.
 - 6.2. Lead weld continuous lead clip to underlap sheet as clause 760.
7. Other requirements: SmartWater security marking as clause 980.

Client:

316 Ridge/ hip rolls to slate roofs

1. Clips: At capping laps and not more than 400mm.
 - 1.1. Fixing: Nail to top of ridge/ hip board before fixing core. Nail each side not more than 50 mm from edge of capping (drill slates as necessary).
2. Core: Rounded timber.
 - 2.1. Size: 45 mm high x 45 mm wide
 - 2.2. Shape: Tapered to a flat base 30 mm wide.
 - 2.3. Fixing: To ridge/ hip board with brass or stainless steel screws at not more than 600 mm centres, with base not less than 5 mm above slates.
3. Lead capping
 - 3.1. Thickness: 2.50 or 2.65 mm (Code 6)
 - 3.2. Lengths: Not more than 1500 mm.
 - 3.2.1. Hip capping: Nail head of each length around core.
4. Ridge cappings:
 - 4.1. Laps: Joints welted and clipped as clause 880.
 - 4.2. Cover to roof: Not less than 220mm.
5. Hip cappings:
 - 5.1. Laps: Not less than 250 mm.
 - 5.2. Cover: Wings of capping to extend not less than 220mm on to roof.
6. Other requirements:
 - 6.1. SmartWater security marking as clause 980.
 - 6.2. Pre-treatment: Chalk enriched paint to underside as clause 672.
 - 6.3. Saddles at abutments: As clause 477.

411 Apron flashings

1. Description: To pitched slated roofs
2. Lead
 - 2.1. Thickness: 2.00 or 2.24 mm (Code 5)
3. Dimensions
 - 3.1. Lengths: Not more than 1500 mm.
 - 3.2. End to end joints: Laps of not less than 100 mm.
 - 3.3. Upstand: Not less than 100 mm.
 - 3.4. Cover to roof: Not less than: 220 mm- Overlap to soaker upstands: Not less than 75 mm
4. Fixing:
 - 4.1. Top edge to Turret: Nailed to new plywood substrate.
 - 4.2. Bottom edge: Clips as clause 715 at laps and at not more than 400 centres.

441 Soakers

1. Description: To base of turret plinth
2. Lead soakers
 - 2.1. Thickness: 1.75 or 1.80 mm (Code 4)
 - 2.2. Dimensions
 - 2.2.1. Length: Slate/ tile gauge + lap+ 25 mm.

Client:

2.2.2. Upstand: Not less than 75 mm.

2.2.3. Underlap: Not less than 100 mm.

2.3. Fixing: By roofer.

3. Lead flashings: Apron flashings as clause 411.

470 Flashings

1. Description: To eaves of pitched slated roofs
2. Lead
 - 2.1. Thickness: 2.00 or 2.24 mm (Code 5)
3. Dimensions
 - 3.1. Lengths: Not more than 1500 mm.
4. Fixing: - Top edge: Dressed up tilting fillet and welted.- Bottom edge: Clipped as clause 715 at max 400mm centres

477 Saddles

1. Description: To ridge rolls at abutments
2. Lead
 - 2.1. Thickness: 2.50 or 2.65 mm (Code 6)
3. Dimensions: As shown on the drawings.
4. Fixing: - Top edge: Lead welded to steel angle apron trim.- Bottom edge: Welted to ridge roll capping.

480 Lead slates

1. Manufacturer: Contractor's choice
2. Lead
 - 2.1. Thickness: 2.00 or 2.24 mm (Code 5)
3. Dimensions
 - 3.1. Base: Not less than 400 x 400 mm.
 - 3.2. Upstand: Not less than 150 mm, to fit pipe and at angle to suit roof pitch.

General requirements/ preparatory work

510 Workmanship generally

1. Standard: To BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Association.
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. Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.
5. Marking out: With pencil, chalk or crayon. Do not use scribes or other sharp instruments without approval.
6. Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.
7. Solder: Use only where specified.
8. Sharp metal edges: Fold under or remove as work proceeds.

