The University of Manchester - Coupland 3

FOR TENDER

26 April 2016

This document includes:

Code	Section	Revision	Dated
G20	Carpentry/ timber framing/ first fixing	1	21 Sep 2014
H60	Plain roof tiling	2	26 Apr 2016
H62	Natural slating	1	26 Apr 2016
H71	Lead sheet coverings/ flashings	2	26 Apr 2016
H74	Zinc strip/ sheet coverings/ flashings	1	26 Apr 2016
J41	Reinforced bitumen membrane roof coverings	1	26 Apr 2016
K20	Timber board flooring/ sarking/ linings/ casings	0	20 Sep 2014
M10	Cement based levelling/ wearing screeds	0	20 Sep 2014
M60	Painting/ clear finishing	0	21 Feb 2014
R10	Rainwater drainage systems	2	29 Mar 2015

Table of Contents

Title		Page
G	Structural/Carcassing metal/timber	3
G20	Carpentry/ timber framing/ first fixing	5
H	Cladding/Covering	9
H60	Plain roof tiling	11
H62	Natural slating	19
H71	Lead sheet coverings/ flashings	25
H74	Zinc strip/ sheet coverings/ flashings	34
J	Waterproofing	38
J41	Reinforced bitumen membrane roof coverings	40
K	Linings/Sheathing/Dry partitioning	45
K20	Timber board flooring/ sarking/ linings/ casings	47
M	Surface finishes	48
M10	Cement based levelling/ wearing screeds	50
M60	Painting/ clear finishing	55
R	Disposal systems	64
R10	Rainwater drainage systems	66

G
Structural/Carcassing metal/timber

G20
Carpentry/ timber framing/ first fixing
Revision 1

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	19th Sep 2014
1	ISSUED FOR TENDER	21st Sep 2014

G20 Carpentry/ timber framing/ first fixing

To be read with Preliminaries/ General conditions.

GENERAL

101* TIMBER GENERALLY

- Ensure temperate, boreal and tropical forests softwoods and hardwoods comply with European Community Regulations 3626/86.

102* TIMBER CERTIFICATION

- Requirements for all timbers and timber based products.
  Ensure all supplies of timber and timber based products (including those used for temporary works) conform to the specified certification standard listed below:
- A FSC (refer to clause 103*) – All tropical hardwoods, all non-European sourced temperate hardwoods (e.g. North American sourced Oak and Walnut), all non-European sourced softwoods (e.g. North American sourced Western Red Cedar), Plywood (except where formed from Birch or Douglas Fir)
- B PEFC (refer to clause 104*) – All European sourced softwoods (White Wood, Deal, Douglas Fir, Larch, Yew etc.), European sourced hardwoods not listed under D (Oak (European), Birch, Maple etc).
- C Timber of known origin (refer to clause 105*) – Orientated Strand Board (to be of European or North American source), Chipboard (to be of European or North American source)
- D No certification requirement – Beach, Ash, Willow, Cherry (and other temperate fruit woods), MDF

103* TIMBER CERTIFICATION FSC (Forest Stewardship Council)

- A Ensure specified type of timber or timber based products have undergone evaluation, accreditation and monitoring based on the principles for good forest management established by The Forest Stewardship Council (FSC) carried out by the FSC.
- B Provide evidence to the CA for review on request.

104* TIMBER CERTIFICATION PEFC (Pan European Forest Certification)

- A Ensure specified type of timber or timber based products are sourced from sustainable managed forests controlled by a national forest certification scheme assessed and recognised by the PEFC council.
- B Provide evidence to the CA for review on request

105* TIMBER CERTIFICATION Timber of known origin

- A Ensure specified type of timber or timber based products are sourced from a known country or region.
- B Provide documentary evidence(which has been or can be independently verified) regarding the provenance of all timber supplied, to the CA for review on request

106* ENDANGERED SPECIES

- A Ensure all suppliers of timber are not wood species that are included in the current editions of Appendix I and II of the Convention on International Trade in Endangered Species (CITES).
- B For detailed current information contact:
  Department of the Environment, UK CITES Management Authority,
  Tel: 0117 987 8000.

150 STRENGTH GRADING OF TIMBER

- Grader: Any company currently registered under a third party quality assurance scheme operated by a certification body approved by the UK Timber Grading Committee.

160 GRADING AND MARKING OF SOFTWOOD

- Timber of a target/ finished thickness less than 100 mm and not specified for wet exposure: Graded at an average moisture content not exceeding 20% with no reading being in excess of 24% and clearly marked as 'DRY' or 'KD' (kiln dried).
- Timber graded undried (green) and specified for installation at higher moisture contents: Clearly marked as 'WET' or 'GRN'.
- Structural timber members cut from large graded sections: Regraded to approval and marked accordingly.

PRODUCTS

270* UNGRADED SOFTWOOD FOR FRAMING TO FACIAS AND INTERNAL NON-STRUCTURAL USE

- Free from decay, insect attack (except pinholes borers) and with no knots wider than half the width of the section.
- Surface finish: Sawn
- Preservative treatment: Organice solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8, service life: 40 years.

271* UNGRADED SOFTWOOD TO PARAPET/ VALLEY GUTTER BEARINGS

- Free from decay, insect attack (except pinholes borers) and with no knots wider than half the width of the section.
- Surface finish: Sawn
- Preservative treatment: Organice solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8, service life: 40 years.

272* UNGRADED SOFTWOOD TO PARAPET/ VALLEY GUTTER TAPERED FURRINGS

- Free from decay, insect attack (except pinholes borers) and with no knots wider than half the width of the section.
- Fixing and Setting Out: Tapered furrings to be ring shank nailed on top of existing framing as required. Pitch of tapered furrings to be no less than 1 degree. Set out and pitch to be set out on site by Contractor and agreed by Architect prior to cutting and installing.
- Surface finish: Sawn
- Preservative treatment: Organice solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8, service life: 40 years.

275* WROT TIMBER FOR EAVES,FASCIA, BARGE BOARDS, ETC

- Quality of Timber and Fixing: To BS1186:Pt3
- Species: Douglas Fir.
- Class: 2 or 3
- Moisture Content at Time of Fixing: 13 to 19%
- Preservative treatment: As section Z12 and BWP and Damp Proofing Association Commodity Specification C5.
- Method of fixing to each support: Two 50mm austenitic grade 316 stainless steel lost head nails.

276* WOOD TRIM TO EDGE OF GUTTER KERB AT BASE OF ROOF SLOPES

- Quality of Timber and Fixing: To BS1186:Pt3
- Species: Douglas Fir.
- Class: 2 or 3
- Moisture Content at Time of Fixing: 13 to 19%
- Preservative treatment: As section Z12 and BWP and Damp Proofing Association Commodity Specification C5.
- Method of fixing to each support: Two 50mm austenitic grade 316 stainless steel lost head nails.

WORKMANSHIP GENERALLY

402 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL SOFTWOOD

- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-1:
  - Clause 6 for sawn sections.
  - Clause NA.2 for further processed sections.

403 CROSS SECTION DIMENSIONS OF NONSTRUCTURAL HARDWOOD

- Dimensions: Dimensions in this specification and shown on drawings are finished sizes.
- Maximum permitted deviations from finished sizes: As stated in BS EN 1313-2:
  - Clause 6 for sawn sections.
  - Clause NA.3 for further processed sections.

405* CROSS SECTION DIMENSIONS OF TIMBER

- Shown on drawings are nominal sizes unless stated otherwise. Reduction to finished sizes of planed/regularised timber to be to BS 4471 for softwoods and BS 5450 for hardwoods.

420 WARPING OF TIMBER

- Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 519 for softwood, or BS 5756 for hardwood.

430 SELECTION AND USE OF TIMBER

- Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.
- Notches and holes: Position in relation to knots or other defects such that the strength of members will not be reduced.
- Scarf joints, finger joints and splice plates: Do not use without approval.

440 PROCESSING TREATED TIMBER

- Cutting and machining: As much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
- Surfaces exposed by minor cutting and/ or drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

452* MOISTURE CONTENT

- Moisture content of timber at time of erection to be not more than:
  - Covered in generally unheated spaces: 20%
  - Covered in generally heated spaces: 18%
  - Internal in continuously heated spaces: 15%

511* PROTECTION

- Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
- Store timber and components under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.
- Arrange sequence of construction and cover timber as necessary during and after erection to ensure that specified moisture content is not exceeded.
- Keep trussed rafters vertical during handling and storage. (IFC G30/510)

JOINTING TIMBER

570 JOINTING/FIXING GENERALLY

- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

910 EAVES SOFFIT VENTILATION

- Soffit boards: Fixed to leave a continuous ventilation opening not less than 25 mm wide for full length of eaves.
- Insect mesh: A 3-4 mm mesh screen fixed across the opening to prevent large insect entry.

H
Cladding/Covering

H60
Plain roof tiling
Revision 2

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	19th Sep 2014
1	ISSUED FOR TENDER	25th Mar 2015
2	ISSUED FOR TENDER	26th Apr 2016

Clauses amended in Revision 2

No.	Clause	
105A	CLAY ROOF TILING	Revised
105B	CLAY ROOF TILING	Added
105C	CLAY ROOF TILING	Revised
105D	CLAY ROOF TILING	Revised
105E	CLAY ROOF TILING	Added
145	CLAY VERTICAL TILING	Revised
146	CLAY VERTICAL TILING	Added
525	MITRED HIPS	Added
595	BONNET HIPS	Added
635	MITRED VALLEYS	Added
740	MORTAR BEDDED RIDGES	Revised

H60 Plain roof tiling

To be read with Preliminaries/General conditions.

TYPES OF TILING

105A CLAY ROOF TILING TO EXISTING CLAY TILE ROOF SLOPES 1A-B, MC, 3A, 6A-B, 8A, 9, MS

- Substrate: Rafters at 450 mm centres.
- Pitch: 45 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To manufacturer's recommendations.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: Submit proposals.
    Product reference: Clay tiles to match existing colours, textures patterns, slopes and dimensions exactly. Allow to submit samples of each clay tile type for approval.
  - Pattern: Plain tiles.
  - Colour: Red.
  - Size: To match existing dimensions.
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.
- Accessories: Plain Crested Ridge Tiles (with ribbed profiles -)Re-use salvaged and cleaned ridge tiles from same ridge and new ridge tiles to match exisintg pattern, gauge and colour exactly - samples required (confirm arrangement with CA prior to placing orders). Access anchorage points.
  (Revised - H60 revision 2 - 26th Apr 2016)

105B CLAY ROOF TILING TO EXISTING CLAY TILE ROOF SLOPES SS1, 10A-B, 10D1-D2

- Substrate: Rafters at 450 mm centres.
- Pitch: 45 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To manufacturer's recommendations.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: Submit proposals.
    Product reference: Clay tiles to match existing colours, textures patterns, slopes and dimensions exactly. Allow to submit samples of each clay tile type for approval.
  - Pattern: Plain tiles.
  - Colour: Red.
  - Size: To match existing dimensions.
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.
- Accessories: Alternating Plain and Two Hole Crested Ridge Tiles - Re-use salvaged and cleaned ridge tiles from same ridge and new ridge tiles to match exisintg pattern, gauge and colour exactly - samples required (confirm arrangement with CA prior to placing orders). Access anchorage points.
  (Added - H60 revision 2 - 26th Apr 2016)

105C CLAY ROOF TILING TO EXISTING CLAY TILE ROOF SLOPES 9, 12B, 13A-B, 15B, 18A-D, 18D1-D3, 11 (no ridge tile)

- Substrate: Rafters at 450 mm centres.
- Pitch: 45 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To manufacturer's recommendations.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: Submit proposals.
    Product reference: Clay tiles to match existing colours, textures patterns, slopes and dimensions exactly. Allow to submit samples of each clay tile type for approval.
  - Pattern: Plain tiles.
  - Colour: Red.
  - Size: To match existing dimensions.
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.
- Accessories: Two Hole Crested Ridge Tiles - Re-use salvaged and cleaned ridge tiles from same ridge and new ridge tiles to match exisintg pattern, gauge and colour exactly - samples required (confirm arrangement with CA prior to placing orders). Access anchorage points.
  (Revised - H60 revision 2 - 26th Apr 2016)

105D CLAY ROOF TILING TO EXISTING CLAY TILE ROOF SLOPES 19A-D, Ch10, 21B (no ridge tile) 24B, 25A-B, 26A-B, 27A-B, 29A-B, 30A-B, 34A-B, 35A-E, 36A-B, SS2 (no ridge tile)

- Substrate: Rafters at 450 mm centres.
- Pitch: 45 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To manufacturer's recommendations.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: Submit proposals.
    Product reference: Clay tiles to match existing colours, textures patterns, slopes and dimensions exactly. Allow to submit samples of each clay tile type for approval.
  - Pattern: Triple rows of plain tiles alternated with double rows of spade tiles generally, plain tiles to SS2.
  - Colour: Red.
  - Size: To match existing dimensions.
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.
- Accessories: Slotted Roll Ridge Tiles Fish Tail Inserts - Re-use salvaged and cleaned ridge tiles from same ridge and new ridge tiles to match exisintg pattern, gauge and colour exactly - samples required (confirm exact arrangement with CA prior to placing orders). Access anchorage points.
  (Revised - H60 revision 2 - 26th Apr 2016)

105E CLAY ROOF TILING TO EXISTING CLAY TILE ROOF SLOPES - see drawing 201 for locations

- Substrate: Rafters at 450 mm centres.
- Pitch: 45 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): As exisitng.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: N/A.
    Product reference: Re-use exisitng tile from same slope and tiles stripped from similar slopes to match.
  - Pattern: As existing - see drawing 201.
  - Colour: As exisiting.
  - Size: To match existing dimensions.
  - Head-lap (minimum): 65 mm.
  - Fixing:
    Fixing of local areas: Two nails per tile in every course.
    Fixing of general areas: Two nails per tile in every course.
- Accessories: Ridge tiles as drawing 201 - Re-use salvaged and cleaned ridge tiles from same ridge and new ridge tiles to match exisintg pattern, gauge and colour exactly - samples required. .
  (Added - H60 revision 2 - 26th Apr 2016)

145 CLAY VERTICAL TILING TO EXISTING DORMER WINDOW CHEEKS AND WALLS

- Substrate: Vertical timber battens at 450 mm centres.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Fixing: Parallel to bottom edge.
  - Head-lap (minimum): As exising or to manufacturer's recommendations to be agreed with Conservation Officer.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: Contractor's choice.
    Product reference: Re-use existing salvaged and new clay tiles to match existing colours, textures patterns, slopes and dimensions exactly. Allow to submit samples of each clay tile type for approval.
  - Pattern: Plain and Fishtail.
  - Colour: Red.
  - Size: To match existing exactly.
  - Head-lap (minimum): To suit tile shape.
  - Fixing: Two nails each tile.
- Accessories: None.
  (Revised - H60 revision 2 - 26th Apr 2016)

146 CLAY VERTICAL TILING TO EXISTING SPIRES

- Substrate: Pitched 80-90dgrees timber battens at 450 mm centres.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Fixing: Parallel to bottom edge.
  - Head-lap (minimum): As exising.
- Battens:
  - Size: 38 x 25 mm.
  - Fixing: 65 x 3.35 mm stainless steel annular ring shank nails.
- Tiles: To BS EN 1304.
  - Manufacturer: N/A.
    Product reference: Re-use existing salvaged clay tiles from spires and stripped from other slopes to match existing patterns.
  - Pattern: Plain.
  - Colour: As Existing.
  - Size: To match existing exactly.
  - Head-lap (minimum): To suit tile shape.
  - Fixing: Two nails each tile.
- Accessories: Finials as existing.
  (Added - H60 revision 2 - 26th Apr 2016)

TILING GENERALLY

210 BASIC WORKMANSHIP

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

220 REMOVE EXISTING TILING

- General: Carefully remove tiles, battens, underlay, etc. with minimum disturbance of adjacent retained tiling.
- Undamaged tiles: Set aside for reuse.

240 UNDERLAY

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

245 BATTENS/ COUNTERBATTENS - TREATED

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

265 BATTEN FIXING

- Setting out: Align parallel to ridge in straight horizontal lines to gauge of tiles. Align on adjacent areas.
- Batten length (minimum): Sufficient to span over three supports.
- 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.
- Additional battens: Provide where unsupported laps in underlay occur between battens.
- Fixing: Each batten to each support. Splay fix at joints in length.

275 TILE FIXING

- Setting out: Lay tiles to a half lap bond with joints slightly open. Align tails.
- Ends of courses: Use tile and a half tiles to maintain bond and to ensure that cut tiles are as large as possible.
- Top and bottom courses: Use eaves/tops tiles to maintain gauge.
- Perimeter tiles:
  - Verges, abutments and each side of valleys and hips: Twice nail end tile in every course.
  - Eaves and top edges: Twice nail two courses of tiles or clip as appropriate.
- Fixings for tiles: Nails/clips recommended by tile manufacturer.

280 LOCAL AND GENERAL FIXING AREAS

- Definitions:
  - Local areas: Bands of tiling around all edges or obstructions of each plane of the roof. Calculate extent of each band in accordance with BS 5534, section 5.
  - General areas: Remaining areas of roof tiling.

ROOF TILING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY

- Fittings and accessories: As recommended by tile manufacturer, do not improvise.
  - Exposed fittings and accessories: To match tile colour and finish.
- Cut tiles: Cut only where necessary, to give straight, clean edges.
- Flashings: Fix with or immediately after tiling. Form neatly.

325 FIRE SEPARATING WALLS

- Separating walls: Completely fill space between top of wall and underside of tiles with mineral wool quilt to provide fire stopping.
- Boxed eaves: Completely seal air paths in plane of separating wall with wire reinforced mineral wool, not less than 50 mm thick, fixed to rafters and carefully cut to shape to provide fire stopping.

525 MITRED HIPS

- Underlay: Lay courses over hip.
  - Overlaps (minimum): 150 mm.
- Mitred tiles: Cut tile and a half tiles and fix to form a straight, close mitred junction.
- Soakers: Interleave with mitred tiles. Fix by turning down over head of mitred tiles.

(Added - H60 revision 2 - 26th Apr 2016)

585 ARRIS HIPS

- Underlay: Lay courses over hip.
  - Overlaps (minimum): 150 mm.
- Arris hip tiles:
  - Product reference: Submit samples for approval to match existing tiles exactly.
  - Bedding: In mortar. Course in with roof tiling.
  - Fixing: Nail to hip rafters or supplementary hip battens.
- Roof tiles: Cut adjacent tiles to fit neatly.

595 BONNET HIPS

- Underlay: Lay courses over hip.
  - Overlaps (minimum): 150 mm.
- Bonnet hip tiles:
  - Product reference: Submit samples for approval to match existing tiles exactly.
  - Bedding: In mortar, neatly struck back about 13 mm from edge of tiles. Course in with roof tiling.
  - Fixing: Nail to hip rafters or supplementary hip battens.
  - Bottom hip tiles: Fill ends with mortar and tile slips finished flush.
- Roof tiles: Cut adjacent tiles to fit neatly.

(Added - H60 revision 2 - 26th Apr 2016)

615 METAL VALLEYS

- Underlay: Cut to rake. Dress over tilting fillets to lap onto metal valley. Do not lay under metal.
- Roof tiles: Cut adjacent tiles to fit neatly.
  - Bedding: On mortar on fibre cement undercloaks laid loose each side of valleys.
  - Valley width between tiles: Various. To match existing dimensions exactly.

635 MITRED VALLEYS

- Underlay: Lay strips not less than 600 mm wide centred on valleys. Overlap with general roof underlay.
- Mitred tiles: Cut tile and a half tiles and fix to form a straight, close mitred junction.
- Soakers: Interleave with mitred tiles. Fix by turning down over head of mitred tiles.

(Added - H60 revision 2 - 26th Apr 2016)

660 SIDE ABUTMENTS

- Underlay: Turn up not less than 100 mm at abutments.
- Abutment tiles: Cut as necessary. Fix close to abutments.
- Soakers: Interleave with abutment tiles. Fix by turning down over head of abutment tiles.

670 TOP EDGE ABUTMENTS

- Underlay: Turn up not less than 100 mm at abutments.
- Top course tiles: Fix close to abutments.

690 ROOF WINDOWS

- Underlay: Turn up not less than 100 mm at window surrounds under integral flashings/soakers.
- Roof tiles: Cut as necessary and fix closely all round.

740 MORTAR BEDDED RIDGES

- Underlay: Lay courses over ridge.
  - Overlap (minimum): 100 mm.
- Ridge tiles:
  - Manufacturer: Submit proposals.
  - Product reference: Custom made patterns to match existing colours, textures, patterns, slopes and dimensions exactly. Allow to submit samples for each ridge tile pattern, including but not limited to 2 hole crested ridge tiles, Plain Crested Ridge Tiles (of varying heights), Plain Crested Ridge Tiles (with moulded profiles), Slotted Roll Top Ridge Tiles (with associated Two Hole and Fish Tail Inserts. Allow to seal joints between slot and inserts to prevent water penetration).
  - Bedding: On mortar, continuous to edges and solid to joints.
  - Fixing: Where rigid masonry walls support or abut ridge, secure ridge tiles within 900 mm of such walls to ridge boards or supplementary ridge battens with self-sealing non-ferrous fixings.
  - Gable end ridge tiles: Fill ends with mortar and slips of tiles finished flush.
- Ridge terminals:
  - Manufacturer: Submit proposals.
  - Product reference: Submit proposals.

  (Revised - H60 revision 2 - 26th Apr 2016)

800 CHANGE OF ROOF PITCH

- Tiling substrate work: Fix timber tilting fillet to support flashing and course of tiles above change of pitch.
- Roof tiles: Fix courses above and below change of pitch and make weathertight with flashing.

VERTICAL TILING EDGES/JUNCTIONS

910 BOTTOM EDGES

- Tiling substrate work: Fix timber tilting fillet to support bottom course of tiles in correct vertical plane. Fix flashing to tilting fillet.
- Underlay: Dress over flashing.
- Undercourse and bottom course tiles: Fix with tails neatly aligned.

920 TOP EDGES

- Top course tiles: Fix under abutment and make weathertight with flashings dressed down not less than 150 mm.

930 SIDE ABUTMENTS

- Tiling substrate work: Chase abutment wall and insert stepped flashing.
  - Flashing: Return not less than 75 mm behind tiling, overlapping underlay and battens. Turn back to form a vertical welt.
- Abutment tiles: Cut and fix neatly.

940 ANGLES WITH ANGLE TILES

- Angle tiles (purpose made): Fix right and left hand in alternate courses to break bond.
- Adjacent tiles: Cut and fix neatly.

950 ANGLES WITH SOAKERS

- Angle tiles: Cut tile and a half tiles and fix to form a straight, close mitred junction.
- Soakers: Interleave with angle tiles. Fix by nailing to battens at top edge.

960 JUNCTIONS WITH ROOF VERGES

- Tiling substrate work: Fix additional tiling batten parallel to and below verges.
- Course end tiles: 'Winchester cut' tile and a half tiles to angle of verge rake. Fix to additional tiling batten with cut edge parallel to and below verge.

H62
Natural slating
Revision 1

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	19th Sep 2014
1	ISSUED FOR TENDER	26th Apr 2016

Clauses amended in Revision 1

No.	Clause	
105A	ROOF SLATING	Revised
105B	ROOF SLATING	Revised
105C	ROOF SLATING	Added
365	UNVENTILATED EAVES	Added

H62 Natural slating

To be read with Preliminaries/ General conditions.

TYPES OF SLATING

105A ROOF SLATING SALVAGED WESTMOORLAND OLIVE GREEN SLATES IN DIMINISHING COURSES AND RANDOM WIDTHS TO EXISTING ROOF SLOPES - see drawing 201 for locations

- Substrate: Rafters at 450 mm centres.
- Pitch: 30 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): As existing.
- Battens:
  - Size: 50 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Slates:
  - Supplier: As existing.
    Product reference: As existingl.
  - Type: As existing.
  - Size: Sized to match existing, including any diminishing courses.
  - Head-lap (minimum): To match existing details.
- Fixing: Two austenitic grade 316 stainless steel nails each slate.
- Accessories: Access anchorage points. Clay ridge tiles generally as section H60 - see drawig 201 for locations.
  (Revised - H62 revision 1 - 26th Apr 2016)

105B ROOF SLATING NEW WELSH BLUE-GREY SLATES TO EXISTING ROOF SLOPES - see drawing 201 for locations

- Substrate: Rafters at 450 mm centres.
- Pitch: 30 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To manufacturer's recommendations.
- Battens:
  - Size: 50 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Slates:
  - Supplier: Contractor's choice in accordance with clause 280.
    Product reference: Submit samples for approval.
  - Type: Cumbrian Blue-Grey to match existing exactly.
  - Size: Sized to match existing.
  - Head-lap (minimum): To match existing details.
- Fixing: Two austenitic grade 316 stainless steel nails each slate.
- Accessories: Access anchorage points. Lead ridge and hip rolls generally as section H71. Clay ridge tiles to interfaces with tiled roofs as section H60 - see drawing 201 for locations .
  (Revised - H62 revision 1 - 26th Apr 2016)

105C ROOF SLATING SALVAGED WELSH BLUE-GREY SLATES TO EXISTING ROOF SLOPES - see drawing 201 for locations

- Substrate: Rafters at 450 mm centres.
- Pitch: 30 - 66°.
- Underlay: Vapour permeable breather membrane underlay as clause 235 as Tyvek Supro or similar approved.
  - Recycled content: 90% (minimum) to BS EN ISO 14021.
  - Direction: Parallel to eaves.
  - Head-lap (minimum): To manufacturer's recommendations.
- Battens:
  - Size: 50 x 25 mm.
  - Fixing: 65 x 3.35 mm austenitic grade 316 stainless steel annular ring shank nails.
- Slates:
  - Supplier: Contractor's choice in accordance with clause 280.
    Product reference: Submit samples for approval.
  - Type: Cumbrian Blue-Grey to match existing exactly.
  - Size: Sized to match existing.
  - Head-lap (minimum): To match existing details.
- Fixing: Two austenitic grade 316 stainless steel nails each slate.
- Accessories: Access anchorage points. Lead ridge and hip rolls generally as section H71, Clay ridge tiles to interfaces with tiled roofs as section H60 - see drawing 201 for locations .
  (Added - H62 revision 1 - 26th Apr 2016)

SLATING GENERALLY

210 BASIC WORKMANSHIP

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

220 REMOVING EXISTING SLATING

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

240 UNDERLAY

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

245 BATTENS/ COUNTERBATTENS - TREATED

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

265 BATTEN FIXING

- Setting out: Align parallel to ridge in straight horizontal lines to gauge of slates. Align on adjacent areas.
- Batten length (minimum): Sufficient to span over three supports.
- 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.
- Additional battens: Provide where unsupported laps in underlay occur between battens.
- Fixing: Each batten to each support. Splay fix at joints in length.

270 BATTENS FIXED TO MASONRY

- Setting out: In straight horizontal lines. Align on adjacent areas.
- Batten length (minimum): 3 m.
- Fixing centres (maximum): 400 mm.

272 TIMBER FOR SLATING SUBSTRATE WORK

- Timber: Sawn softwood, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).
  - Moisture content at time of fixing and covering (maximum): 22%.
- Preservative treatment: As section Z12 and Wood Protection Association Commodity Specification C8.
  - Type: Organic solvent.

275 SLATE FIXING

- Setting out: Lay slates with an even overall appearance with slightly open (maximum 5 mm) butt joints. Align tails.
- Slate thickness: Consistent in any one course. Lay with thicker end as tail.
- 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.
- Top course: Head-nail short course to maintain gauge.
- Fixing: Centre nail each slate twice through countersunk holes 20-25 mm from side edges.
  - Nails: Copper clout to BS 1202-2 or aluminium clout to BS 1202-3.
  - Nail dimensions: Determine in accordance with BS 5534 to suit site exposure, withdrawal resistance and slate supplier's recommendations.

280 SLATES - PERFORMANCE SPECIFICATION

- Standards:
  - Product specification: To BS EN 12326-1.
  - Methods of test: To BS EN 12326-2.
- Slate type: Normal.
- Dimensional tolerances:
  - Deviations from declared length, width, edge straightness, rectangularity, and flatness are not to exceed values specified in BS EN 12326-1, clause 5.12.
- Thickness:
  - Nominal thickness and individual thickness variation: To BS EN 12326-1, clause 5.2.
- Strength:
  - Characteristic modulus of rupture:
    Transverse: 25MPa.
    Longitudinal: 75MPa.
  - Mean failure load:
    Transverse: 550N.
    Longitudinal: 1100N.
- Water absorption: Code: A1.
- Freeze-thaw resistance: No test required.
- Thermal cycle test: Code: T1.
- Carbonate content: Less than 20%.
- Sulfur dioxide exposure test: S1.
- Non-carbonate carbon content: Less than or equal to 2%.

ROOF SLATING EDGES/ JUNCTIONS/ FEATURES

305 GENERALLY

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

325 FIRE SEPARATING WALLS

- Separating walls: Completely fill space between top of wall and underside of slates with mineral wool quilt to provide fire stopping.
- Boxed eaves: Completely seal air paths in plane of separating wall with wire reinforced mineral wool, not less than 50 mm thick, fixed to rafters and carefully cut to shape to provide fire stopping.

355 VENTILATED EAVES WITH SEPARATED GRILLES/ TRAYS

- Fascia grilles:
  - Manufacturer: Not required.
    Product reference: Not required.
- Ventilator trays:
  - Manufacturer: Not required.
    Product reference: Not required.
  - Fix to provide free passage of air over insulation.
- Underlay support: Sarking boards as section K20.
  - Continuous to prevent water retaining troughs.
- Gutter: Dress underlay or underlay support tray to form drip into gutter.
- Undercourse and first course slates: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.

365 UNVENTILATED EAVES

- Underlay support: Sarking boards as section K20.
  - Continuous to prevent water retaining troughs.
- Gutter: Dress underlay or underlay support tray to form drip into gutter.
- Undercourse and first course slates: Fix with tails projecting 50 mm over gutter or to centre of gutter, whichever dimension is the lesser.
  (Added - H62 revision 1 - 26th Apr 2016)

525 MITRED HIPS

- Underlay: Lay courses over hip.
  - Overlaps (minimum): 150 mm.
- Hip slate fixing battens: To slate suppliers recommendations.
- Mitred slates: Cut extra wide slates and fix to form a straight, close mitred junction.
- Soakers: Interleave with mitred slates. Fix by turning down over head of mitred slates.

535 LEAD ROLL HIPS

- Underlay: Lay courses over hip.
  - Overlaps (minimum): 150 mm.
- Hip slates: Cut close to timber roll and fix to form a straight junction.

615 METAL VALLEYS

- Underlay: Cut to rake. Dress over tilting fillets to lap onto metal valley. Do not lay under metal.
- Roof slates: Cut extra wide slates adjacent to valley to fit neatly.
  - Valley width between slates: To match existing details.

660 SIDE ABUTMENTS

- Underlay: Turn up not less than 100 mm at abutments.
- Abutment slates: Cut as necessary. Fix close to abutments.
- Soakers: Interleave with abutment slates. Fix by turning down over head of abutment slates.

670 TOP EDGE ABUTMENTS

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

690 ROOF WINDOWS

- Underlay: Turn up not less than 100 mm at window surrounds under integral flashings/ soakers.
- Roof slates: Cut as necessary and fix closely all round.

730 LEAD ROLL RIDGES

- Underlay: Lay courses over ridge.
  - Overlap (minimum): 150 mm.
- Top slate courses: Fit close to timber roll.

800 CHANGE OF ROOF PITCH

- Slating substrate work: Fix timber tilting fillet to support flashing and courses of slates above change of pitch.
- Roof slates: Make weathertight with flashing.
  - Courses above change of pitch: Fix undercourse and first course slates.
  - Courses below change of pitch: Cut top two courses as necessary to maintain gauge. Head-nail top course.

H71
Lead sheet coverings/ flashings
Revision 2

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	21st Feb 2014
1	ISSUED FOR TENDER	20th Sep 2014
2	ISSUED FOR TENDER	26th Apr 2016

Clauses amended in Revision 2

No.	Clause	
110	ROOFING	Revised
200	GUTTER LINING	Revised
310	RIDGE/ HIP ROLLS TO LEAD ROOFS	Revised
315	RIDGE/ HIP ROLLS TO SLATE ROOFS	Deleted
315A	RIDGE/ HIP ROLLS TO SLATE ROOFS	Added
322*	SOAKERS FOR MITRED HIPS TO SLATE/ PLAIN TILE ROOFS	Revised
460	CHANGE OF ROOF PITCH FLASHINGS	Added
461	CHANGE OF ROOF PITCH FLASHINGS	Added

H71 Lead sheet coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF LEADWORK

110 ROOFING TO ROOFS FR2, FR4, FR5, FR7, FR8, FR9, FR11, FR12, FR13, FR14, FR15, FR16, FR17

- Substrate: Existing timber boarding.
  - Preparation: Make good as clause 620. Allow for part replacement of rotten boarding in douglas fir sized to match existing .
- Underlay: Needle punched nonwoven polyester geotextile.
- Type of lead: Rolled to BS EN 12588.
  - Thickness: 3.15mm (Code 7).
- Pretreatment: Apply chalk slurry coat to underside of lead and allow to dry before laying, followed by chalk paste coat after bossing but before final fixing.
- Joints in direction of fall: Wood cored rolls with splashlap .
  - Spacing: As existing roofing.
- Eaves detail: Cut off roll with welted apron.
- Cross joints: N/A.
  - Spacing: N/A.
  - Alignment: N/A.
- Intermediate fixings: N/A.
- Ridge/ Hip detail: Interlapped wood cored roll.
- Accessories: Ventilators, one per bay just below roof ridge. Allow for temporary protection boards (sterling board or similar) to be laid on newly liad lead decking to protect it from foot traffic and impact damage during the course of the works.
  (Revised - H71 revision 2 - 26th Apr 2016)

150 DORMERS

- Main roof covering: Natural slate, Plain tile.
- Substrate: Existing tongued and grooved boarding.
  - Preparation: Make good as clause 620. Allow for part replacement of rotten boarding in douglas fir sized to match existing .
- Underlay: Not required.
- Type of lead: Rolled to BS EN 12588.
  - Thickness: 3.15 mm (Code 7).
- Pretreatment: Apply chalk slurry coat to underside of lead and allow to dry before laying, followed by chalk paste coat after bossing but before final fixing.
- Joints in top/ sill: Wood cored rolls with splashlap .
- Joints in cheeks: Vertical welted seams.
- Intermediate fixings in cheeks: None.

200 GUTTER LINING

- Substrate: Existing timber boarding.
  - Preparation: Make good as clause 620. Allow for part replacement of rotten boarding in douglas fir sized to match existing.
- Underlay: Needle punched nonwoven polyester geotextile.
- Type of lead: Rolled to BS EN 12588.
  - Thickness: 3.15 mm (Code 7).
- Pretreatment: Apply chalk slurry coat to underside of lead and allow to dry before laying, followed by chalk paste coat after bossing but before final fixing.
- Joints in direction of fall: None.
  - Spacing: N/A.
- Cross joints: Drips without splashlap as clause 865.
  - Spacing: Position of steps in gutters as existing or to meet LSA recomendations.
- Outlets: Various to suit existing rainwater arrangements.

(Revised - H71 revision 2 - 26th Apr 2016)

230 VALLEY GUTTER LINING TO SLATE/ TILE ROOFS

- Underlay: Needle punched nonwoven polyester geotextile.
- Type of lead: Rolled to BS EN 12588.
  - Thickness: 3.15mm (Code 7).
- Pretreatment: Apply chalk slurry coat to underside of lead and allow to dry before laying, followed by chalk paste coat after bossing but before final fixing.
- Laying: Over and beyond tilting fillets.
- Lengths: Not more than 2000 mm.
  - Cross joints: Lapped not less than 150 mm.
- Fixing: Welt edges. Nail top edge of each sheet. Dress bottom end neatly into eaves gutter.

250 WEATHERING TO CORNICES

- Substrate: Stone.
- Underlay: Not required.
- Type of lead: Sand cast.
  - Thickness: 2.50 or 2.65 mm (Code 6).
- Joints: Welted.
  - Spacing: 1000.
- Edge details: As detail 234500-600 .
- Fixing: Continuous stainless steel sheet clip.
- Accessories: None.

310 RIDGE/ HIP ROLLS TO LEAD ROOFS

- Core: Rounded timber.
  - Size: 45 mm high x 45 mm wide.
  - Shape: Tapered to a flat base 30 mm wide
  - Fixing: To ridge/ hip board with brass or stainless steel countersunk screws at not more than 600 mm centres.
- Roof covering: Dress roofing sheets up roll to form Butt joint at apex.
  - Fixing: Nail each sheet at underlapping end.
- Lead capping:
  - Thickness: As roof covering.
  - Lengths: Not more than 1500 mm.
  - Wings: Extend not less than 75 mm on to roof.
  - Laps in length: Not less than 150 mm for ridges, 100 mm for hips.
- Fixing: Secure wings with one copper or stainless steel clip per roofing bay and at each lap.

(Revised - H71 revision 2 - 26th Apr 2016)

~~315 RIDGE/ HIP ROLLS TO SLATE ROOFS~~

(Deleted - H71 revision 2 - 26th Apr 2016)

315A RIDGE/ HIP ROLLS TO SLATE ROOFS

- Clips: At capping laps and not more than 500 mm.
  - 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).
- Core: Rounded timber.
  - Size: 75 mm high x 75 mm wide or to match existing.
  - Shape: Tapered to a flat base 50 mm wide.
  - 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.
- Lead capping:
  - Thickness: 3.00 or 3.15 mm (Code 7).
  - Lengths: Not more than 1500 mm.
  - Hip capping: Nail head of each length around core.
  - Laps: Not less than 150 mm for ridges, 100 mm for hips.
  - Cover: Wings of capping to extend not less than 150 mm on to roof.

(Added - H71 revision 2 - 26th Apr 2016)

322* SOAKERS FOR MITRED HIPS TO SLATE/ PLAIN TILE ROOFS TO SPIRES AND SLATE/ TILE PITCHED ROOFS

- Lead:
  - Thickness: 1.25 or 1.32 mm (Code 3).
- Dimensions:
  - Length: Slate/ tile gauge + lap + 25 mm.
  - Underlaps: Not less than 100 mm.

(Revised - H71 revision 2 - 26th Apr 2016)

410 APRON FLASHINGS AT TOP ABUTMENTS

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Upstand: Not less than 75 mm.
  - Cover to abutment: Not less than To suit roof pitch .
- Fixing: Lead wedges into bed joint, clips to bottom edge at laps and 500 mm centres.

420 COVER FLASHINGS TO BITUMEN SHEET FLAT ROOF

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Cover: Overlap to upstand of not less than 75 mm.
- Fixing: Lead wedges into bed joint, clips to lead upstand at laps and 500 mm centres.

430 COVER FLASHINGS TO LEAD SHEET FLAT ROOF

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Overlap to upstand: Not less than 50 mm.
  - Cover to roof: Not less than 75 mm.
- Fixing: Lead wedges into bed joint, clips to lead upstand at laps and 500 mm centres.

440 SOAKERS AND STEP FLASHINGS TO NATURAL SLATE AND CLAY TILE ROOFS

- Lead soakers:
  - Thickness: 2.00-2.50 mm (Code 5).
  - Dimensions:
    Length: Slate/ tile gauge + lap + 25 mm.
    Upstand: Not less than 75 mm.
    Underlay: Not less than 100 mm.
  - Fixing: By roofer.
- Lead step flashings:
  - Thickness: 2.00 or 2.24 mm (Code 5).
  - Dimensions:
    Lengths: Not more than 1500 mm.
    End to end joints: Laps of not less than 100 mm.
    Cover: Overlap to soaker upstands of not less than 65 mm.
  - Fixing: Lead wedges at every course.

460 CHANGE OF ROOF PITCH FLASHINGS FROM SLATE TO TILED ROOF

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 150 mm.
  - Under course of slates/ tiles above: Not less than 150 mm.
  - Over course of slates/ tiles below: Not less than 150 mm.
- Fixing: Nail top edge at 150 mm centres and welt edge. Clip bottom edge at laps and 500 mm centres.
  (Added - H71 revision 2 - 26th Apr 2016)

461 CHANGE OF ROOF PITCH FLASHINGS FROM FLAT LEAD TO SLATE/TILE

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 150 mm.
  - Under course of slates/ tiles above: Not less than 150 mm.
  - Over course of slates/ tiles below: Not less than 150 mm.
- Fixing: Nail top edge at 150 mm centres and welt edge. Clip bottom edge at laps and 500 mm centres.
  (Added - H71 revision 2 - 26th Apr 2016)

470A LEADWORK TO SPIRES TO MS, SS1, SS2

- Lead:
  - Thickness: 3.15 (Code 7).
- Details: Allow to renew leaded louvres, leaded struts, leaded cills and decorative cladding panels all to match existing details exactly.

472 CHIMNEY FLASHINGS TO SLATE/ PLAIN TILE ROOFS

- Lead front apron:
  - Thickness: 2.00 or 2.24 mm (Code 5).
  - Dimensions:
    Length: Width of chimney plus not less than 150 mm underlap to each side flashing.
    Upstand: Not less than 75 mm.
    Cover to roof: Not less than 150 mm.
  - Fixing: Lead wedges into bed joint.
- Lead soakers:
  - Thickness: 1.25 or 1.32 mm (code 3).
  - Dimensions:
    Length: Slate/ tile gauge + lap + 25 mm.
    Upstand: Not less than 75 mm.
    Underlap: Not less than 100 mm.
- Lead step flashings:
  - Thickness: 2.00 or 2.24 mm (Code 5).
  - Dimensions:
    Lengths: Not more than 1500mm.
    End to end joints: Laps of not less than 100 mm.
    Front end: Turn 75 mm around chimney over apron.
    Cover: Overlap to soaker upstands of not less than 65 mm.
  - Fixing: Lead wedges at every course.
- Lead back gutter:
  - Thickness: 2.00 or 2.24 mm (Code 5).
  - Dimensions:
    Length: Width of chimney plus not less than 100 mm overlap to each side flashing.
    Upstand: Not less than 100 mm.
    Gutter sole: Not less than 150 mm.
    Cover up roof: Not less than 225 mm.
- Lead back gutter cover flashing:
  - Thickness: 2.00 or 2.24 mm (Code 5).
  - Dimensions:
    Length: Width of chimney plus not less than 100 mm overlap to each side flashing.
    Cover: Overlap to back gutter upstand of not less than 75 mm.
  - Fixing: Lead wedges into bed joint.