Client:

9. Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
 - 9.1. Protection: Prevent staining, discolouration and damage by subsequent works.
10. Protection:

512 Workmanship skills

1. Subcontractors: Full membership of the Lead Contractors Association.
2. Operatives: Appropriately skilled and experienced for the type and quality of work.
3. Registration: With Construction Skills Certification Scheme.
4. Evidence: Operatives must produce evidence of skills/ qualifications when requested.
 - 4.1. Requirement: (CSCS) Heritage Skills Card.

514 Security

1. Security of all lead remains the responsibility of the contractor from the moment that scaffolds are erected until completion.

515 Lead-welding

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

521 Lead sheet

1. Production method
 - 1.1. Rolled, to BS EN 12588, or
 - 1.2. Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of $\pm 10\%$.
2. Identification: Labelled to show thickness/ code, weight and type.

523 Smart water security system

1. Product reference: SmartWater Security System.
 - 1.1. Manufacturer: SmartWater Technology Ltd., tel. 0870 242 8899
 - 1.2. Supplied by the Employer as A50/I20.
2. Application by the Contractor: As clause 980.

610 Suitability of substrates

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

620 Preparation of existing timber substrates

1. Remedial work: Adjust boards to level and securely fix. Punch in protruding fasteners and plane or sand to achieve an even surface.
2. Defective boards: Give notice.
3. Moisture content: Not more than 22% at time of covering. Give notice if greater than 16%.

640 Timber for use with leadwork

1. Quality: Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).
2. Moisture content: Not more than 22% at time of fixing and covering. Give notice if greater than 16%.

Client:

3. Preservative treatment: Organic solvent as section Z12 and Wood Protection Association Commodity Specification C8.

646 Reinforced building paper underlay

1. Manufacturer: Ecological Building Systems UK Ltd, tel. 05600 758025
2. Supplier: Green Building Store, tel. Tel: 01484 461705.
 - 2.1. www.greenbuildingstore.co.uk.
 - 2.2. Product reference: Pro-Clima DB+

650 Laying sheet underlay

1. Handling: Prevent tears and punctures.
2. Laying: Butt or overlap jointed onto a dry substrate.
 - 2.1. Fixing edges: With copper or stainless steel staples or clout nails.
 - 2.2. Do not lay over roof edges but do turn up at abutments.
3. Wood core rolls: Fixed over underlay.
4. Protection: Keep dry and cover with lead at the earliest opportunity.

672 Chalk enriched paint treatment to underside of lead

1. Chalk enriched paint:
 - 1.1. Supplier: Rowan Technologies, 216 Church Road, Urmston, Manchester M41 9DX (tel: 0161 748 3644).
2. Lead preparation:
 - 2.1. Thoroughly clean and wire brush underside surface of lead to remove mill scale and oxidation layers.
 - 2.2. Boss lead sheet into its rough shape prior to application of chalk coating.
3. Coating application:
 - 3.1. Stir the supplied coating thoroughly prior to and during application.
 - 3.2. Application: By brush.
 - 3.3. Number of coats: Two thick coats.
 - 3.4. Overall thickness of finished coating: 150-200 microns.
4. Keep the following areas of the sheet free of the chalk coating to avoid capillary action:
 - 4.1. The outer quarter of overcloaks at rolls
 - 4.2. Overlaps at drips
 - 4.3. For laps, uncoated area at the bottom edge as follows:
 - 4.3.1. 60° slope: 70mm allowance
 - 4.3.2. 30° slope: 160mm allowance
 - 4.3.3. 10° slope: 220mm allowance
 - 4.4. If any of the above become contaminated, wipe clean.
5. Drying time:
 - 5.1. Protect the paint layer from rain and other contaminants, while drying.
 - 5.2. Allow the coating to dry before bossing lead into final fixing place.
 - 5.3. Coatings must be fully dry before panels are installed on gutters, roofs and other elements.
6. Cleaning:
 - 6.1. Clean brushes and other surfaces with clean water.

Client:

- 6.2. All spillages on the upper surfaces should be removed using warm water.

Fixing lead

705 Head fixing lead sheet

1. Top edge: Secured with two rows of fixings, 25 mm and 50 mm from top edge of sheet, at 75 mm centres in each row, evenly spaced and staggered.
2. Sheets less than 500 mm deep: May be secured with one row of fixings, 25 mm from top edge of sheet and evenly spaced at 50 mm centres.

710 Fixings

1. Nails to timber substrates: Copper clout nails to BS 1202-2, or stainless steel (austenitic) clout nails to BS 1202-1.
 - 1.1. Shank type: Annular ringed, helical threaded or serrated.
 - 1.2. Shank diameter: Not less than 2.65 mm for light duty or 3.35 mm for heavy duty.
 - 1.3. Length: Not less than 20 mm or equal to substrate thickness.
2. Screws to concrete or masonry substrates: Brass or stainless steel to BS 1210, tables 3 or 4.
 - 2.1. Diameter: Not less than 3.35 mm.
 - 2.2. Length: Not less than 19 mm.
 - 2.3. Washers and plastic plugs: Compatible with screws and lead.
3. Screws to composite metal decks: Self tapping as recommended by the deck and lead manufacturer/ supplier for clips.

715 Clips

1. Manufacturer: Contractor's choice
2. Material
 - 2.1. Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
 - 2.2. Copper clips
 - 2.2.1. Thickness: 0.70 mm
 - 2.2.2. Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.
 - 2.3. Stainless steel clips
 - 2.3.1. Thickness: 0.46 mm
 - 2.3.2. Grade: BS EN 10088, 1.4301(304)terne coated if exposed to view.
3. Dimensions
 - 3.1. Width: 50 mm where not continuous.
 - 3.2. Length: To suit detail.
4. Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.
5. Fixing lead sheet: Welt clips around edges and turn over 25 mm.

760 Continuous clips

1. Material:
 - 1.1. Lead continuous clips
 - 1.1.1. Thickness: As sheet

Client:

- 1.2. Copper continuous clips
 - 1.2.1. Thickness: 0.70 mm
 - 1.2.2. Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere.
- 1.3. Stainless steel continuous clips
 - 1.3.1. Thickness: 0.46 mm
 - 1.3.2. Grade: BS EN 10088, 1.4301(304).
2. Dimensions
 - 2.1. Width: To suit detail.
3. Fixing clips: Secure at positions as follows:- Lead: Lead weld to under cloak.- Copper and stainless steel: Maximum 200mm centres.
4. Fixing lead sheet: Welt edge around continuous clip and dress down.

765 Steel angle apron trim

1. Material:
 - 1.1. Stainless steel: Austenitic as supplied or recommended by the roof covering manufacturer to suit project conditions.
2. Components:
 - 2.1. External aprons: 100 x 50 x 10mm unequal angle with short leg trimmed to suit site conditions. External corners mitred neatly and finished with epoxy repair putty as C61 prior to decoration.
 - 2.2. Internal plate: 10 x 50mm plate to space off existing cast iron.
 - 2.3. Metal workmanship: As section Z11.
3. Fixing: As section Z20.
 - 3.1. Fixings: M8 stainless steel countersunk machine screws, bolts and washers.
4. Joint to cast iron frames:
 - 4.1. Waterproof foam sealant strip: Compriband Super acrylic impregnated foam sealant strip
 - 4.2. Sealant pointing: As clause 773.

773 Sealant joints to apron fixings

1. Sealant:
 - 1.1. Manufacturer: Adshead Radcliffe or similar and as recommended by the manufacturer.
 - 1.2. Product reference: Arbosil or similar and as recommended by the manufacturer.
 - 1.3. Colour: White.
2. Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

Jointing lead

811 Forming details

1. Method: All details to be formed by bossing.
 - 1.1. Lead welding: Where the contractor thinks that certain details cannot be completed without undue thinning of the lead and considers that lead welding would be more appropriate, submit proposals and seek approval.
2. Leadwelded seams: Neatly and consistently formed.
 - 2.1. Seams: Do not undercut or reduce sheet thickness.
 - 2.2. Filler strips: Of the same composition as the sheets being joined.
 - 2.3. Butt joints: Formed to a thickness one third more than the sheets being joined.