478 CHIMNEY DAMP PROOF COURSE

- Position: Not less than 150 mm above roof finish
- Lead:
  - Thickness: 1.75 or 1.80 mm (Code 4).
- Protection: Fully coated with high build bitumen based paint on both sides of surfaces to be embedded
- Dimensions:
  - Plan area of chimney plus laps on perimeters: turned down over stack externally with not less than 75 mm overlap to upstand, through flue lining and turned up 25 mm all round internally.
- Laying: On a thin even bed of wet mortar.
  - Next layer of overlying construction: Bed on wet mortar without delay and finish joint neatly.

490 VERTICAL TILING/ SLATING BOTTOM EDGE FLASHINGS

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Width: Adequate for underlap to underlay, dressing over tilting fillet, and welted drip or straight cut bottom edge.

492 VERTICAL TILING/ SLATING TOP EDGE FLASHINGS

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Width: Adequate for underlap to abutment and dressing down over tiles/slates not less than 150 mm.

494 VERTICAL TILING/ SLATING SIDE ABUTMENT STEP FLASHINGS

- Lead:
  - Thickness: 2.00 or 2.24 mm (Code 5).
- Dimensions:
  - Lengths: Not more than 1500 mm.
  - End to end joints: Laps of not less than 100 mm.
  - Width: Adequate for not less than 75 mm underlap with welted edge to tiles/ slates and not less than 50 mm cover to abutment.

496 VERTICAL TILING/ SLATING ANGLE SOAKERS

- Lead:
  - Thickness: 1.25 or 1.32 mm (Code 3).
- Dimensions:
  - Length: Tile/ slate gauge + lap + 25 mm.
  - Underlaps: Not less than 150 mm.

GENERAL REQUIREMENTS/ PREPARATORY WORK

510 WORKMANSHIP GENERALLY

- Standard: To BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Association.
- Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
- Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.
- Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.
- Marking out: With pencil, chalk of crayon. Do no use scribers or other sharp instruments without approval.
- Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.
- Solder: Use only where specified.
- Sharp metal edges: Fold under or remove as work proceeds.
- Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
  - Protection: Prevent staining, discolouration and damage by subsequent works.

515 LEADWELDING

- In situ leadwelding: Not permitted.

520 LEAD SHEET

- Production method:
  - Rolled, to BS EN 12588, or
  - Machine cast and BBA certified, or
  - 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 ±10%.
- Identification: Labelled to show thickness/ code, weight and type.

555 LAYOUT

- Setting out of longitudinal and cross joints: Submit proposals.

560 CONTROL SAMPLES

- General: Complete areas of the finished work, and obtain approval of appearance before proceeding:
- Size: Not less than 5m², incorporating full cross section through box gutters, incorporating pre-patination slurry to underside of lead sheet.
- Location: FR2.

610 SUITABILITY OF SUBSTRATES

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

620 PREPARATION OF EXISTING TIMBER SUBSTRATES

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

640 TIMBER FOR USE WITH LEADWORK

- Quality: Planed, free from wane, pitch pockets, decay and insect attack (ambrosia beetle excepted).
- Moisture content: Not more than 22% at time of fixing and covering. Give notice if greater than 16%.
- Preservative treatment: Organic solvent as section Z12 and Wood Protection Association Commodity Specification C8.

652* PRE-PATINATION (PRIMING) TO UNDERSIDE OF LEAD COVERINGS

- Prior to laying lead roofing the following operations are to be undertaken.
- Preliminary trials are to be carried out to ensure that operatives are fully conversant with the priming treatments. Refer to clause H71/512 sample panels.
- Pre-patination: Obtain via Rowan Technologies Ltd (216 Church Road Urmston, Manchester M41 9DX Tel0161 748 3644) Chalk Emulsion ,Colour Green, for application to the under side of the lead prior to laying.
- The underside of the sheets should be pre-cleaned using a wire wool or similar material to remove any corrosion products/deposits.
- Appropriate health and safety precautions must be adhered to.
- The emulsion should be applied to the underside of the lead so that the surface can no longer be seen.
- The emulsion should be allowed to dry before laying of the lead.
- Follow the manufacturers instructions concerning application.

FIXING LEAD

705 HEAD FIXING LEAD SHEET

- 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.
- 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

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

715 CLIPS

- Manufacturer: Contractor's choice.
- Material:
  - Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
  - Copper clips:
    Thickness: 0.70 mm.
    Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.
  - Stainless steel clips:
    Thickness: 0.71 mm.
    Grade: BS EN 10088, 1.4301(304) terne coated if exposed to view.
- Dimensions:
  - Width: 50 mm where not continuous.
  - Length: To suit detail.
- 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.
- Fixing lead sheet: Welt clips around edges and turn over 25 mm.

760 CONTINUOUS CLIPS

- Material:
  - Lead continuous clips:
    Thickness: N/A.
  - Copper continuous clips:
    Thickness: N/A.
    Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere.
  - Stainless steel continuous clips:
    Thickness: 0.70 mm.
    Grade: BS EN 10088, 1.4301(304).
- Dimensions:
  - Width: To suit detail.
- Fixing clips: Secure at 75 mm centres.
- Fixing lead sheet: Welt edge around continuous clip and dress down.

JOINTING LEAD

880 WELTED JOINTS

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

970 PATINATION OIL

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Location: To all leadwork.
- Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

H74
Zinc strip/ sheet coverings/ flashings
Revision 1

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	19th Sep 2014
1	ISSUED FOR TENDER	26th Apr 2016

Clauses amended in Revision 1

No.	Clause	
110*	STANDING SEAM ROOF SYSTEM	Revised
210*	GUTTER LINING WITH EXPANSION JOINTS	Revised
310*	RIDGE	Revised
340*	STANDING SEAM EAVES	Revised
410	APRON FLASHINGS	Deleted
420	COVER FLASHINGS	Added

H74 Zinc strip/ sheet coverings/ flashings

To be read with Preliminaries/ General conditions.

TYPES OF ZINC WORK

110* STANDING SEAM ROOF SYSTEM TO ROOF 28

- Roofing system: VMZINC Structural Roof
- Substrate: Structural deck (profiled metal sheet sized by SE to suit exisitng metal truss centres) to provide adequate pull out strength for Structural clip fixings system. Continuous fully supported vapour barrier as per requirements. High performance modified bitumen with polyester reinforcement or a polymer bitumen with a polyester reinforcement and Aluminium foil. The joints are hot or cold glued and always lapped. Insulation with minimum compressive strength of 50kpa or 0.5kg/cm2 at a maximum of 10% deformation as Celotex FR5000. Insulation must remain dimensionally stable under the zinc standing seam roof at operational temperatures - 120mm to acheive max 0.18W/m2k to be agreed with Building Control
- Underlay: VMZINC Breather Membrane with a minimum water vapour transmission of 0.03m at 100° C
- Zinc: As clause 520.
  - Finish: Natural Zinc PLUS QUARTZ-ZINC to be agreed with Conservation Officer- Thickness: 0.7mm or 0.8mm
- Longitudinal joints: 25mm high double lock standing seam.
  - Spacing: 430mm, 530mm, 600mm in accordance with design and wind loadings.
- Cross joints: In accordance with manufacturer's recommendations, double welt or non vented roof step depending on slope.
  - Spacing, panels to be no longer than 13m.
- Non vented ridge/Hip detail: As clause 310.
- Non vented eaves detail: As clause 340.
- Verge detail: As abutment to exisitng parapet walls.
- Overall roof system to have a BRE Green Guide rating of at least A with no more than 0.63 BRE eco points (measured over 80 years for 1m²).
- BBA certificate 12/4900 product sheet 1.

(Revised - H74 revision 1 - 26th Apr 2016)

210* GUTTER LINING WITH EXPANSION JOINTS

- Gutter: As clause 520.
  - Finish: VMZINC PLUS in QUARTZ-ZINC to be agreed with Conservation Officer- Thickness: 0.7mm or 0.8mm.
- Joints: Soldered joints with neoprene at 6m intervals.
  Maximum width 600mm
  Minimum fall of 1 in 100 with overflows

(Revised - H74 revision 1 - 26th Apr 2016)

310* RIDGE

- Ridge: As clause 520.
  - Finish: VMZINC PLUS in QUARTZ-ZINC to be agreed with Conservation Officer
  - Thickness: 0.7mm or 0.8mm.
- Joints: Spacing: 2m.
- Ridge Cap:
  - Held in place with stainless steel clips attached to the zinc standing seam.
  - Continuous G3 ridge strip zinc available in QUARTZ-ZINC and ANTHRA-ZINC (220018337 and 220018339) fixed with stainless steel clip (220018332) and decompression strip G3 (220018331).

(Revised - H74 revision 1 - 26th Apr 2016)

340* STANDING SEAM EAVES

- Eaves zinc: As clause 520.
  - Finish: VMZINC PLUS in QUARTZ-ZINC to be agreed with Conservation Officer
  - Thickness: 0.7mm or 0.8mm.
- Joints: Spacing: 2 m.
- Eaves Strip:
  - T plate in galvanized steel.

(Revised - H74 revision 1 - 26th Apr 2016)

~~410 APRON FLASHINGS~~

(Deleted - H74 revision 1 - 26th Apr 2016)

420 COVER FLASHINGS AT ABUTTMENT

- Zinc: Standard temper alloy.
  - Finish: QUARTZ-ZINC to be agreed with Conservation Officer.
  - Thickness: 0.7 mm.
- Dimensions:
  - Lengths: Not more than 2.5 m.
    End to end joints: Lapped not less than 100 mm.
  - Cover to roofing upstand: Not less than 75 mm.
- Fixing: Zinc wedges into bed joint, clips to bottom edge at laps and 450 mm centres.

(Added - H74 revision 1 - 26th Apr 2016)

GENERAL REQUIREMENTS/ PREPARATORY WORK

510 WORKMANSHIP GENERALLY

- Standard: Generally to CP 143-5.
- Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
- Operatives: Trained in the application of zinc coverings/ flashings. Submit records of experience on request.
- Preforming: Measure, mark, cut and form zinc prior to assembly wherever possible.
- Metal temperature: Do not form zinc when the metal temperature is below the minimum recommended for working by the manufacturer.
- Marking out: With pencil, chalk or crayon. Do not use scribers or other sharp instruments without approval.
- Folding: With mechanical or manual presses to give straight, regular and tight bends, leaving panels free from ripples, kinks, buckling and cracks. Use hand tools only for folding details that cannot be pressed.
- Sharp metal edges: Fold under or remove as work proceeds.
- Sealants: Do not use in joints to attain waterproofing.
- Solder: Use only where specified.
- Finished zinc work: Fully supported, adequately fixed to resist wind uplift and able to accommodate thermal movement without distortion or stress.
  - Protection: Prevent staining, discolouration and damage by subsequent works.

515 SOLDERING AND NAKED FLAME PREHEATING

- In situ soldering and naked flame preheating: Not permitted.

520* ZINC STRIP/ SHEET

- Zinc-titanium-copper alloy:
  - To BS EN 501 and BS EN 988.
- Zinc manufactured following ISO 14001 (environmental management), ISO 9001 (quality management) and ISO 18001 safety management.
  - Stamped or labelled with type, finish and thickness.
  - Zinc to be coated on underside with a protective 60 micron lacquer.
- Manufacturer:
  - VMZINC, Four Rivers House, Fentiman Walk, Hertford, Hertfordshire, SG14 1DB
    Tel: 01992 822 288
    Fax: 01992 584 460
    Email: vmzinc.uk@umicore.com
    Web: www.vmzinc.co.uk
  - Product reference: VMZINC in VMZINC PLUS in Natural Zinc PLUS

535* INTEGRITY OF ZINC

- Requirement: Design coverings/flashings and methods of attachment to prevent loss of weather tightness and permanent deformation due to wind pressure or suction.
- Wind loads: Calculate to BS 6399-2.

555 LAYOUT

- Setting out of joints in direction of fall and cross joints: Submit proposals.

560 CONTROL SAMPLES

- General: Complete areas of finished work and obtain approval of appearance before proceeding:
- Size: 3m width .
- Location: Roofing H74/110 including ridge, eaves and standing seam joints .

610 SUITABILITY OF SUBSTRATES

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

620 PREPARATION OF EXISTING TIMBER SUBSTRATES

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

640 TIMBER FOR USE WITH ZINC WORK

- Quality: Planed, free from wane, splits, pitch pockets, decay and insect attack (ambrosia beetle excepted).
- Moisture content: Not more than 22% at time of fixing and covering.
- Preservative treatment: Organic solvent as section Z12, and Wood Protection Association Commodity Specification C8.

645* UNDERLAY VMZINC MEMBRANE

- Handling: Prevent tears and punctures.
- Laying: Overlapped joints onto a dry substrate with staples and Dupont Tyvek Tape.
- Overlap the VMZ Membrane by 150mm.
  - Slopes lower than 22° the overlap should be 200mm.
  - Slopes lower than 14° all overlaps should be taped.

FIXING ZINC

710* FIXINGS FOR CLIPS

- Rigid plastic spacer (for fixed section only) with variable length according to the thickness of the insulation (50mm – 180mm)
- Stainless steel load distribution plate (for the sliding section), (220002861)
- Stainless steel 4.8mm diameter flat head countersunk screws.

720* STANDING SEAM FIXED CLIPS

- Stainless steel.
- Fixing: Secure each clip to substrate with two fixings (205709000). Minimum of 5 fixed clips per panel. More maybe required if PV panels, snow guards are being attached to the standing seam. Each clip to withstand a pulling force of 50 daN

725* STANDING SEAM SLIDING CLIPS

- Stainless steel.
  - Two piece clips with 70mm sliding movement (220002860)
- Fixing: Secure each clip to substrate with one fixing.
  Each clip to withstand a pulling force of 50 daN
  Typical clip spacing:
  Middle zone every 330mm
  Edge zone 200mm
  Corner zone 150mm

750 CLIPS FOR FLASHINGS/ CROSS JOINTS

- Material: Zinc of same thickness as that being secured.
- Dimensions:
  - Width: Not less than 50 mm.
  - Length: To suit detail.
- Fixing: Secure each clip to substrate with two fixings not more than 50 mm from edge of strip/ sheet being fixed. Clips folded around edges of strip/ sheet to be turned over 25 mm.

760 CONTINUOUS CLIPS

- Material: Zinc of same thickness as that being secured.
- Dimensions:
  - Width: To suit detail.
  - Length: Not more than 1800 mm.
- Fixing: To substrate at 200 mm centres. Welt edge of strip/ sheet being fixed to continuous clip and dress down.

JOINTING ZINC

810 FORMING DETAILS

- Folds and welts: Form without thinning, or splitting the strip/ sheet.
- Thermal movement: Form details with appropriate allowance for movement, without impairment of security at full expansion or contraction.

825* SOLDERING DETAILS

- All zinc must be cleaned back to its natural state.
- The protective coat on the underside of the upper panel must be removed over a width of 20mm either chemically, using DECALAQ, or mechanically, using a 3 MTM RolocTM Bristle Disc brush mounted on a small disc sander.
- The pre-weathering must be removed from the parts to be soldered. ZINN7 (flux) to be applied to allow spot soldering with solder (40% tin 60% lead) ZINN7 applied over whole length of joint and then soldered. Wipe clean

860 DRIP/ STEP JOINTS

- Strip/ Sheet from below step: Fold up full height of upstand and fix to top edge.
- Form zinc underlap/ continuous clip:
  - Cover to roof slope: Not less than 100 mm with anticapillary welt at top edge.
  - Projection: 25 mm for forming into drip welt.
  - Downstand: Not less than 40 mm with welt at bottom edge.
  - Fixing: To roof slope at 100 mm centres, avoiding through fixings at joints in direction of fall positions.
- Strip/ Sheet from above step: Fold around underlap projection and single welt to form a drip.

J
Waterproofing

J41
Reinforced bitumen membrane roof coverings
Revision 1

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	20th Sep 2014
1	ISSUED FOR TENDER	26th Apr 2016

Clauses amended in Revision 1

No.	Clause	
100*	BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING	Revised
100A	BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING	Added
680B	INSTALLING WARM ROOF INSULATION (INSULATED UPSTANDS)	Deleted
775A	SKIRTINGS AND UPSTANDS	Deleted

J41 Reinforced bitumen membrane roof coverings

To be read with Preliminaries/General conditions.

TYPES OF ROOF COVERING

100* BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING TO ROOFS FR1, FR3

- Roof area: Flat Roof
- Substrate: Exisintg concrete deck).
  - Preparation: Scabble up existing screed. Provide new cement:sand screed as section M10, laid to falls min 1:60 to exisitng outlets. As clause 610.
- Vapour control layer: BauderTEC DS1 Duo, 3.5 mm thick aluminium lined, elastomeric bitumen self-adhesive. Installation as clause 670A.
- insulation: Bauder PIR FA-TE foil back insulation, fire resistant, zero ODP, highly efficient rigid urethane insulation, 120mm thick. As clause 680B. Subject to Building Control approval
- Insulation to upstands: N/A
  Waterproof covering: BAUDER TOTAL ROOF SYSTEM
  - System Manufacturer: Bauder Limited, 70 Landseer Road, Ipswich, Suffolk, IP3 0DH Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk Web: www.bauder.co.uk.
  - Underlayer: Bauder G4E, 4 mm thick, 200g/m² glass-fibre reinforced, elastomeric torch applied bitumen underlayer.
    Attachment: As clauses 710, 740A.
  - Top layer / Cap sheet: Bauder K5K, 5 mm thick, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet – Charcoal Grey finish.
    Attachment: As clauses 710, 750A.
  - Flashings and detail work: Bauder K5K capping sheet. Install as clause 775A. Form welted drip details, as clause 780A.
- Surface protection: N/A.
- Accessories:
  Bauder 61 mm x 61 mm PIR angle fillets. Installation, as clause 775A.
  New internal rainwater outlets (supplied and installed by others), as clause 490.
- Additional Requirements: 210, 515, 520, 530, 560, 910A, 940.
  (Revised - J41 revision 1 - 26th Apr 2016)

100A BUILT-UP REINFORCED BITUMEN MEMBRANE WARM DECK ROOF COVERING TO ROOFS FR10, FR18

Roof area: Flat Roof

- Substrate: New Plywood Deck (constructed on firrings to a minimum fall of 1:60).
  - Preparation: Strip exisintg roof covering and timber deck substrate to reveal joists.
- Vapour control layer: BauderTEC DS1 Duo, 3.5 mm thick aluminium lined, elastomeric bitumen self-adhesive. Installation as clause 670A.
- insulation:Bauder PIR FA-TE foil back insulation, fire resistant, zero ODP, highly efficient rigid urethane insulation, 120mm thick. As clause 680B. Subject to Building Control approval.
- Insulation to upstands: N/A.
- Waterproof covering: BAUDER TOTAL ROOF SYSTEM
  - System Manufacturer: Bauder Limited, 70 Landseer Road, Ipswich, Suffolk, IP3 0DH Tel: 01473 257 671. Fax: 01473 230 761. Email: technical@bauder.co.uk Web: www.bauder.co.uk.
  - Underlayer: Bauder G4E, 4 mm thick, 200g/m² glass-fibre reinforced, elastomeric torch applied bitumen underlayer.
    Attachment: As clauses 710, 740A.
  - Top layer / Cap sheet: Bauder K5K, 5 mm thick, 250g/m² polyester reinforced, elastomeric bitumen torch applied capping sheet – Charcoal Grey finish.
    Attachment: As clauses 710, 750A.
  - Flashings and detail work: Bauder K5K capping sheet. Install as clause 775A. Form welted drip details, as clause 780A.
- Surface protection: N/A.
- Accessories:
  Bauder 61 mm x 61 mm PIR angle fillets. Installation, as clause 775A.
  New internal rainwater outlets (supplied and installed by others), as clause 490.
- Additional Requirements: 210, 515, 520, 530, 560, 910A, 940.
  (Added - J41 revision 1 - 26th Apr 2016)

PERFORMANCE

210 ROOF PERFORMANCE

- General: Secure, free draining and weathertight.

PRODUCTS

320A FAST DRYING PRIMER

- Type: Any commercially available fast drying Bituminous Priming Solution meeting characteristics of BS 8217, clause 5.6.2 supplied by an approved installer.