Client:

- 2.4. Lap joints: Formed with 25 mm laps and two loadings to the edge of the overlap.
3. Bossing: Carried out without thinning, cutting or otherwise splitting the lead sheet.

880 Weltd joints

1. Joint allowance: 50 mm overlap and 25 mm underlap.
2. Copper or stainless steel clips: Fix to substrate at not more than 450 mm centres.
3. Overlap: Welt around underlap and clips and lightly dress down.

970 Patination oil

1. Manufacturer: Contractor's choice
 - 1.1. Product reference: Contractor's choice
2. Location: All lead
3. Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

980 Security marking of lead sheet

1. Product provided by the Employer:
 - 1.1. SmartWater Security System as clause 523.
2. Handling: As clause A50/I20.
3. Application by the Contractor: To backs of lead sheet roof coverings, linings and flashings in accordance with manufacturer's instructions.

Ω End of Section

Client:

M60

Painting/ clear finishing

Clauses

2 To be read with preliminaries/ general conditions.

Coating systems

142 Epoxy coating – on existing painted metal

1. Manufacturer: Leigh Paints, Bolton BL2 2AL, tel.01204 521771
 - 1.1. Product reference: Specialist marine and engineering coatings
2. Surfaces: Existing external and internal painted cast iron and galvanised steel
 - 2.1. Preparation: Blast clean to Sa.21/2 BS7079 part A1 as C60.- Additional preparation for galvanised steel: As clause 511.
3. Initial coats: Epigrip epoxyzinc phosphate primer ref.L425
 - 3.1. Number of coats: 2nr full coats, stipple finish
4. Build coats: Epigrip epoxy MIO build coat ref.M901
 - 4.1. Number of coats: 2nr full coats
5. Finishing coats: Resistex C137V2 acrylic urethane finish
 - 5.1. Number of coats: 1nr coat

144 Epoxy coating – on new metal

1. Manufacturer: Leigh Paints, Bolton BL2 2AL, tel.01204 521771
 - 1.1. Product reference: Specialist marine and engineering coatings
2. Surfaces: Existing external and internally painted copper and steel sheet
 - 2.1. Preparation: As clauses 400, 440 and 521. Degrease and abrade to provide key.- Additional preparation for copper sheet: As clause 541
3. Initial coats: Epigrip epoxyzinc phosphate primer ref.L425
 - 3.1. Number of coats: 2nr full coats, stipple finish
4. Build coats: Epigrip epoxy MIO build coat ref.M901
 - 4.1. Number of coats: 2nr full coats
5. Finishing coats: Resistex C137V2 acrylic urethane finish
 - 5.1. Number of coats: 1nr coat

190 Oil gilding

1. Description: - on existing painted external metal
2. Surfaces: External previously decorated metal
 - 2.1. Preparation: As clauses 400, 440 and 490
3. Initial/ priming coat: As recommended by gilding applicator
 - 3.1. Number of coats: As recommended by gilding applicator
4. Undercoat: As recommended by gilding applicator
 - 4.1. Number of coats: As recommended by gilding applicator
5. Base coat: Oil based eggshell.- Manufacturer: Permoglaze

Client:

- 5.1. Colour: BS08E5 I
- 5.2. Number of coats: Two
- 6. **Gilding**
 - 6.1. Applicator: Submit proposals
 - 6.2. Adhesive: 24 hour size. Manufacturer: LeFranc
 - 6.3. Leaf: Double thickness gold leaf. Manufacturer: Whiley's
 - 6.3.1. Quality: 23 carat
 - 6.3.2. Colour: n/a
- 7. Finish coat: None
 - 7.1. Number of coats: n/a
- 8. Other requirements: - The involvement of an expert gilder should be sought for all aspects of the specification, from assessing existing surface finishes and their suitability for gilding, to measures to protect finished gilding from traffic and the elements.- Prepare and submit method statement.- Prepare and submit sample