330 TIMBER TRIMS, ETC

- Quality: Planed. Free from wane, pitch pockets, decay and insect attack (except ambrosia beetle damage).
- Moisture content at time of covering (maximum): 22%.
- Preservative treatment: Organic solvent based timber preservatives are not permitted as these attack bitumen based materials.

EXECUTION GENERALLY

515 ADVERSE WEATHER

- General: Do not lay coverings in high winds, wet or damp conditions or in extremes of temperature unless effective temporary cover is provided over working area.
- Unfinished areas of roof: Keep dry. Protect edges of laid membrane from wind action.

520 INCOMPLETE WORK

- End of working day: Provide temporary seal to prevent water infiltration.
- On resumption of work: Cut away tail of membrane from completed area and remove from roof.

530 APPLYING PRIMERS

- Coverage per coat (minimum): As per manufacturer's recommendations.
- Surface coverage: Even and full.
- Coats: Fully bond. Allow volatiles to dry off thoroughly between coats.

555 GENERAL WORKMANSHIP REQUIREMENTS

- Installation of the Bauder waterproofing system may only be carried out by trained and certified operatives approved by Bauder Ltd and who carry current ID badges. These should be available for inspection at all times.
- Workmanship must comply with Codes of Practice BS 8217:2005 (or alternatively Bauder Ltd's specification where otherwise stated). Non-compliant workmanship will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.
- All waterproofing materials and system components must be supplied by Bauder Ltd, unless otherwise stated. Any sub-standard materials or un-authorised alternatives will be rejected. Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Bauder System must be carried out by properly trained and qualified tradesmen.
- Any structural damage, peculiarities or details discovered that might affect the performance of the Bauder system, should be reported immediately to the client's representative and Bauder Limited in order that they may assist in overcoming the problem.
- The contractor is to ensure water tightness of the roof at all times. Proper day joints must be formed at the end of each working day to provide a temporary seal. No mopping or loose covers will be permitted.
- Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying protection to prevent damage to the new membranes. The final inspection will not be carried out by the independent surveyor until all associated trades are complete and the roof areas are clear from all debris and protection layers.
- All mechanical and electrical work to plant and equipment should be carried out by competent mechanical and electrical qualified tradesmen. All plant is to be reinstated and recommissioned on completion of the roofing works in accordance with the client's detailed specification.
- Where building works are to be carried out by other trades, following completion of the waterproofing, the contractor must make adequate provision for supplying

SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES

- Substrates generally: Secure, clean, dry, smooth, and free from frost, contaminants, voids and protrusions.
- Preliminary work: Complete including:
  - Grading to correct falls.
  - Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
  - Fixing of battens, fillets and anchoring plugs/ strips.
- Moisture content and stability of substrate: Must not impair roof integrity.

625 REMOVING EXISTING COVERINGS

- Mechanical stripping: Not permitted.
- Exposed substrate: Do not damage.

640 FIXING TIMBER TRIMS

- Fasteners: Type/ length appropriate and suitable to particular deck substrate.
- Fixing centres (maximum): 500 mm.

670A LAYING VAPOUR CONTROL LAYER

- Attachment: Cold applied and fully bonded to substrate in accordance with manufacturer's requirements.
- Side and end laps: minimum 100 mm, laid red over blue with all laps torch sealed to provide a 5-10 mm bitumen bead extrusion. Installation methods as recommended by manufacturer.
- Penetrations: Fully seal using bonding methods recommended by manufacturer.
- Edges of insulation at roof edges, abutments, upstands, kerbs, penetrations and the like: Enclose, with vapour control layer:
  - Dressed up 150 mm above surface of insulation, thus providing 100 mm (minimum) seal when overlapped by the roof covering.
  - Care should be taken to ensure adhesion when the temperature is below + 5° C.
- Please note: If BauderTherm DS1 DUO Vapour barrier is left exposed for longer than two weeks as a temporary waterproof layer, the burn off release foil and surface of the torch activated adhesion stripes will be effected by the exposure to ultra violet. This minor issue can be resolved by using more heat to activate the bitumen stripes, but the process will be slightly slower than when using newly laid material.

680A LAYING WARM DECK ROOF INSULATION

- Setting out:
  - Long edges: Fully supported
  - End edges: Fully supported.
  - Joints: close butted together.
  - End joints: Stagger.
- Bedding: Fully bed into torch activated bonding stripes of vapour control layer surface.
- Bauder Perimeter Insulation facing strip: Apply a 500 mm wide strip of self-adhesive, 2 mm thick, BauderTEC KSA Sprint DUO to the surface of the insulation boards at all perimeter edges, rainwater outlets, rooflights, vent pipes, penetrations and any other similar abutments, to create a full bonding zone once the underlayer is applied. The self-adhesive membrane is cold applied by removing the peel off release film and smoothing into place. Adjacent lengths of strip to be close butted. Where insulated upstands are present, this membrane can also be used to secure the angle fillet into position. Care must be taken to avoid creating water checks, especially around rainwater outlets, chutes and gutters.
- Protection to exposed edges of insulation: Reduced thickness treated timber batten as clause 640 (or equivalent plywood construction), a minimum width of 150 mm and 10 mm less in thickness than the insulation to accommodate the build-up of the waterproofing layers – all securely fixed to the deck. Outer edges chamfered at changes in level.
- Completion: Boards must be in good condition, well fitting and stable.

680B ~~INSTALLING WARM ROOF INSULATION (INSULATED UPSTANDS)~~

(Deleted - J41 revision 1 - 26th Apr 2016)

WATERPROOF MEMBRANES/ ACCESSORIES

710 LAYING REINFORCED BITUMEN MEMBRANES GENERALLY

- Direction of laying: Unrolled up the slope.
  - Where practicable, install so that water drains over and not into laps.
- Side and end laps: 100mm, with the exception of mineral surfaced membranes, where side laps are 80mm, but the head laps to remain 100mm.
- Head and side laps: Offset.
- Intermediate and top layer/ capsheet: Fully bond.
- Successive layers: Apply without delay. Do not trap moisture.
- Strips of bitumen membrane for 'linear' details: Cut from length of roll.
- Completed coverings: Firmly attached, fully sealed, smooth, weatherproof and free draining.

740A TORCH-ON BONDING OF REINFORCED BITUMEN MEMBRANE

- Bond: Partially bonded in the approved Bauder manner.
- Laps: Head and side laps to be 100 mm. All laps to upstands, edge details, flashings, etc., to be a minimum 100 mm. The underlayer must be taken up all upstands, edge details, in accordance with current British Standards and the manufacturer's recommendations.
- Underlayer inspection: The Approved Contractor must give reasonable notice to the nominated Bauder Site Technician of their intention to commence laying capping sheet. This will allow a discretionary inspection of the underlayer to take place, so that any remedial treatment necessary can be carried out prior to installing the capping sheet.

750A LAYING MINERAL FACED REINFORCED BITUMEN MEMBRANES

- Bond: Full over whole surface, with no air pockets.
- Excess compound at laps of top layer/ capping sheet: Leave as a 5 mm - 10 mm continuous bitumen bead extrusion.
- Laying top layer: Fully bonded to the underlayer by torching in the approved Bauder manner. Head laps to be 100 mm, side laps to be 80 mm. All laps to upstands, edge details, flashings, etc. to be 100 mm.
- Final Inspection: The finished roof must be thoroughly inspected by the Bauder Site Technician. This is to ensure that any remedial treatment that is necessary can be carried out
  prior to issuing the guarantee. Failure to ensure the instigation of this inspection will result in the issuing of the Bauder guarantee being put in jeopardy.

~~775A SKIRTINGS AND UPSTANDS~~

(Deleted - J41 revision 1 - 26th Apr 2016)

780A WELTED DRIPS

- Material: Bauder K5K
  - Length: Form using maximum width strips.
  - Height at external gutter (minimum): 75 mm.
- Welt tail: Nail to face of drip batten. Fold neatly.
- Welt: Bond together, carry minimum 150 mm onto roof. Overlap with bitumen membrane capping sheet.

COMPLETION

910A INSPECTION

- Interim and final roof inspections: Strictly in accordance with the manufacturer's requirements for guarantee.
- Notification: It is the responsibility of the approved contractor to advise Bauder Ltd when the roof is ready for Final Inspection.
- Other requirements: Please also refer to preliminaries / general conditions.

940 COMPLETION

- Roof areas: Clean.
- Outlets: Clear.
- Work necessary to provide a weathertight finish: Complete.
- Storage of materials on finished surface: Not permitted.
- Completed membrane: Do not damage. Protect from chemicals, traffic and adjacent or high level working.

K
Linings/Sheathing/Dry partitioning

K20
Timber board flooring/ sarking/ linings/ casings

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	20th Sep 2014

Clauses amended in Revision 0

This is the first revision stamp for this section. For all future revision stamps, details of all clauses amended at that revision will be included here.

K20 Timber board flooring/ sarking/ linings/ casings

To be read with Preliminaries/ General conditions.

220* TIMBER BOARD SARKING FOR REPAIRS TO EXISTING SLATED AND TILED ROOFS

- Substrate: Existing rafters.
- Boards: Free from decay, insect attack (except ambrosia beetle damage) and wane.
  - Wood species: Douglas fir.
  - Quality: Contractors choice.
  - Surface finish: Planed.
  - Edge profile: Square.
  - Finished face width (exposed width after fixing): To match existing sarking boards .
  - Finished thickness: To match existing sarking boards.
  - Moisture content at time of fixing: Not more than 19%.
- Treatment: Preservative impregnation.
  - Standard: To NBS section Z12 and Wood Protection Association Commodity Specification C8.
  - Type: Organic solvent.
- Fixing: 65 mm x 3.35 mm austenitic grade 316 stainless steel annular ringed shank nails, two per board to each rafter.
- Termination of sarking at roof edges and junctions: In accordance with drawings and specification for roof covering.

WORKMANSHIP

310 WORKMANSHIP GENERALLY

- Protection during and after installation: Keep boards dry. Protect from dirt, stain and damage until Completion.
- Boards to be used internally: Do not install until building is watertight.
- Methods of fixing, and fasteners: As section Z20.
- Moisture content of timber supports at time of fixing boards: Not more than 18%.

330 MOISTURE CONTENT OF TIMBER

- Conditions during and after installation: Control ambient temperature and humidity conditions to maintain moisture content at average level specified in BS EN 942, table B.1 for the relevant service condition until Completion.
- Test for moisture content: When instructed, using an approved moisture meter.

350 TREATED TIMBER

- Surfaces exposed by minor cutting and/ or drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

370 FIXING BOARDS

- Environmental conditions: Do not fix boards when ambient temperature is at or below 0°C, or above 30°C.
- Generally: Fix boards securely to each support to give flat, true surfaces free from undulations, lipping, splits and protruding fasteners.
- Timber movement: Position boards and fixings to prevent cupping, springing, excessive opening of joints and other defects.
- Heading joints: Tightly butted, central over supports and at least two board widths apart on any one support.
- Edges: Plane off proud edges.
- Exposed nail heads: Neatly punch below surface.

M
Surface finishes

M10
Cement based levelling/ wearing screeds

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	20th Sep 2014

Clauses amended in Revision 0

This is the first revision stamp for this section. For all future revision stamps, details of all clauses amended at that revision will be included here.

M10 Cement based levelling/ wearing screeds

To be read with Preliminaries/General conditions.

TYPES OF SCREED

110 BONDED CEMENT:SAND LEVELLING SCREEDS TO ROOFS FR1, FR3

- Substrate: In situ concrete slab.
- Screed construction: Fully bonded.
- Thickness:
  - Nominal: 35 mm.
  - Minimum: 25 mm.
  - Maximum: 40mm.
- Mix:
  - Proportions (cement:sand): To BS 8204-1.
- In situ crushing resistance (ISCR) category: A (3 mm maximum indentation).
- Flatness/ Surface regularity class: SR2.
- Finish: Wood floated, as clause 520.
  - To receive: Roofing system as J41.
- Other requirements: Movement joints .

113* PARTIALLY BONDED/BONDED FINE CONCRETE SCREED TO NEW/EXISTING FLOORS TO CONCRETE FLAT ROOFS

- Base: Insitu concrete slab
- Construction: Partially bonded as clause 270 (new)/bonded as clause 260.
  Minimum thickness at any point: 35mm
- Mix:
  Cement: Ordinary Portland to BS EN 197-1 or Portland blastfurnace to BS 146.
  Sand: To BS EN 12620, grading limit to BS 8204-1 table 1
  Coarse aggregate: To BS EN 12620, 10 mm single sized.
  Mix proportions: 1:4-1:5 total aggregate, proportion of fine to coarse aggregate 40/60, adjusted to facilitate trowelling.
  Admixture: Water reducing to BS EN 934-2 dosage to manufacturer's recommendations.
- Finish: As clause 540
- Flatness/surface regularity: Maximum permissible deveration when measured as clause 335; SR2(5mm)
- Insitu crushing resistance (ISCR): As clause 335; SR2 (5mm)

GENERALLY/PREPARATION

205 DESIGN LIFE OF SCREEDS

- Duration: 70 years .
  - Subject to reasonable wear and tear.
- Location: Flat roofs .
- Condition of use: Subject to correct loading and traffic usage throughout duration.

210 SUITABILITY OF SUBSTRATES

- General:
  - Suitable for specified levels and flatness/ regularity of finished surfaces. Consider permissible minimum and maximum thicknesses of screeds.
  - Sound and free from significant cracks and gaps.
- Concrete strength: In accordance with BS 8204-1, Table 2.
- Cleanliness: Remove plaster, debris and dirt.
- Moisture content: To suit screed type. New concrete slabs to receive fully or partially bonded construction must be dried out by exposure to the air for minimum six weeks.

215 SURFACE HARDNESS OF SUBSTRATES TO RECEIVE POLYMER MODIFIED WEARING SCREEDS

- General: Substrates must restrain stresses that occur during setting and hardening of wearing screeds.
- Test for surface hardness: To BS EN 12504-2 using a rebound hammer with compliance values selected from the following:

Screed thickness	Rebound hammer value
15 mm or less	Greater than 25
Greater than 15 mm	Greater than 30

- Report: Submit details of areas where substrates surface hardness does not comply with these values.

220 PROPRIETARY LEVELLING/WEARING SCREEDS

- General: Materials, mix proportions, mixing methods, minimum/maximum thicknesses and workmanship must be in accordance with recommendations of screed manufacturer.
- Standard: To BS 8204-3.

260 FULLY BONDED CONSTRUCTION

- Preparation: Generally in accordance with BS 8204-1.
- Removing mortar matrix: Shortly before laying screed, expose coarse aggregate over entire area of hardened substrate.
- Texture of surface: Suitable to accept screed and achieve a full bond over complete area.
- Bonding coat: Manufacturer's standard.

BATCHING/MIXING

302 CEMENTS

- Cement types: In accordance with BS 8204-1, clause 5.1.3.

305 AGGREGATES

- Sand: To BS EN 13139.
  - Grading limits: In accordance with BS 8204-1, Table B.1.
- Coarse aggregates for fine concrete levelling screeds:
  - Standard: To BS EN 12620.
  - Designation: 4/10.
- Lightweight aggregates: In accordance with BS 8204-1, Annex A.

306 PROPRIETARY POLYMER MODIFIED SCREEDS

- Cement types: In accordance with BS 8204-3.
- Sand: To BS EN 13139:
  - Grading limits: 0/2 mm (MP) category 1.
- Aggregates: In accordance with BS 8204-3.

307 ADMIXTURES

- Standard: In accordance with BS 8204-1, Table 1.
- Calcium chloride: Do not use in admixtures.

310 BATCHING WITH DENSE AGGREGATES

- Mix proportions: Specified by weight.
- Batching: Select from:
  - Batch by weight.
  - Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular
    materials. Use accurate gauge boxes. Allow for bulking of damp sand.

311 BATCHING WITH LIGHTWEIGHT AGGREGATES

- Standard: In accordance with BS 8204-1, Annex A.
- Mix proportions: Specified by volume.
- Batching: Use accurate gauge boxes.

330 MIXING

- Water content: Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.
- Mixing: Mix materials thoroughly to uniform consistency. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.
- Consistency: Use while sufficiently plastic for full compaction.
- Ready-mixed retarded screed mortar: Use within working time and site temperatures recommended by manufacturer. Do not retemper.

335 IN SITU CRUSHING RESISTANCE (ISCR)

- Standards and category: In accordance with BS 8204-1, table 4.
  - Testing of bonded and unbonded screeds: To Annex D.
  - Testing of floating levelling screeds: To Annex E.

340 ADVERSE WEATHER

- Screeds surface temperature: Maintain above 5°C for a minimum of four days after laying.
- Hot weather: Prevent premature setting or drying out.

LAYING

350 SCREEDING TO FALLS

- Minimum screed cover: Maintain at the lowest point.
- Falls: Gradual and consistent.
  - Gradient (minimum): 1:60 to gully position .

365 FLATNESS/SURFACE REGULARITY OF ROOF SCREEDS

- Sudden irregularities: Not permitted.
- Deviation of surface: Measure from underside of a 2 m straightedge (between points of contact), placed anywhere on surface.
  - Permissible deviation (maximum): 6 mm.

375 COMPACTION OF SCREEDS

- General: Compact thoroughly over entire area.
- Screeds over 50 mm thick: Lay in two layers of approximately equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

440 CRACK INDUCING GROOVES IN LEVELLING SCREEDS

- Groove depth: At least half the depth of screed.
- Cutting grooves: Straight, vertical and accurately positioned. Select from the following:
  - Trowel cut as screed is laid.
  - Saw cut sufficiently early after laying to prevent random cracking.

FINISHING/CURING

510 FINISHING GENERALLY

- Timing: Carry out all finishing operations at optimum times in relation to setting and hardening of screed material.
- Prohibited treatments to screed surfaces:
  - Wetting to assist surface working.
  - Sprinkling cement.

520 WOOD FLOATED FINISH

- Finish: Slightly coarse, even texture with no ridges or steps.

650 CURING

- General: Prevent premature drying. Immediately after laying, protect surface from wind, draughts and strong sunlight. As soon as screed has set sufficiently, closely cover with polyethylene sheeting.
- Curing period (minimum): Keep polyethylene sheeting in position for: seven days.
- Drying after curing: Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions that will cause cracking or other shrinkage related problems.

670 ROOF SCREEDS

- Protection: Cover screeds during wet weather. When weathertight coverings are laid, screeds must be as dry as practicable.

M60
Painting/ clear finishing

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	21st Feb 2014

Clauses amended in Revision 0

This is the first revision stamp for this section. For all future revision stamps, details of all clauses amended at that revision will be included here.

M60 Painting/ clear finishing

To be read with Preliminaries/ General conditions.

COATING SYSTEMS

131* ALKYD GLOSS ON EXTERNAL WOODWORK TO TIMBER CORNICES

- Manufacturer: As clause M60/210*
  Colour: White
- Surface(s): Door and window joinery eaves and verge boarding etc, previously decorated/ existing stripped/partially stripped/new woodwork
- Preparation: as Clause M60/400*, 403*
  - Initial Coat(s):
    - Existing: Patch prime only; 1 coat aluminium wood primer
    - New: 1 coat aluminium wood primer
- Finishing coats:
  - Existing: 1 coat undercoat to patched primed areas, 1 full coat undercoat to whole of timber, and 2 full coats gloss.
  - New: 2 full coats undercoat and 2 full coats gloss.
  - Paint samples: To M60/212* or M60/213*

191* ZINC RICH PRIMER ON INSITU METALWORK TO EXTERNAL RAILINGS AND FIXINGS

- Manufacturer: Galvafroid - Fosroc Expandite Limited Fosroc Ltd, Coleshill Road, Tamworth, Staffordshire, Tel: 01827 262222, Fax: 01827 262444, www.fosrocuk.com , info@fosrocuk.com
  Colour: Grey
- Surface(s): New bare/pre-primed metal
- Preparation: As clause M60/400*, 401* and manual clean with wire brush
- Initial coat(s): 2 coats liberally applied with a brush
- Finishing coats: 2 coats solvent-based acrylic (gloss coating).

193* HAMMERITE PAINT FINISH ON EXTERNAL METALWORK TO EXTERNAL RAILINGS, FIXINGS AND RAINWATER PIPES

- Manufacturer: Hammerite Products Ltd
  - Colour: Black
  - Surface(s): Rainwater pipes, gutters, brackets, etc
  - Preparation: As clause M60/400*,401*, and to manufacturer's recommendations for specific circumstances.
  - Ferrous metals: Steel/cast iron:
  - Existing/new : Remove all loose millscale. For rusted areas prepare surfaces to minimum standard St 2 (Swedish Std SIS 05 59 00). Depending on degree of rusting this can be achieved by wire brushing in two directions. Degrease all surfaces with Hammerite Brush Cleaner & Thinners.
  - Non-ferrous metals: Stainless steel/galvanised steel/aluminium
  - Existing/new: Remove all dust, dirt, grease; degrease all surfaces with Hammerite Brush Cleaner & Thinners. Rinse all surfaces with clean fresh water, allow to dry. For existing areas where rust is showing, prepare surfaces to minimum standard St 2 (Swedish Std SIS 05 59 00). Depending on degree of rusting this can be achieved by wire brushing in two directions.
  - Initial coat(s):

Ferrous metals: Steel/cast iron

  - Existing: Patch prime with Hammerite No 1 Rust beater or Hammerite High Performance Red Oxide Primer.
  - New: On shiny/smooth metal surfaces, extra abrasion is required to ensure maximum adhesion of finish.
  - Non-ferrous metals: Stainless steel/galvanised steel/aluminium:
  - Existing: Patch prime any bare rusted areas with Hammerite Kurust. To any areas patch primed with Hammerite Kurust and any bare galvanised steel areas only, apply one coat of Hammerite Special Metals Primer.
  - New: Prime with Hammerite Special Metals Primer
  - Finishing coats:

Ferrous metals: Steel/cast iron

  - Existing/new: Apply Hammerite Hammered/Smooth/Satin Finish to achieve a minimum wet film thickness of 200 microns (100 microns dry film thickness). To achieve this recommended thickness it may be necessary to apply two or more coats; particular attention should be paid to all edges and corners - this is essential.