195 Special coating

- 1. Description: - bitmastic paint to gutters
- 2. Manufacturer: Contractor's choice
 - 2.1. Product reference: Submit proposals
- 3. Surfaces: Existing newly coated galvanized steel gutters
 - 3.1. Preparation: As clauses 400, 440
- 4. Initial coats: As recommended by manufacturer
 - 4.1. Number of coats: As recommended by manufacturer
- 5. Undercoats: As recommended by manufacturer
 - 5.1. Number of coats: As recommended by manufacturer
- 6. Finishing coats:
 - 6.1. Type: n/a
 - 6.2. Number of coats: n/a
 - 6.3. Slip resistance value - water wet (minimum): Not applicable

Generally - Not Used

Preparation

400 Preparation generally

- 1. Standard: In accordance with BS 6150.
- 2. Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- 3. Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- 4. Substrates: Sufficiently dry in depth to suit coating.
- 5. Efflorescence salts: Remove.
- 6. Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- 7. Surface irregularities: Remove.

Client:

8. Joints, cracks, holes and other depressions: Fill flush with surface, provide smooth finish.
9. Dust, particles and residues from preparation: Remove and dispose of safely.
10. **Water based stoppers and fillers**
 - 10.1. Apply before priming unless recommended otherwise by manufacturer.
 - 10.2. If applied after priming: Patch prime.
11. Oil based stoppers and fillers: Apply after priming.
12. **Doors, opening windows and other moving parts**
 - 12.1. Ease, if necessary, before coating.
 - 12.2. 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. Significant rot, corrosion or other degradation of substrates.
5. Removing coatings: Do not damage substrate and adjacent surfaces or adversely affect subsequent coatings.
6. Loose, flaking or otherwise defective areas: Carefully remove to a firm edge.
7. Alkali affected coatings: Completely remove.
8. **Retained coatings**
 - 8.1. Thoroughly clean to remove dirt, grease and contaminants.
 - 8.2. Gloss coated surfaces: Provide key.
9. **Partly removed coatings**
 - 9.1. Additional preparatory coats: Apply to restore original coating thicknesses.
 - 9.2. Junctions: Provide flush surface.
10. Completely stripped surfaces: Prepare as for uncoated surfaces.

490 Previously coated steel

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.

500 Preprimed steel

1. Areas of defective primer, corrosion and loose scale: Take back to bare metal. Reprime as soon as possible.

Client:

511 Galvanized, sherardized and electroplated steel

1. White rust: Remove.
2. Pretreatment: Apply one of the following:
 - 2.1. 'T wash'/ mordant solution to blacken whole surface.
 - 2.2. Etching primer recommended by coating system manufacturer.

521 Uncoated steel – manual cleaning

1. Oil and grease: Remove.
2. Corrosion, loose scale, welding slag and spatter: Remove.
3. Residual rust: Treat with a proprietary removal solution.
4. Primer: Apply as soon as possible.

541 Uncoated aluminium/ copper/ lead

1. Surface corrosion: Remove and lightly key surface.
2. Pretreatment: Etching primer if recommended by coating system manufacturer.

623 Organic growths

1. Dead and loose growths and infected coatings: Scrape off and remove from site
2. Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.
3. Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.
4. Algae and fungus: treat with an algaecide or fungicide and wash off thoroughly with clean water.

640 External pointing to existing frames

1. Defective sealant pointing: Remove.
2. Joint depth: Approximately half joint width; adjust with backing strip if necessary.
3. Sealant
 - 3.1. Manufacturer: Adshead Radcliffe
 - 3.2. Product reference: As recommended by sealant manufacturer
 - 3.3. Preparation and application: As section Z22.

651 Existing gutters

1. Dirt and debris: Remove from inside of gutters.
2. Defective joints: Clean and seal with suitable jointing material.

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.