Non-ferrous metals: Stainless steel/galvanised steel/aluminium:

  - Existing/new: Apply Hammerite Hammered/Smooth/Satin Finish to achieve a minimum wet film thickness of 200 microns (100 microns dry film thickness). To achieve this recommended thickness it may be necessary to apply two or more coats; particular attention should be paid to all edges and corners - this is essential.

NOTE: Painting must be planned so that all coats of Hammerite are applied within 3 hours of the previous coat. After this period, Hammerite must be left to cure for 6 weeks before further coats can be applied. It is essential to follow all manufacturer's recommendations when using Hammerite products.

GENERAL

210* COATING MATERIALS

- COMPREHENSIVE LIST OF MANUFACTURERS:

1. Akzo Coatings Plc, 135 Milton Park, Abingdon, Oxfordshire, OX14 4SB (Tel: 01235 862226, Fax: 01235 862236)
2. ICI Dulux Trade Paints, Wexham Road, Slough, Berkshire, SL2 5DS (Tel: 01753 877111, Fax: 01753 877413)
3. Classidur, Blackfriar Paints, E Parsons & Sons Ltd, Blackfriars Road, Nailsea, Bristol, BS48 4DJ (Tel: 01275 854911).
4. Craig & Rose Plc, 172 Leith Walk, Edinburgh, Lothian, EH6 5EB (Tel: 0131 5541131, Fax: 0131 5533250)
5. Farrow and Ball Limited, Uddens Estate, Wimborne, Dorset, BH21 7NL (Tel: 01202 876141, Fax: 01202 873793)
6. Papers & Paints, 4 Park Walk, London, SW10 (Tel: 0171 3528626, Fax: 0171 3521017)
7. Potmolen Paints, 27 Woodcock Industrial Estate, Warminster Wiltshire, GB-BA12 9DX (Tel: 01985 213960, Fax: 01985 213931)
8. Rose of Jericho, St Blaise Ltd, Westhill Barn, Evershot, Dorchester, Dorset, DT2 0LD (Tel: 01935 83676/83662, Fax: 01935 83676/83017)
9. Hirst Conservation Materials Limited, Laughton Farm, Laughton, Sleaford, Lincolnshire, NG34 0HE (Tel: 01529 497517, Fax: 01529 497518)
10. Cy-Pres, 14 Bells Close, Brigstock, Kettering, Northamptonshire, NN14 3J6 (Tel: 01536 373431)
11. Signpost Paints, Haverhill, Suffolk, CB9 8PQ (Tel: 01440 703611)
12. Nutshell Natural Paints, Hamlyn House, Mardle Way, Buckfastleigh, Devon, TQ11 ONR (Tel: 01364 642892; Fax: 01364 643888)
13. Sanderson Paints (Tel: 01895 251288)
14. Keim Mineral Paints Ltd, Muckley Cross, Morville, Nr Bridgenorth, Shropshire, WV16 4RR (Tel: 01746 714543, Fax: 01746 714526)
15. Hammerite Products Ltd, European Headquarters, Prudhoe, Northumberland, NE42 6LP (Tel: 01661 830000, Fax: 01661 835760)
16. CRODA Paints Limited, Blackwell Road, Huthwaite, Sutton-in-Ashfield, Nottinghamshire, NG1 7 2RL (Tel: 01623 511000, Fax: 01623 559616)
17. Fosroc Expandite Limited, Coleshill Road, Tamworth, Staffordshire, B78 3TL (Tel: 01827 262222; Fax: 01827 262444)
18. Jotun Paints (Europe) Ltd, Stather Road, Flixborough, North Lincolnshire, DN15 8RR (Te. 01724 400123), Fax: 01724 400104, www.jotun.co.uk)

211* PAINT COLOURS

- Colours not yet selected to be confirmed by CA. Paints may not always be from standard ranges. If special colours are required in accordance with the specification, then the contractor is to allow for tinting of these paints to match colours provided on sample cards.
- Ensure that paint for one area/room is batched (mixed together or check each tin for compatibility of colour) to avoid any variations from occurring to the chosen colour..

215 HANDLING AND STORAGE

- Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
- Materials from more than one batch: Store separately.

280 PROTECTION

- '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

- Standard: In accordance with BS 6150.
- Suspected existing hazardous materials: Prepare risk assessments and method statements covering operations, disposal of waste, containment and reoccupation, and obtain approval before commencing work.
- Preparation materials: Types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Substrates: Sufficiently dry in depth to suit coating.
- Efflorescence salts: Remove.
- Dirt, grease and oil: Remove. Give notice if contamination of surfaces/ substrates has occurred.
- Surface irregularities: Remove.
- Joints, cracks, holes and other depressions: Fill flush with surface, provide smooth finish.
- Dust, particles and residues from preparation: Remove and dispose of safely.
- Water based stoppers and fillers:
  - Apply before priming unless recommended otherwise by manufacturer.
  - If applied after priming: Patch prime.
- Oil based stoppers and fillers: Apply after priming.
- Doors, opening windows and other moving parts:
  - Ease, if necessary, before coating.
  - Prime resulting bare areas.

401* METAL SURFACES(SEE ALSO: CLAUSES M60/461*,470*,475*,511*)

- For galvanised surfaces, treat with 1 coat etching primer prior to initial coats.
- Where ferramenta is to be re-tipped, see also section L40. Brush down/scrape insitu metalwork to remove loose paint and rust. De-rust metalwork removed for repair by dry abrasive (or flame cleaning,
  off site only).
- For decorative ironwork, clean off rust and old paint by dry abrasive cleaning. (or flame cleaning off-site
  only)

403* PREVIOUSLY DECORATED/NEW JOINERY FOR PAINTING

- Brush down: Clean off all loose material and dust with stiff brush.
- Wash down previously decorated joinery: Wash down painted surfaces with Sugar soap, to remove all traces of grease, taking care not to wet more than absolutely necessary areas of bare timber. Allow for
  following the manufacturer's instructions precisely. Dilute Sugar soap as required for the work in hand.
  Start cleaning at the bottom of walls and work upwards to avoid run streaks and prolonged action of the
  cleaning solution.Thoroughly rinse off residue with a wet cloth frequently rung out in clean water. Do not
  use on aluminium surfaces.
- Remove loose paint from joinery:
  Lift or scrape off all loose paint layers.
- Rub down previously decorated joinery:
  Feather out edges of remaining layers by rubbing down with fine glass paper, taking care not to damage
  adjacent areas of bare timber.
- Rub down similarly all remaining areas of paint to provide a key.
  Remove entirely by sanding and further scraping any small or excessively proud areas of remaining paint which might otherwise stand noticeably proud even after feathering out.
  Hook out or otherwise carefully cut out any lengths of cracked panel paint remaining in junction of panel
  with mouldings and cut out any cracks to panelling, taking care not to damage adjacent timber and rub down.
- When removing old lead based paints comply with all relevant Health & Safety requirements.
- Timber repairs:
  Allow for reasonable delays to the decorations at this stage, or be prepared to work around, adjusting the
  sequence of areas being prepared while any new sections of timber not evidently necessary before the removal of paint layers and, at the direction of the architect, too large to be otherwise filled, are pieced in
  by others.
- Prime joinery for painting:
  Prime bare spots and new lengths of timber fully. (Primer to CA's approval)
  Materials used in preparation to be types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.
- Apply oil based stoppers/fillers after priming. Apply water based stoppers/fillers before priming unless recommended otherwise by manufacturer. Patch prime water based stoppers/ fillers when applied after
  priming.
  - Fill indentations in joinery for painting:
  Fill small indentations with smooth filler.
  - Fill large indentations in joinery for painting:
  Fill large indentations with flexible wood filling system.

415* SUITABILITY OF SURFACES AND CONDITIONS

- Application of coatings will be taken as joint acceptance by the Main Contractor and Subcontractor of the
  suitability of the surfaces and conditions within any given area to receive the specified coatings.

440 PREVIOUSLY COATED SURFACES GENERALLY

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

456 PREVIOUSLY COATED SURFACES - BURNING OFF

- Risk assessment and method statement: Prepare, and obtain approval before commencing work.
- Adjacent areas: Protect from excessive heat and falling. scrapings.
- Exposed resinous areas and knots: Apply to coats of knotting.
- Removed coatings: Dispose of safely.

461 PREVIOUSLY COATED WOOD

- Degraded or weathered surface wood: Take back to provide suitable substrate.
- Degraded substrate wood: Repair with sound material of same species.
- Exposed resinous areas and knots: Apply two coats of knotting.

471 PREPRIMED WOOD

- Areas of defective primer: Take back to bare timber.

481 UNCOATED WOOD

- General: Provide smooth, even finish with arrises and moulding edges lightly rounded or eased.
- Heads of fasteners: Countersink sufficient to hold stoppers/fillers.
- Resinous areas and knots: Apply two coats of knotting.

491* METAL - MANUAL CLEANING

- Untreated metalwork should be degreased thoroughly before application of primers.
  In addition to general preparation and at an appropriate stage, remove residual rust with suitable chemical treatment, applying primer or patch primer as soon as it has cured.

492* CAST IRON (INTERNAL AND EXTERNAL)

- Carefully remove all rust in the surface of castings before protective coatings are applied.

495* EXISTING METALWORK

- Thoroughly clean down all areas to be treated, removing all loose material and dirt.
  - Ensure all surfaces are dry, clean and free from dirt, oil, grease, water soluble salts and other contamination.
  - Rub back any flaking material until sound.

525* REMOVAL OF EXISTING LEAD PAINT

- Care should be taken when rubbing down lead paint surfaces, even when using a wet abrasive. A dust mask should always be worn and hands should be thoroughly washed before eating, drinking or smoking.
  Removal of lead paint should be carried out in compliance with : M60/214*, M60/610*
  The Control of Lead at Work Regulation 1980
  The Approved Code of Practice on Control; of Lead at Work
  The Factories Act 1961
  The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985

527* STRIPPING OF EXISTING PAINT

- Adequate provision should be made for ventilation of rooms in which chemical stripping is taking place.
  Dipping is not allowed. Burning off paint using blow lamps or electric element burners is strictly prohibited

536* PARTIAL REMOVAL OF PAINT FINISHES FROM EXISTING TIMBER

- Use methods which will not damage the substrate or adjacent surfaces or adversely affect subsequent coatings.
  - Manually strip and scrape existing defective paint finishes (eg: where blistering, cracking or peeling, etc).
  - Feather-out sound areas of paint at edges and lightly sand.
  - Clean, sharp mouldings will not be required.
  - Chemical stripping will only be permitted on the express authorisation of the CA where all paint
  must be removed.
  - Where removal of coatings reveals further decay of timber, obtain instructions from CA before
  proceeding.

540* POINTING TO EXISTING FRAMES

- Remove defective sealant pointing where specified.
  - Thoroughly clean the joint recess, remove all dust and seal joint surfaces as recommended by sealant manufacturer.
  - Check that depth of joint is approximately half its width, and adjust using recommended backing
  strip if necessary.
  - Repoint neatly using mastic gun during dry conditions when the ambient temperature is above 5 deg C.
  - Sealant manufacturer and reference:
  1. Low modulus Polysulphide Mastic: (eg: Arbokol 2000, Adshead Ratcliffe & Co Ltd, Belper, Derby, DE5 1WJ))
  2. Joint preparation: (eg: 'Arbo Cleaner No 13' by Adshead Ratcliffe & Co Ltd)
  3. Primer: (eg: 'Arbo Primer 925' by Adshead Ratcliffe & Co Ltd)

605* METHOD OF APPLICATION

- Operative must be appropriately skilled and experienced in the use of specific materials and methods of application.
- Do not use materials which show any bittiness when applied. Do not thin or intermix unless specified or recommended otherwise. If materials are found to have been thinned without authorisation, the CA may require the application of additional coats.
- Apply priming coats as soon as possible on the same day as preparation is completed. Ensure that they are of adequate thickness and suit the surface porosity.
- Adjacent coats of the same material must be of a different tint to ensure that each coat provides complete coverage.
- Apply coatings by brush unless otherwise specified or approved. Keep all brushes, tools and equipment in a clean condition.
- Apply coatings to clean, dust free, suitably dry surfaces in dry atmospheric conditions, and after any previous coats have hardened. Lightly abrade between coats as necessary.
- Apply coats evenly to give a smooth finish of uniform colour, free from brush marks, nibs, sags, runs and other defects. Cut in neatly and cleanly. Do not splash or mark adjacent surfaces.
- Keep all surfaces clean and free from dust during coating and drying. Adequately protect completed work from damage

607* UNSUITABLE CONDITIONS

- Unless it is specifically permitted by the coating manufacturer, do not apply coatings:
  - To surfaces affected by moisture
  - When ambient temperature is below 5 degrees C or the relative humidity is more than 80%
  - When heat is likely to cause blistering or wrinkling
- Take all necessary precautions including restrictions on working hours, providing temporary protection and allowing extra drying time, to ensure that coatings are not adversely affected by climatic conditions before, during and after application.

615* PROTECTION OF SURROUNDING SURFACES

- At each stage of painting provide protection to existing floors and newly coated surfaces to prevent contamination from dust, dirt, other deleterious matters, and paint.
- Protection will comprise, at least, on vertical surfaces of polythene sheet held by low tack masking tape and on horizontal surfaces, clean or new absorbent 'dust sheets'.
- Old or dirty dust sheets will not be permitted and the decorator will be instructed to remove them from the site.
- Where polythene protection is used on floors it must be covered with sheets of hardboard to ensure a safe non-slip working area. Loose dust sheets on polythene will not be accepted as an appropriate floor covering.

622 ORGANIC GROWTHS

- Dead and loose growths and infected coatings: Scrape off and remove from site
- Treatment biocide: Apply appropriate solution to growth areas and surrounding surfaces.
- Residual effect biocide: Apply appropriate solution to inhibit re-establishment of growths.

651 EXISTING GUTTERS

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

APPLICATION

711 COATING GENERALLY

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

730 WORKSHOP COATING OF CONCEALED JOINERY SURFACES

- General: Apply coatings to all surfaces of components.

740 CONCEALED METAL SURFACES

- General: Apply additional coatings to surfaces that will be concealed when component is fixed in place.
  - Components: Underside of fence rails.
  - Additional coatings: Black paint to BS 1070.

750* COMPLETION GENERALLY

- Ensure that opening lights and other moving parts move freely. Remove all masking tape and temporary
  coverings.

820* EXISTING CAST IRON GUTTERS

- Clean all dirt and debris from inside of gutters before preparing and painting. Clean out defective joints
  and seal with approved jointing material. Paint with 2 no. coats bituminous paint to internal surfaces of
  gutters and hopper heads.

830* NEW GUTTERS

- New gutters to be painted before delivery to site. Touch-up after installation.

R
Disposal systems

R10
Rainwater drainage systems
Revision 2

Section Revision History

No.	Purpose	
0	ISSUED FOR TENDER	21st Feb 2014
1	ISSUED FOR TENDER	21st Sep 2014
2	ISSUED FOR TENDER	29th Mar 2015

Clauses amended in Revision 2

No.	Clause	
315	CAST IRON GUTTERS	Revised
380	CAST IRON PIPEWORK - SPIGOT AND SOCKET	Revised

R10 Rainwater drainage systems

To be read with Preliminaries/ General conditions.

GENERAL

110 GRAVITY RAINWATER DRAINAGE SYSTEM

- Rainwater outlets: Proprietary - submit details for approval to Architect and comply with Services Engineer's design.
- Gutters: Cast iron.
- Pipework: Cast iron, spigot and socket, sealed.
- Below ground drainage: Refer to Services Engineer's design.
- Disposal: To existing drainage.
- Controls: Not applicable.
- Accessories: Not applicable.

SYSTEM PERFORMANCE

221 COLLECTION AND DISTRIBUTION OF RAINWATER

- General: Complete, and without leakage or noise nuisance.

PRODUCTS

315 CAST IRON GUTTERS

- Standard: To BS 460.
- Manufacturer: Contractor's choice, to match existing. Submit proposals for CA approval.
  - Product reference: Product to include the following:
    Authentic sand castings.
    Range of standard sizes available along with a made to order range for any bespoke items.
    Factory finished in satin black, wrapped for protection during transportation and site handling.
    Hydrostrip jointing system for half round gutters as example at 316 would be preferred to method stated in this clause.
    Life expectancy in excess of 40 years.
- Profile: Half round to match existing generally. Square section to elevations 28-38.
- Jointing type: Spigot and socket. Follow manufacturer's instructions. However allow for sections of gutter are bolted together with a galvanised gutter bolt and nut M6 x 20 or 25mm depending on gutter profile.
  Gutter joints are made watertight with a suitable high quality low modulus sealant (recommended Dow Corning 791).
  Outlets and rainwater heads should be positioned first, followed by the interlinking gutter section.
  The gutter centreline should be set slightly further out than the drip edge of the roof tile.
  Gutters should be supported at 900mm approximate centres on brackets Additional brackets or fixings should be provided at angles and outlets to prevent the risk of sagging..
- Nominal size: To match existing. Refer to clause 380.
- Finish as supplied: Prepainted semigloss black.
- Brackets: To match existing.
  - Fixings: Stainless steel screws.
    Size: 40 x 5 mm.
- Accessories: Not applicable.
  (Revised - R10 revision 2 - 29th Mar 2015)

365* PROPRIETARY RAINWATER OUTLETS TO FR1, FR3

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Roof construction: Reinforced bitumen on oncrete deck.
  - Roof insulation thickness: To be confirmed.
- Type of grate/ Fittings: Domed grating.
- Outlet: Type and direction to suit pipework with suitable adaptors and connections.
- Accessories: N/A.

380 CAST IRON PIPEWORK - SPIGOT AND SOCKET

- Standard: To BS 460, except for shape and dimensions .
- Manufacturer: J&JW Longbottom Ltd www.longbottomfoundry.co.uk .
  - Product reference: Product to include the following:
    Authentic sand castings
    Range of standard sizes available along with a made to order range for any bespoke items
    Factory finished in satin black, wrapped for protection during transportation and site handling Life expectancy in excess of 40 years .
- Type: Elevations 01, 02, 56 and hidden elevations to roofs: Nominal 100mm dia cast iron socketed round pipework with ears integral with the pipe.
  Elevations 03, 10-15 and 56 (polygonal laboratory only): Nominal 100mm dia cast iron socketed round pipework with decorative earbands ref: 330.
  Elevations 04, 05 (End bays only), 09, 16-18, 28-38 and internal lightwells: Nominal 3 x 5" cast iron socketed rectangular pipework with decorative earbands ref: 330.
  Elevations 05 (Central bays only) and 07: Nominal 3 x 5" cast iron socketed rectangular pipework with ears integral with the pipe. Elevations 19-27: Nominal 100mm dia cast iron socketed round pipework with decorative 'scroll' earbands sourced to match existing pattern .
- Nominal size: As above .
- Finish as supplied: Prepainted semigloss black .
  - Fixings: Stainless steel screws .
    Size: 40 x 5 mm .
- Accessories: Downpipe spacers, swan necks and offset shoes and access fittings as necessary .
  (Revised - R10 revision 2 - 29th Mar 2015)

470* RAINWATER HOPPER

- New cast iron hoppers to be fabricated to match existing patterns

EXECUTION

600 PREPARATION

- Work to be completed before commencing work specified in this section:
  - Below ground drainage. Alternatively, make temporary arrangements for dispersal of rainwater without damage or disfigurement of the building fabric and surroundings.
  - Painting of surfaces which will be concealed or inaccessible.

602 DISMANTLE, DESCALE, REPAINT AND REINSTATE RAINWATER PIPE

- Carefully dismantle existing rainwater pipes, taking care not to cause damage texisting pipes, brackets or adjacent masonry. Remove pipes by unscrewing brackets, do not pull pipes from the wall.
- Inspect all pipes and joints for cracks or excessive corrosion and report any damage the CA.
- Clean all dirt and debris from inside and outside the pipes and brackets, and brush down any flaking and corroded areas with a wire brush.
- Clean the brushed metal with turpentine.
- Treat the cleaned area with Phosphoric Acis: Muriatic Acid: Butoxyethanol - 2.5:2.5:1
- Redecorate as M60.
- Erect existing pipe sections using existing brackets supplemented with new.
- Reseal joints with cold caulking and touch up any areas of damaged paintwork.

605 INSTALLATION GENERALLY

- Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.
- Plastics and galvanized steel pipes: Do not bend.
- Allowance for thermal and building movement: Provide and maintain clearance as fixing and jointing proceeds.
- Protection:
  - Fit purpose made temporary caps to prevent ingress of debris.
  - Fit access covers, cleaning eyes and blanking plates as the work proceeds.

610 FIXING AND JOINTING GUTTERS

- Joints: Watertight.
- Brackets: Securely fixed.
  - Fixings: See 315.
    Fixing centres: 900 mm.
  - Additional brackets: Where necessary to maintain support and stability, provide at joints in gutters and near angles and outlets.
- Roofing underlay: Dressed into gutter.

615 SETTING OUT EAVES GUTTERS - TO FALLS

- Setting out: To true line and even gradient to prevent ponding or backfall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof.
- Outlets: Align with connections to below ground drainage.

630 INSTALLING RAINWATER OUTLETS

- Fixing: Secure. Fix before connecting pipework.
  - Method: Grout into preformed holes.
- Junctions between outlets and pipework: Accommodate movement in structure and pipework.

635 FIXING PIPEWORK

- Pipework: Fix securely, plumb and/ or true to line.
- Branches and low gradient sections: Fix with uniform and adequate falls to drain efficiently.
- Externally socketed pipes and fittings: Fix with sockets facing upstream.
- Additional supports: Provide as necessary to support junctions and changes in direction.
- Vertical pipes:
  - Provide a loadbearing support at least at every storey level.
  - Tighten fixings as work proceeds so that every storey is self supporting.
  - Wedge joints in unsealed metal pipes to prevent rattling.
- Wall and floor penetrations: Isolate pipework from structure.
  - Pipe sleeves: As section P31.
  - Masking plates: Fix at penetrations if visible in the finished work.
- Expansion joint pipe sockets: Fix rigidly to buildings. Elsewhere, provide brackets and fixings that allow pipes to slide.

640 FIXING VERTICAL PIPEWORK

- Bracket fixings: Bolted into masonry.
- Distance between bracket fixing centres (maximum): As existing.

645 FIXING LOW GRADIENT PIPEWORK

- Bracket fixings: Bolted into masonry.
- Distance between bracket fixing centres (maximum): As existing.

650 JOINTING PIPEWORK AND GUTTERS

- General: Joint with materials and fittings that will make effective and durable connections.
- Jointing differing pipework and gutter systems: Use adaptors intended for the purpose.
- Cut ends of pipes and gutters: Clean and square. Remove burrs and swarf. Chamfer pipe ends before inserting into ring seal sockets.
- Jointing or mating surfaces: Clean and, where necessary, lubricate immediately before assembly.
- Junctions: Form with fittings intended for the purpose.
- Jointing material: Strike off flush. Do not allow it to project into bore of pipes and fittings.
- Surplus flux, solvent jointing materials and cement: Remove.

675 CUTTING COATED PIPEWORK AND GUTTERS

- Cutting: Recoat bare metal.

690 ELECTRICAL CONTINUITY - PIPEWORK

- Joints in metal pipes with flexible couplings: Clips (or suitable standard pipe couplings) supplied for earth bonding by pipework manufacturer to ensure electrical continuity.

695 ELECTRICAL CONTINUITY - GUTTERS

- Joints in metal gutters: Purpose made links supplied by the gutter manufacturer to ensure electrical continuity.

700 ACCESS FOR TESTING AND MAINTENANCE

- General: Install pipework and gutters with adequate clearance to permit testing, cleaning and maintenance, including painting where necessary.
- Access fittings and rodding eyes: Position so that they are not obstructed.

COMPLETION

900 TESTING GENERALLY

- Dates for testing: Give notice.
  - Period of notice (minimum): 2 days.
- Preparation:
  - Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.
- Testing:
  - Supply clean water, assistance and apparatus.
  - Do not use smoke to trace leaks.
- Records: Submit a record of tests.

910 GUTTER TEST

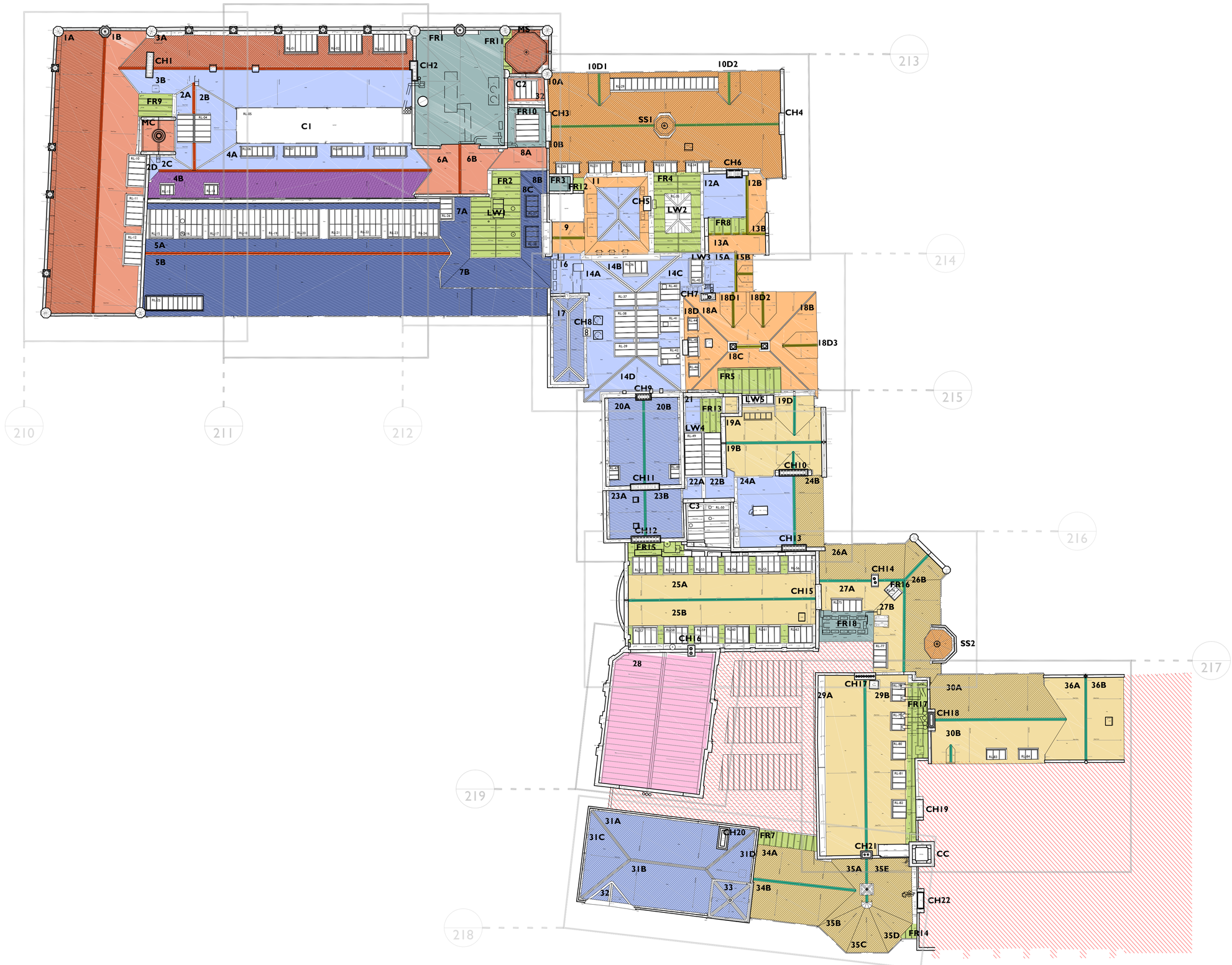
- Preparation: Temporarily block all outlets.
- Testing: Fill gutters to overflow level and after 5 minutes closely inspect for leakage.

915 MAINTENANCE INSTRUCTIONS

- General: At completion, submit printed instructions recommending procedures for maintenance of the rainwater installation, including full details of recommended inspection, cleaning and repair procedures.

920 IMMEDIATELY BEFORE HANDOVER

- Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
- Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.



1 201 **Roof Types as Proposed**
1:200 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Roof Covering Key
Roof coverings removed and stored as per Schedule of Works. Care to be taken to keep and re-use as many slate and tile roof coverings as possible (min 55%) to pitches identified on this drawing. Salvaged and new are not to be mixed on the same slopes.

- Salvaged Westmoorland Olive Green Slates with clay ridge tiles NBS H62/105A (54% salvaged)
- Salvaged Westmoorland Olive Green Slates with clay ridge tiles NBS H62/105A (Use Welsh slates if less than 67% salvaged)
- New Welsh blue-grey slates with lead hip rolls and clay ridge tiles (RD1) with interfaces with clay roof pitches NBS H62/105B
- Salvaged Welsh blue-grey slates with lead hip rolls and clay ridge tiles with interfaces with clay roof pitches NBS H62/105C
- New Plain clay tiles with plain crested ridge tiles (RD1) NBS H60/105A
- New Plain clay tiles with plain crested ridge tiles (RD1) NBS H60/105A
- New Plain clay tiles with alternating plain and two-hole crested ridge tiles (RD2) NBS H60/105B or two-hole crated ridge tile (RD3) NBS H60/105C
- Salvaged Plain clay tiles with alternating plain and two-hole crested ridge tiles (RD2) NBS H60/105B or two-hole crated ridge tile (RD3) NBS H60/105C
- New triple rows of plain clay tiles with double rows of spade tiles generally with slotted roll ridge tiles with two-hole and fish tail inserts (RD4) NBS H60/105D
- Salvaged triple rows of plain clay tiles with double rows of spade tiles generally with slotted roll ridge tiles with two-hole and fish tail inserts (RD4) NBS H60/105D
- Flat roof Bauder total roof system NBS J41/100*
- Lead roof covering NBS H71/110
- New Zinc roof NBS H74/110*
- Area outside of scope

Ridge Tile Key
Ridge tiles to be carefully removed, cleaned from mortar and stored in groups identifying their location. Approx. 70% salvaged roof tiles to be re-used with remaining tiles to be new to match colour and dimensions NBS H60/740

- Ridge Tile 1 (RD1) - Plain crested ridge tile with moulded profiles
- Ridge Tile 2 (RD2) - Alternating plain and two-hole crested ridge tiles
- Ridge Tile 3 (RD3) - Two-hole crested ridge tile
- Ridge Tile 3 Special (RD3S) - Two-hole crested ridge tile - with uneven lap
- Ridge Tile 4 (RD4) - Slotted roll ridge tile with two-hole and fishtail inserts

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
A	26/04/2016	SA		RBW & SS2 amended. new lead gutters added
First Issue	19/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types As Proposed
SIZE & SCALE	A1L 1:200 @ A1
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	201
REVISION	A

PURCELL

Carver's Warehouse, 77 Dale Street, Manchester M1 2HG , T:44(0)161 3007747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



Notes:

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

FR9 - For details of roll spacing see drawing 304

Lead Gutters

Lead Sump Positions

21 Elevation Reference

Key Plan
1:1000

1 / 210 Roof Repairs Location
1:50 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT
Wilson Mason LLP

PROJECT
The University of Manchester - Coupland 3

DRAWING TITLE
Roof Plan 1
Repair Locations as Proposed

SIZE & SCALE
A1P 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

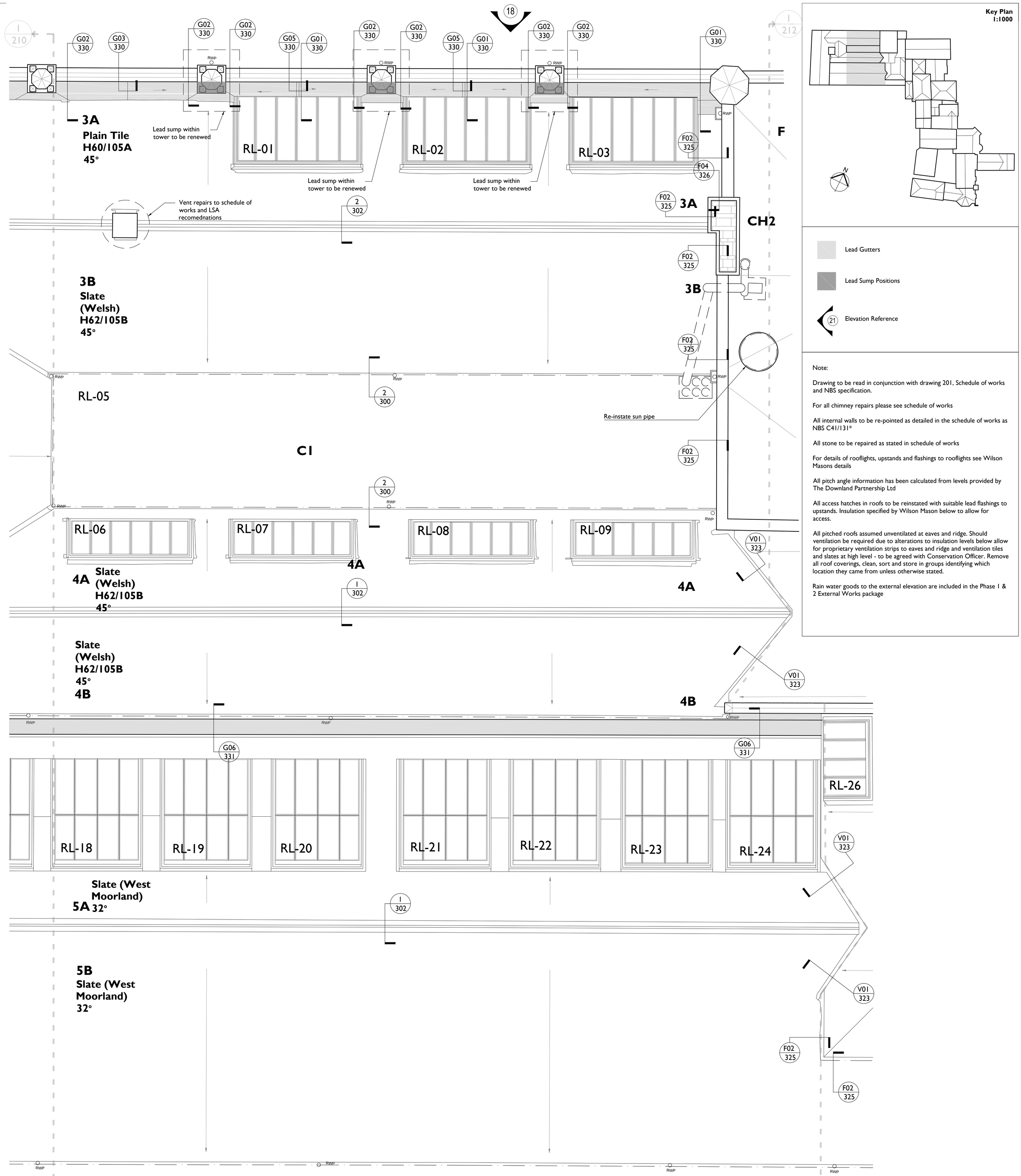
JOB NUMBER 234500

DRAWING NO. 210

REVISION -

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



Key Plan
1:1000

Lead Gutters

Lead Sump Positions

21 Elevation Reference

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

1 / 211 Roof Repairs Location
1:50 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT
Wilson Mason LLP

PROJECT
The University of Manchester - Coupland 3

DRAWING TITLE
Roof Plan 2
Repair Locations as Proposed

SIZE & SCALE
A1P 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

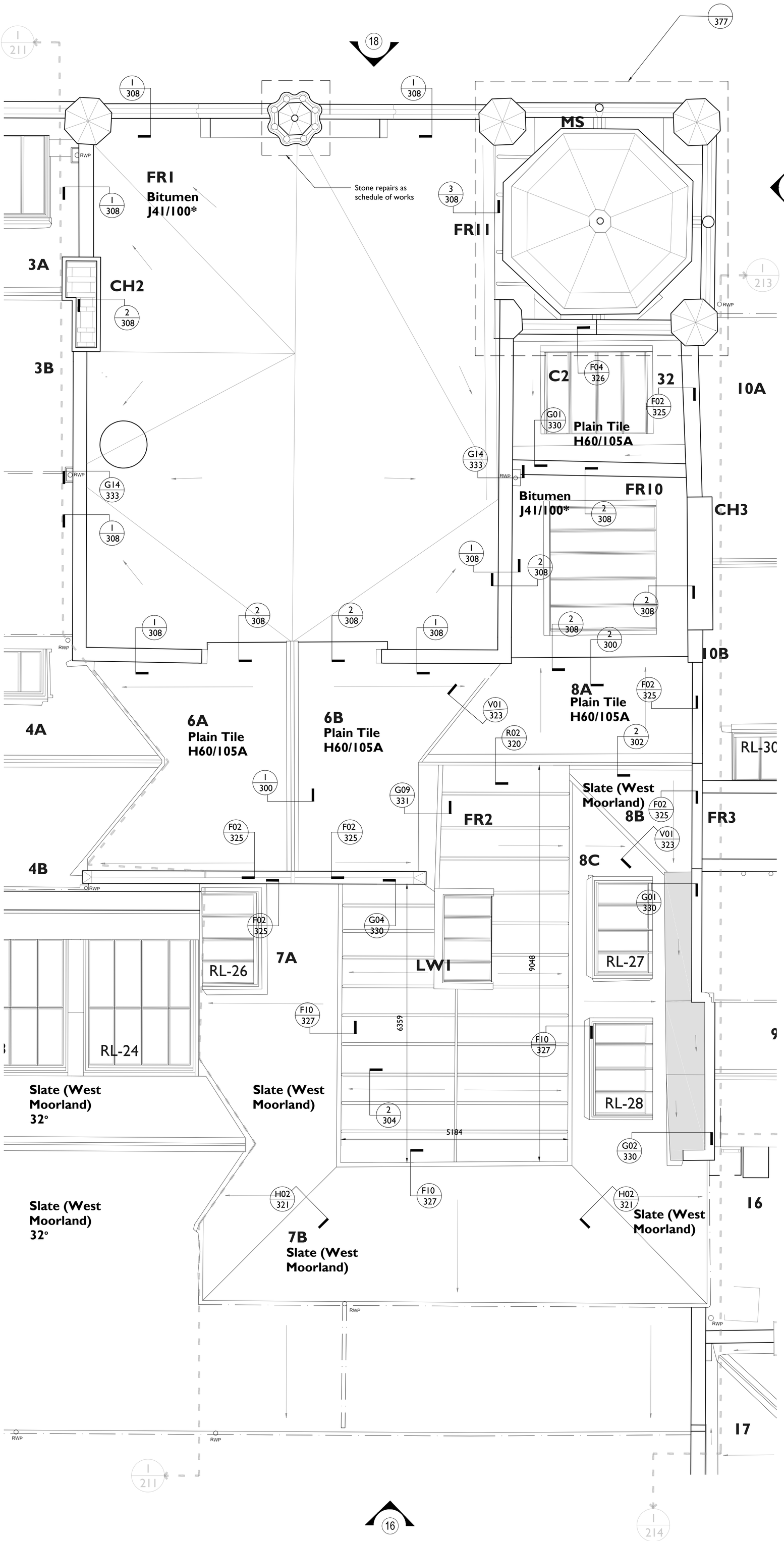
JOB NUMBER 234500

DRAWING NO. 211

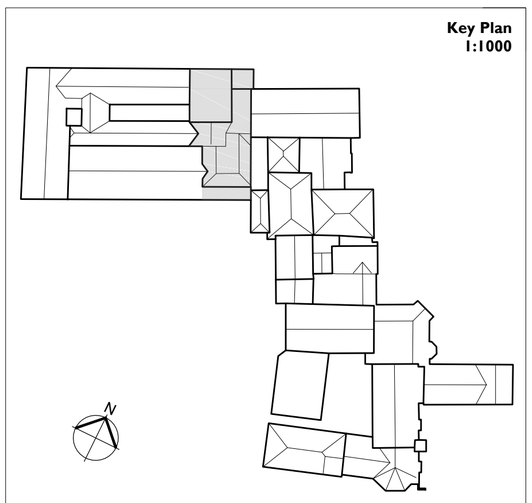
REVISION -

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, Emanchester@purcelluk.com
© PURCELL 2012. PURCELL® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