Client:

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.

731 Site-coating of concealed joinery surfaces

1. General: After priming, apply additional coatings to surfaces that will be concealed when fixed in place.

1.1. Components: Turret infill panels

1.2. Additional coatings: One undercoat

740 Concealed metal surfaces

1. General: Apply additional coatings to surfaces that will be concealed when component is fixed in place.

1.1. Components: Existing Turret frames, new flashing angles

1.2. Additional coatings: Full coating specification

790 Linseed oil putty glazing

1. Setting: Allow putty to set for seven days.

2. **Sealing**

2.1. Within a further 14 days, seal with an oil based primer.

2.2. Fully protect putty with coating system as soon as it is sufficiently hard.

2.3. Extend finishing coats on to glass up to sight line.

Ω End of Section

Client:

N16

Bird and vermin control systems

General

110 Bird control to Pier Head

1. Description: Refer to Dwg 353006/EX/107. Provide pigeon deterrent netting to the following areas of the Pier Head: soffit excluding moving gangway; side galleries & soffit of roof. Provide zip access to galleries. Netting to be fabricated in 316 grade stainless steel suitable for the semi-marine environment. Netting supplier as cl 330
2. Species: Feral pigeon
3. System manufacturer: Premier Bird Control Contact Mick Perkins: premierbirdcontrol@hotmail.com or equal approved
4. Prevention: Provide netting to prevent access by pigeons to the Pier Head. Voids in column heads to be sealed with 316 grade stainless steel mesh
5. Other requirements: All edge cables & fixing cleats to be 316 grade stainless steel.
Note: under no circumstances should debris or contaminated material be deposited in the river below the site working area.

System performance - Not Used

Products

330 Net barriers

1. Description: Pigeon Netting
2. Manufacturer: Locker Architectural Ltd
Farrell Street
Warrington
WA1 2WW
Tel: 01925 406 620
Email: ArchitecturalTeam@lockergroup.com
2.1. Product reference: Rope Diamond Ferruled Mesh
3. Duty: Medium
4. Material: Stainless Steel 316
4.1. Gauge: 1.5mm
5. Mesh size: 69x40mm

Fabrication

505 Fabrication generally

1. Design: Complete detailed design of items specified in this sub-section and obtain approval prior to commencing fabrication.
2. Contact between dissimilar metals: Avoid. Use separation membrane between stainless steel components and existing cast iron structure
3. Temporary support: Do not subject members to non-design loadings.

Client:

Execution

610 Workmanship generally

1. Preparation

- 1.1. Water supplies: Do not contaminate.
- 1.2. Existing building services and components: Protect, and leave undamaged.

2. Timing: Coordinate with other related trades.

3. Damaged building components: Obtain instructions.

4. Contaminants: Remove and leave affected area clean.

5. Coatings

- 5.1. Suitability of substrates: Sufficiently dry and sound, to suit coatings.

- 5.2. Preparation and application: As section M60, and in accordance with BS 6150.

6. Fasteners and adhesives: As section Z20.

- 6.1. Material: Compatible with building components and substrate.

- 6.2. Metals: Isolate dissimilar metals to avoid electrolytic corrosion.

7. Thermal and building movement: Allow for, where appropriate.

- 7.1. Movement joints: Do not bridge.

8. Roost inhibitors, nets and mesh screens: Correctly fitted and tensioned.

620 Decontamination

1. Bird droppings and other detritus: Remove.

Completion

940 Documentation

1. General: Submit:

- 1.1. Manufacturer's maintenance instructions.
- 1.2. Recommendations for measures to prevent re-infestation.
- 1.3. General product information.
- 1.4. Installation information.
- 1.5. Guarantees, warranties, test certificates, record schedules and log books.

2. Number of copies: 1 digital copy

3. Submission: 2 weeks prior to date when principal contractor expects work to be practically complete

Ω End of Section

Gravesham Borough Council



Specification created using NBS Chorus