1/212 Roof Repairs Location
1:50 @ A1



Lead Gutters

Lead Sump Positions

21 Elevation Reference

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

FR2 - For details of roll spacing see drawing 304

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT
Wilson Mason LLP

PROJECT
The University of Manchester - Coupland 3

DRAWING TITLE
Roof Plan
Repair Locations as Proposed

SIZE & SCALE
A1P 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

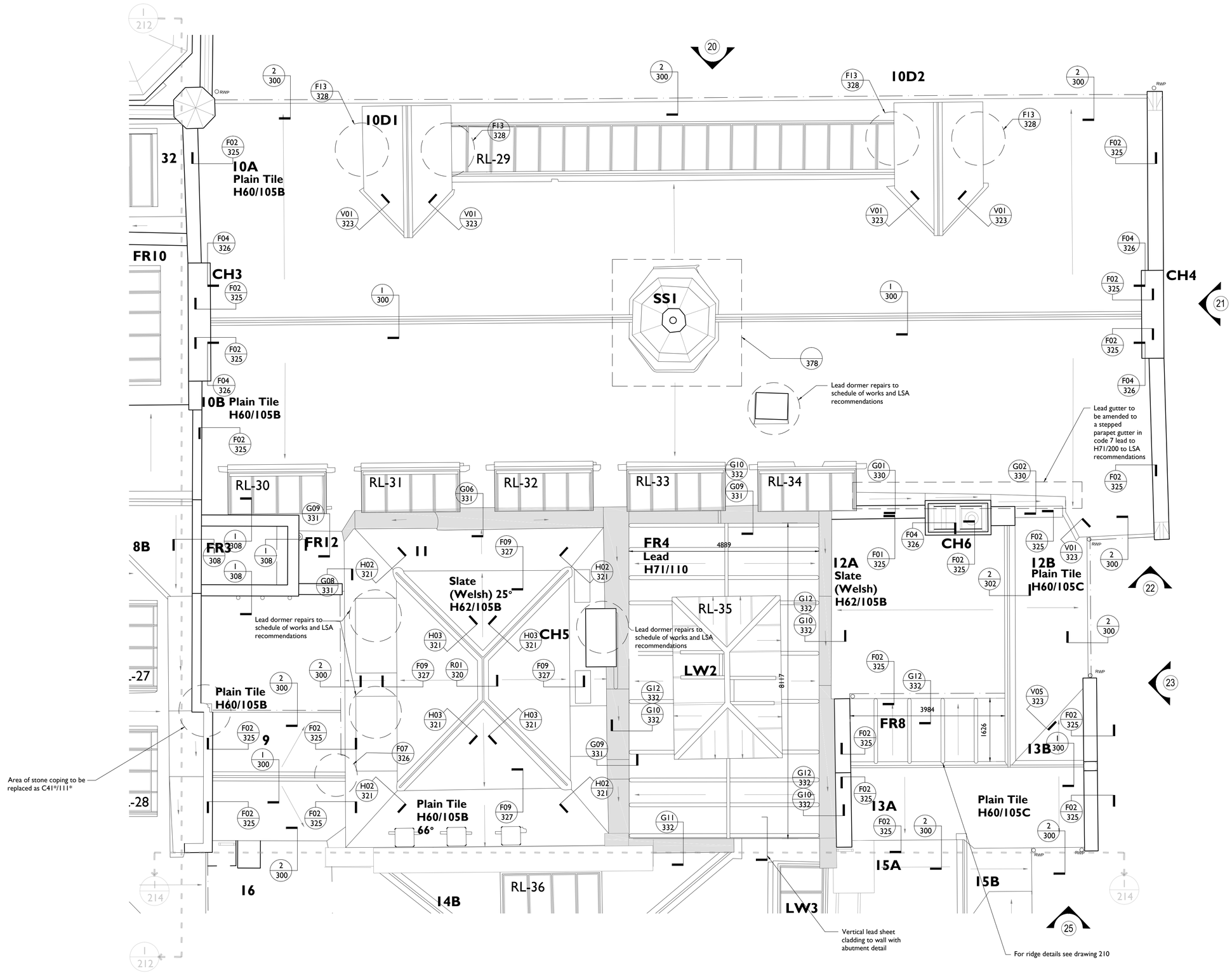
JOB NUMBER 234500

DRAWING NO. 212

REVISION -

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



Key Plan
1:1000



Lead Gutters

Lead Sump Positions

Elevation Reference

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

FR4 & 12 - For details of roll spacing see drawing 304

1/213 Roof Repairs Location
1:50 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

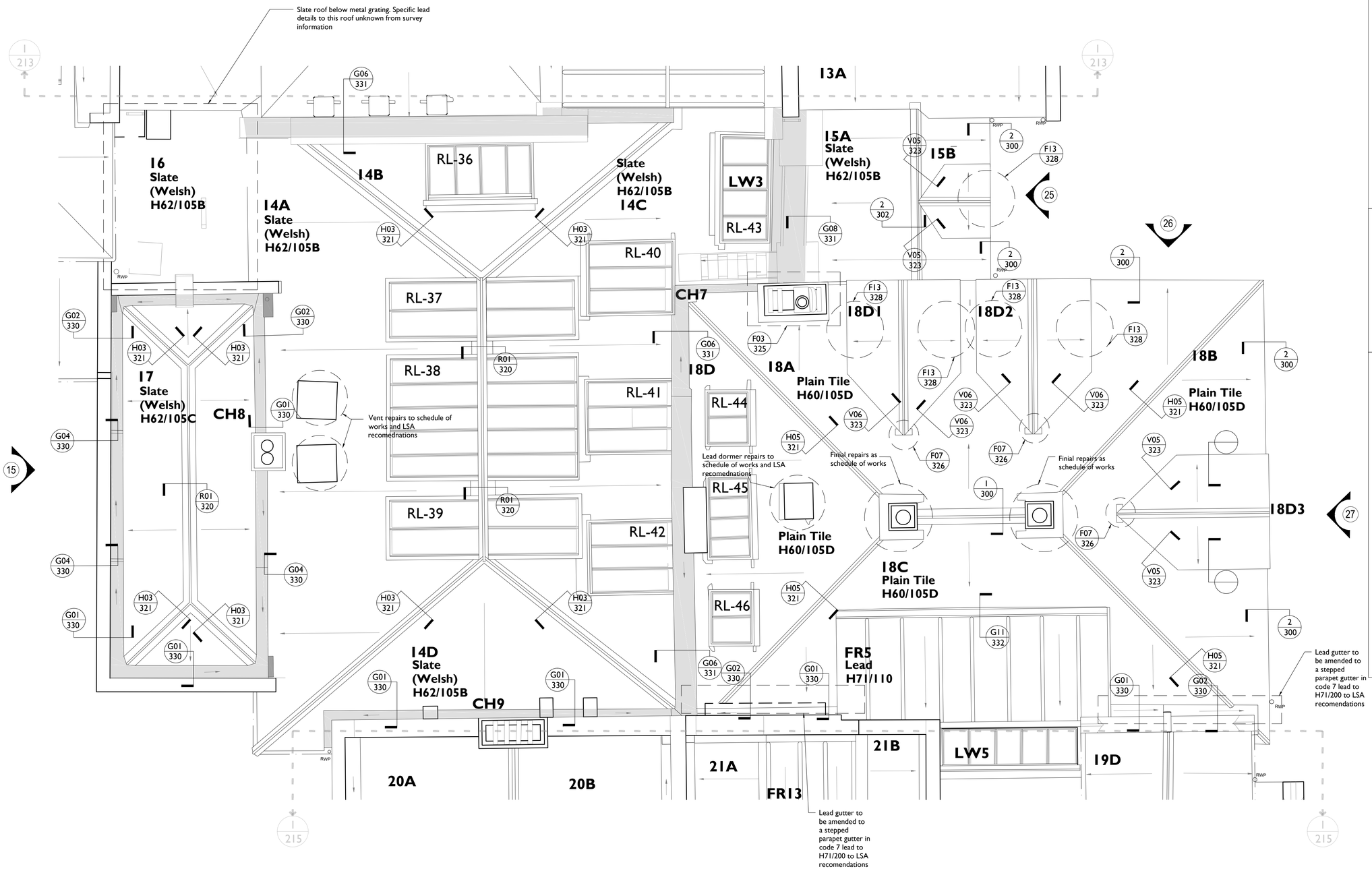
Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

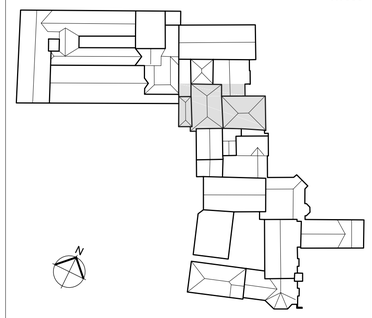
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Plan Repair Locations as Proposed
SIZE & SCALE	A1L 1:50 @ A1
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	213
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



Key Plan
1:1000



Lead Gutters

Lead Sump Positions

21 Elevation Reference

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

FR5 - For details of roll spacing see drawing 304

1/214 Roof Repairs Location
1:50 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT Wilson Mason LLP

PROJECT The University of Manchester - Coupland 3

DRAWING TITLE Roof Plan
Repair Locations as Proposed

SIZE & SCALE A1L 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

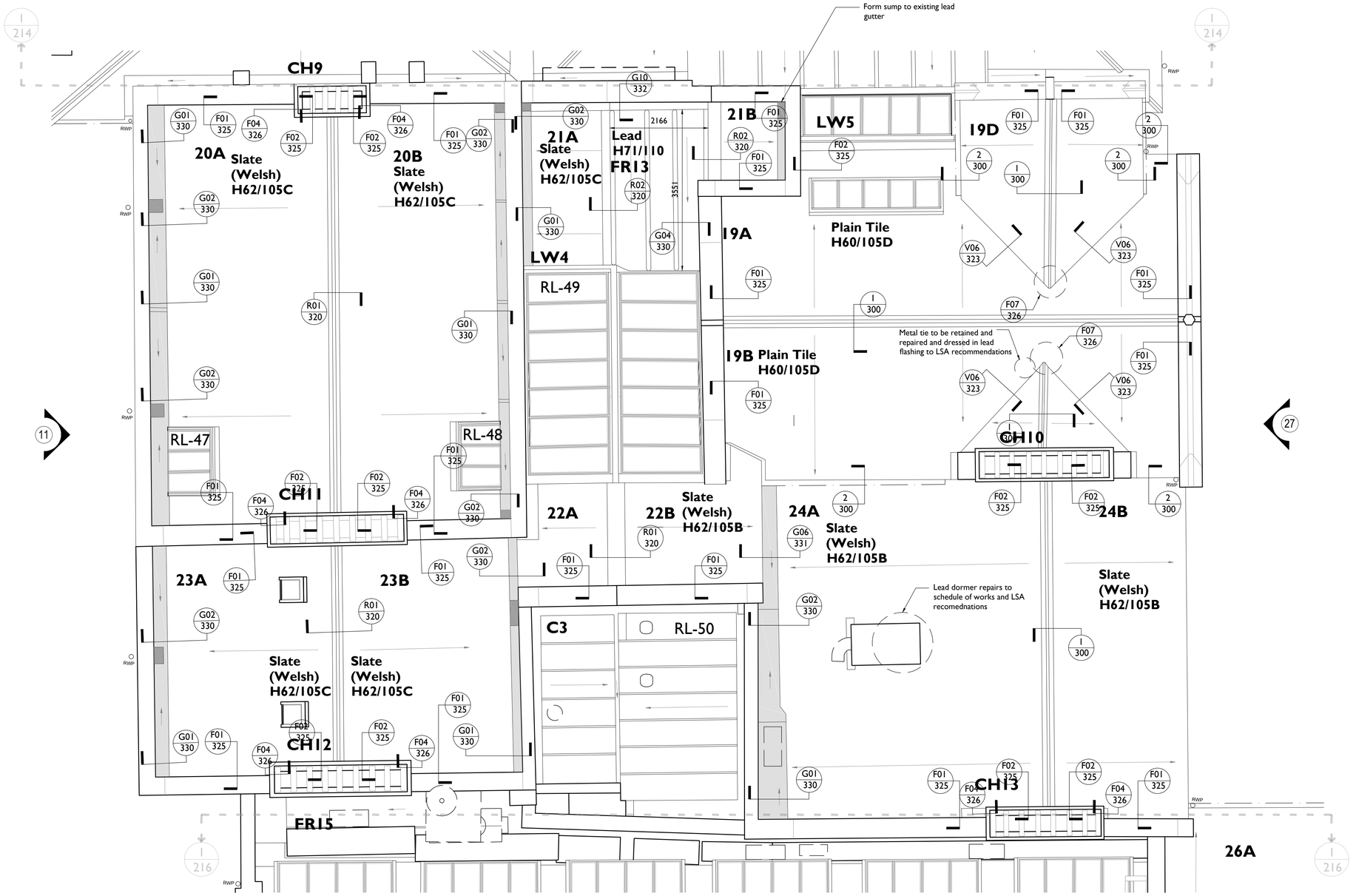
JOB NUMBER 234500

DRAWING NO. 214

REVISION -

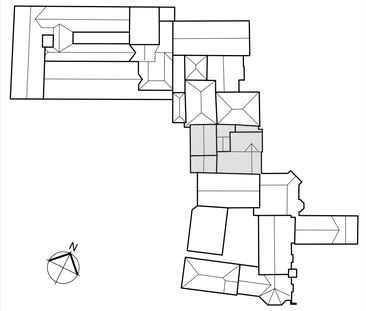
PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T.0161 300 7747, E.manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



1/215 Roof Repairs Location
1:50 @ A1

Key Plan
1:1000



Lead Gutters

Lead Sump Positions

21 Elevation Reference

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

FR13 - For details of roll spacing see drawing 304

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT Wilson Mason LLP

PROJECT The University of Manchester - Coupland 3

DRAWING TITLE Roof Plan
Repairs Locations as Proposed

SIZE & SCALE A1L 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

JOB NUMBER 234500

DRAWING NO. 215

REVISION -

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131®

All stone work to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

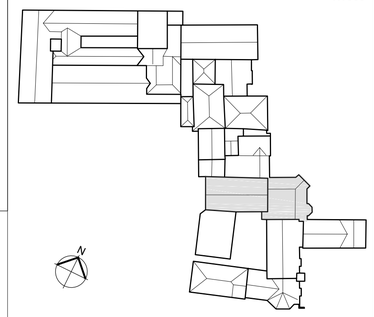
FR15 & 16 - For details of roll spacing see drawing 304

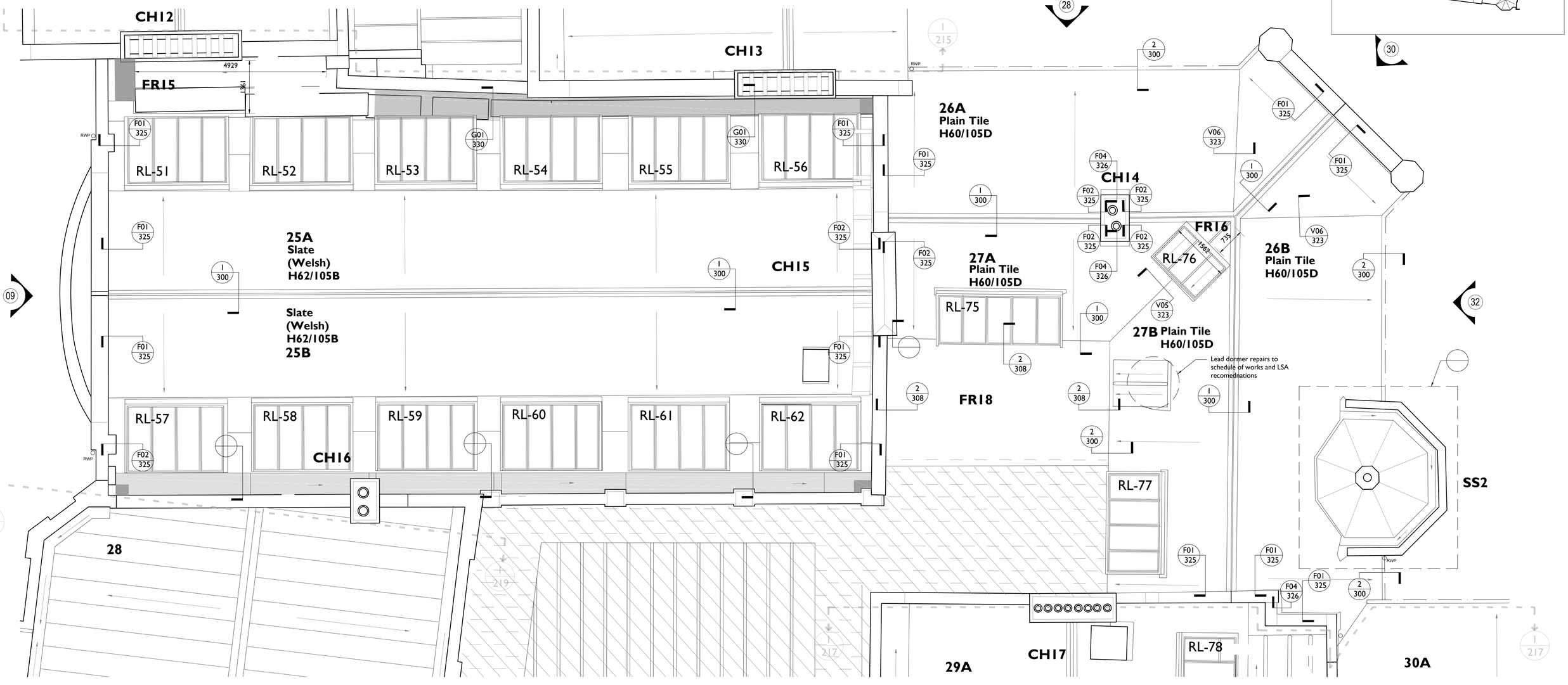
Lead Gutters

Lead Sump Positions

21 Elevation Reference

Key Plan
1:1000





1/216 Roof Repairs Location
1:50 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

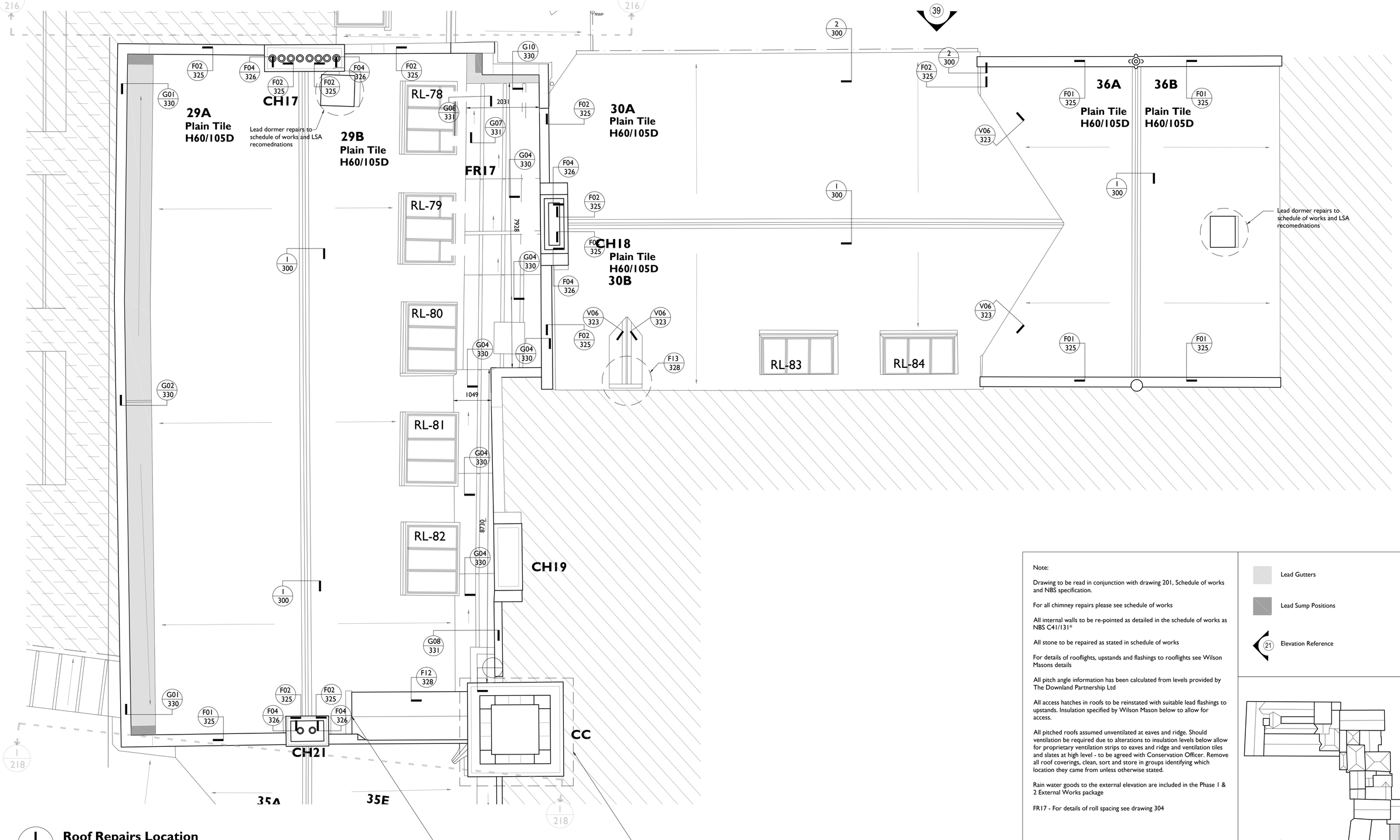
Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Plan Repair Locations as Proposed
SIZE & SCALE	A1L 1:50 @ A1
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	216
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG. T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



1/217 Roof Repairs Location
1:50 @ A1

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131*

All stone to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

FR17 - For details of roll spacing see drawing 304

Lead Gutters

Lead Sump Positions

21 Elevation Reference

Key Plan
1:1000

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT Wilson Mason LLP

PROJECT The University of Manchester - Coupland 3

DRAWING TITLE Roof Plan
Repair Locations as Proposed

SIZE & SCALE A1L 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

JOB NUMBER 234500

DRAWING NO. 217

REVISION -

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG. T:0161 300 7747. E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP

Note:

Drawing to be read in conjunction with drawing 201, Schedule of works and NBS specification.

For all chimney repairs please see schedule of works

All internal walls to be re-pointed as detailed in the schedule of works as NBS C41/131®

All stonework to be repaired as stated in schedule of works

For details of rooflights, upstands and flashings to rooflights see Wilson Masons details

All pitch angle information has been calculated from levels provided by The Downland Partnership Ltd

All access hatches in roofs to be reinstated with suitable lead flashings to upstands. Insulation specified by Wilson Mason below to allow for access.

All pitched roofs assumed unventilated at eaves and ridge. Should ventilation be required due to alterations to insulation levels below allow for proprietary ventilation strips to eaves and ridge and ventilation tiles and slates at high level - to be agreed with Conservation Officer. Remove all roof coverings, clean, sort and store in groups identifying which location they came from unless otherwise stated.

Rain water goods to the external elevation are included in the Phase 1 & 2 External Works package

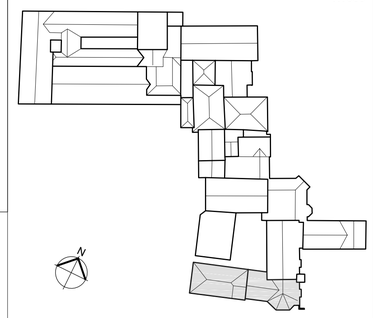
FR7 & 14 - For details of roll spacing see drawing 304

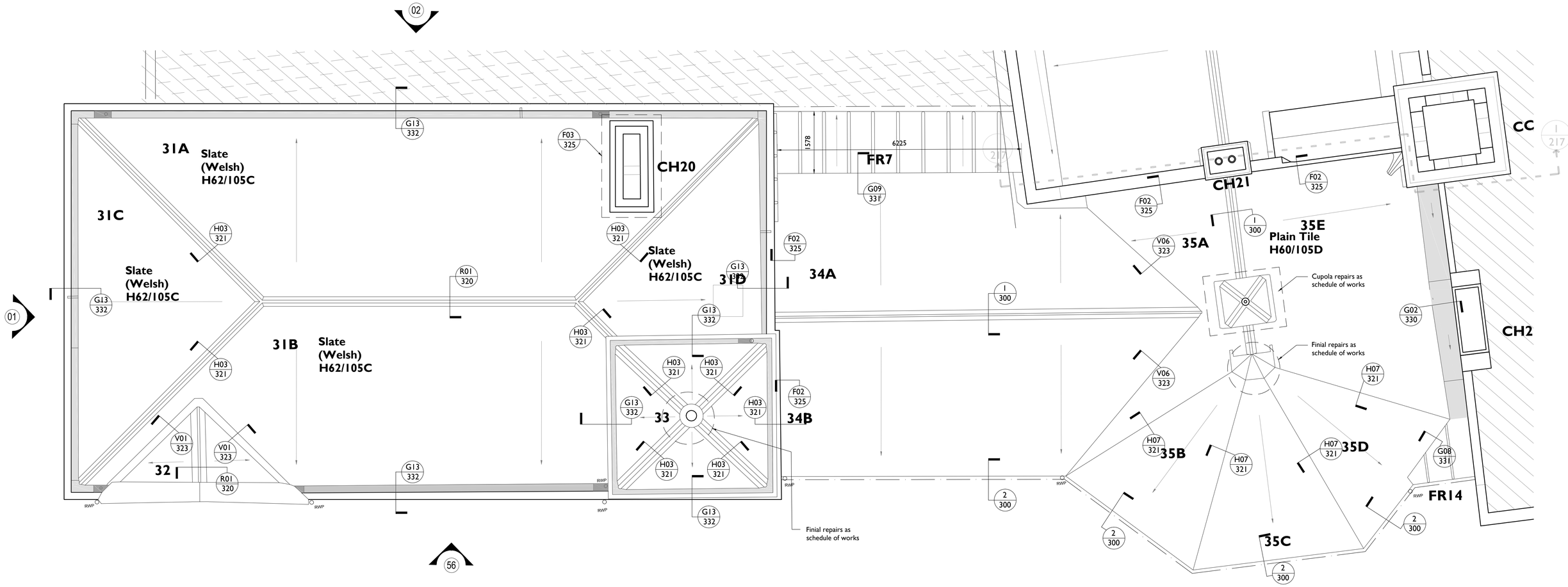
Lead Gutters

Lead Sump Positions

21 Elevation Reference

Key Plan
1:1000





1 / 208 Roof Repairs Location
1:50 @ A1

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT Wilson Mason LLP

PROJECT The University of Manchester - Coupland 3

DRAWING TITLE Roof Plan
Repair Locations as Proposed

SIZE & SCALE A1L 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

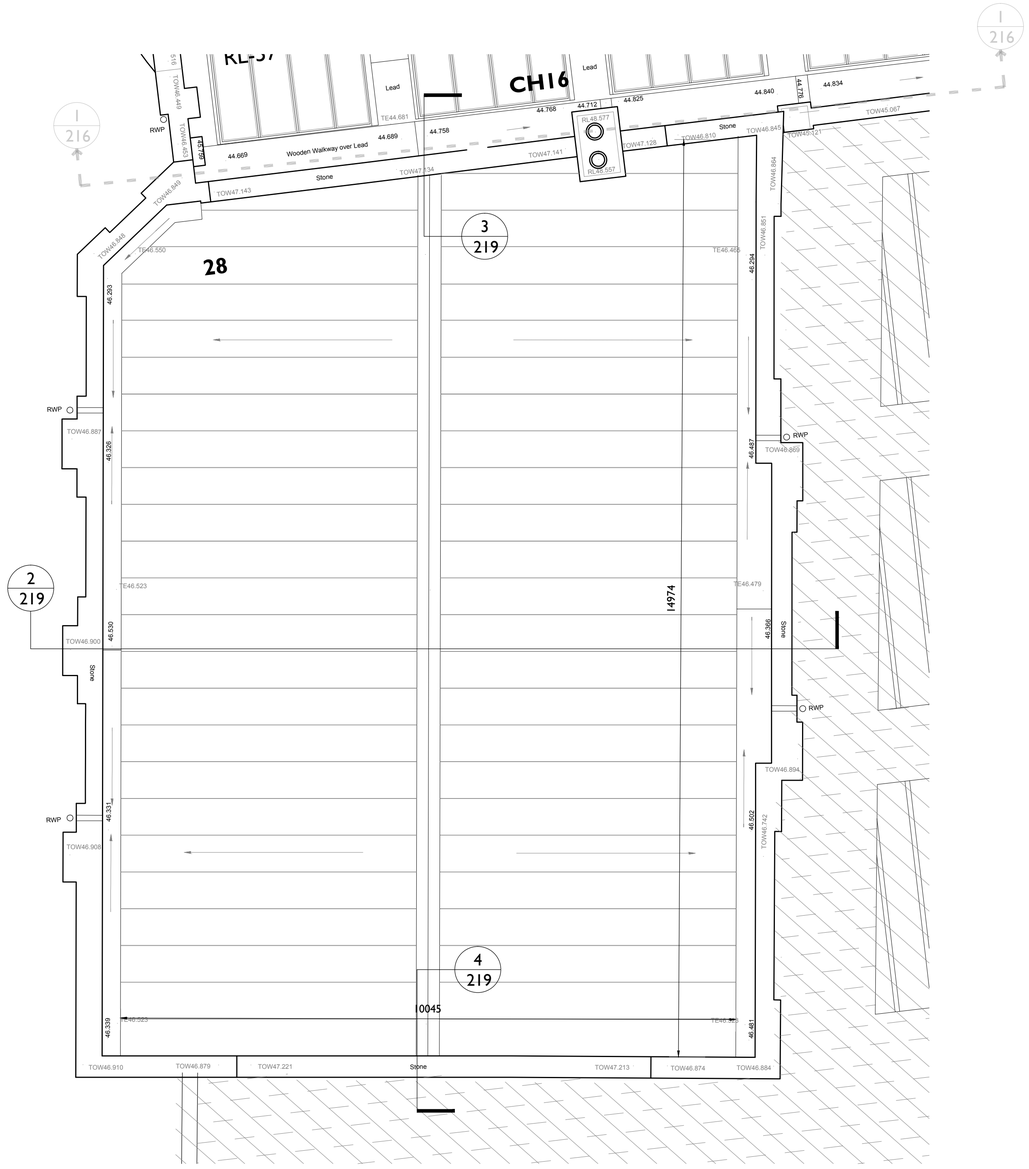
JOB NUMBER 234500

DRAWING NO. 218

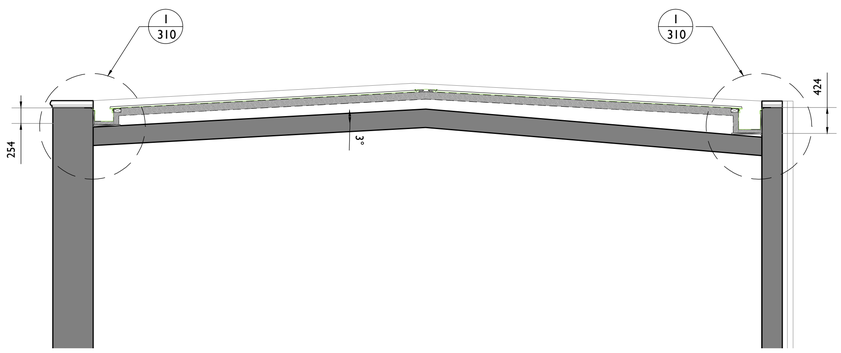
REVISION -

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T.0161 300 7747, E.manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP

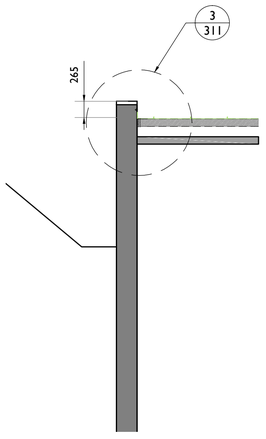


1 / 219 New Zinc Roof Plan
1:50 @ A1

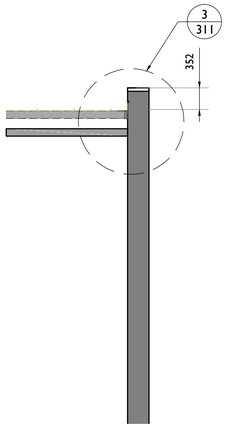


2 / 219 Ridge Section
1:50 @ A1

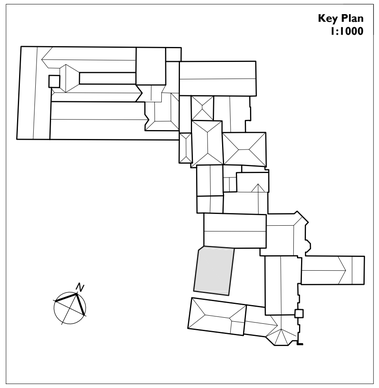
Sections drawn to survey info



3 / 219 Verge Section 1
1:50 @ A1



4 / 219 Verge Section 2
1:50 @ A1



Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT Wilson Mason LLP

PROJECT The University of Manchester - Coupland 3

DRAWING TITLE Roof Plan
New Zinc Roof

SIZE & SCALE A1L 1:50 @ A1

DRAWING STATUS ISSUED FOR TENDER

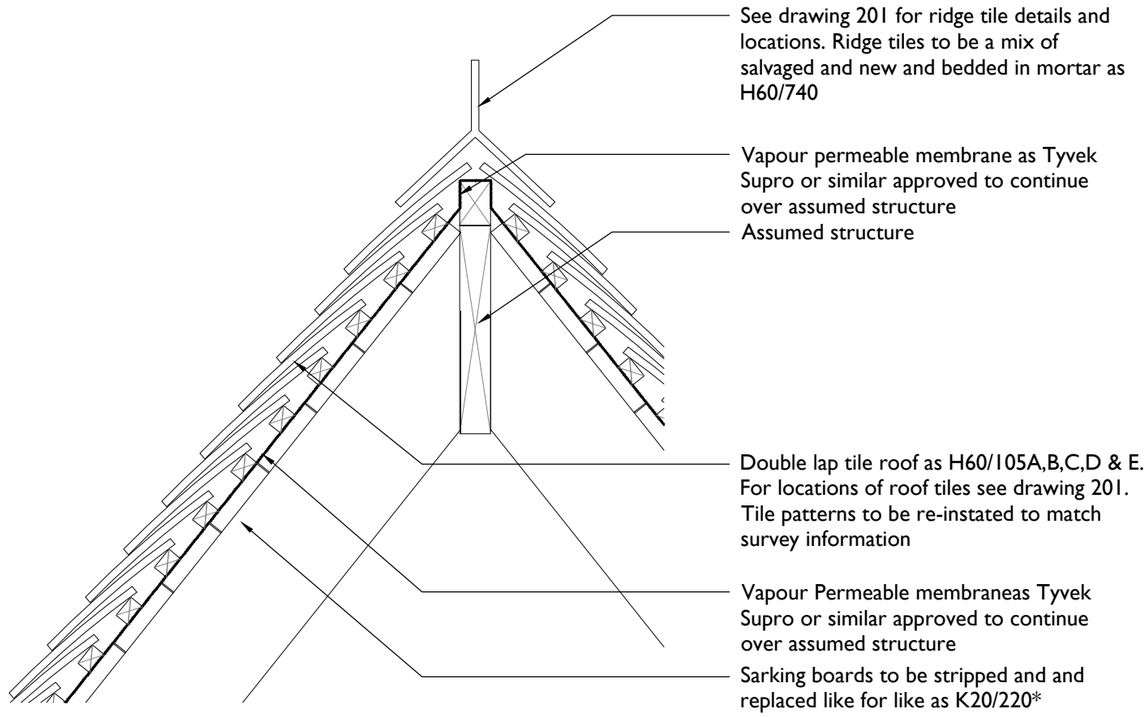
JOB NUMBER 234500

DRAWING NO. 219

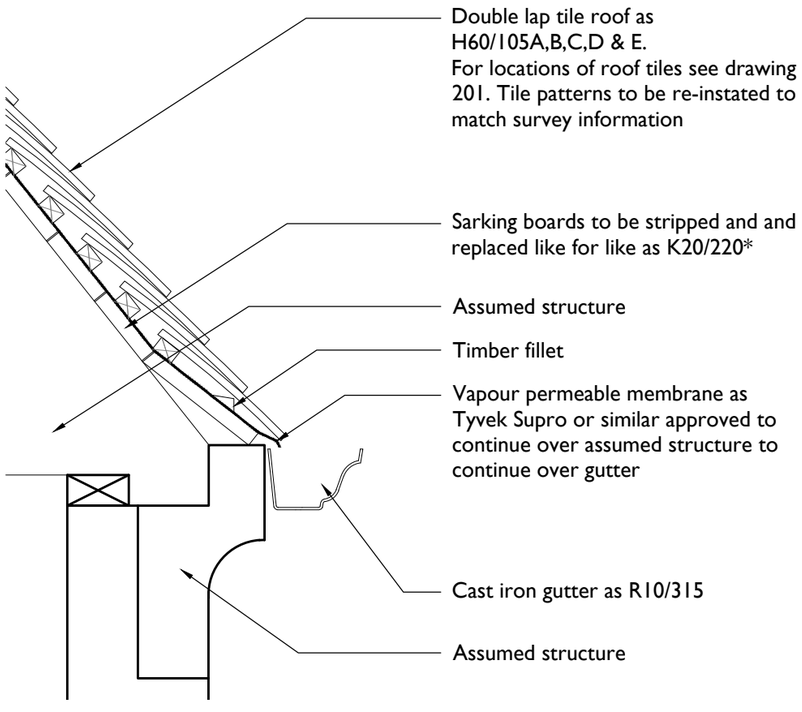
REVISION -

PURCELL

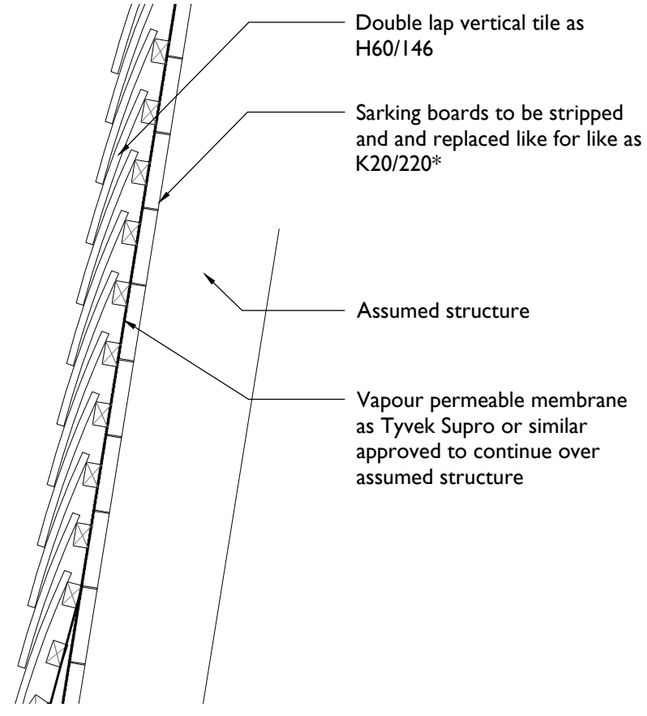
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T.0161 300 7747, E.manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



1 / 300 Tile - Roof and Ridge Detail
1:10 @ A3



2 / 300 Tile - Roof and Eaves Detail
1:10 @ A3



3 / 300 Vertical Tile Detail
1:10 @ A3



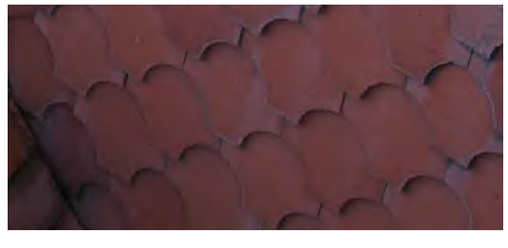
4 / 300 Plain Tile Roof
NTS

Pitches 40 - 66degrees and 80-90degrees as Existing



5 / 300 Tile Pattern to Roof
NTS

Pitches 40-66 degrees as Existing



6 / 300 Fishscale Tile Pattern to Dormer Cheeks
NTS

Pitches 80-90 degrees as Existing

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Notes:

Any details of roof build up below sarking boards such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

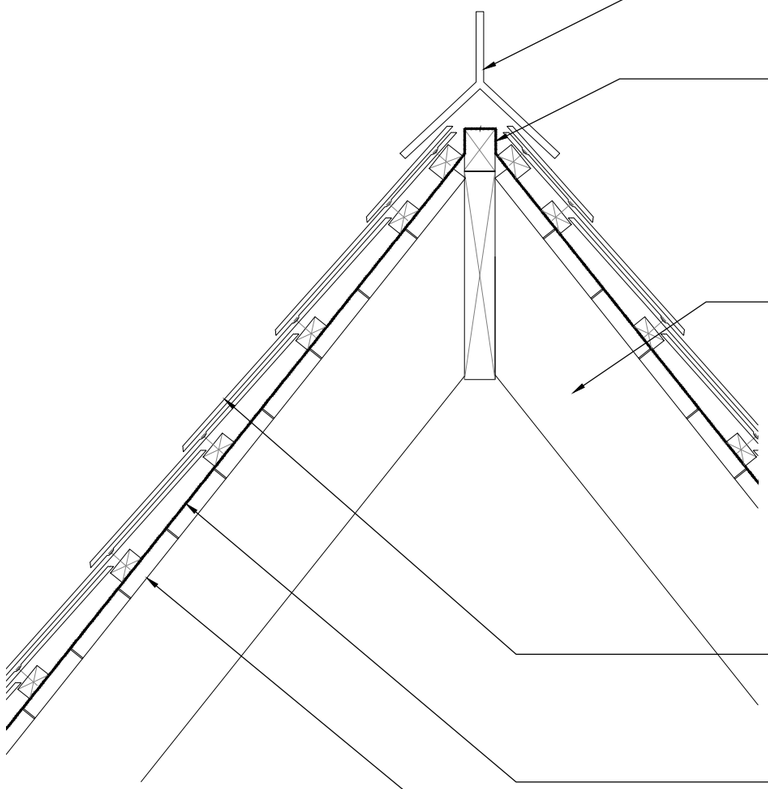
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

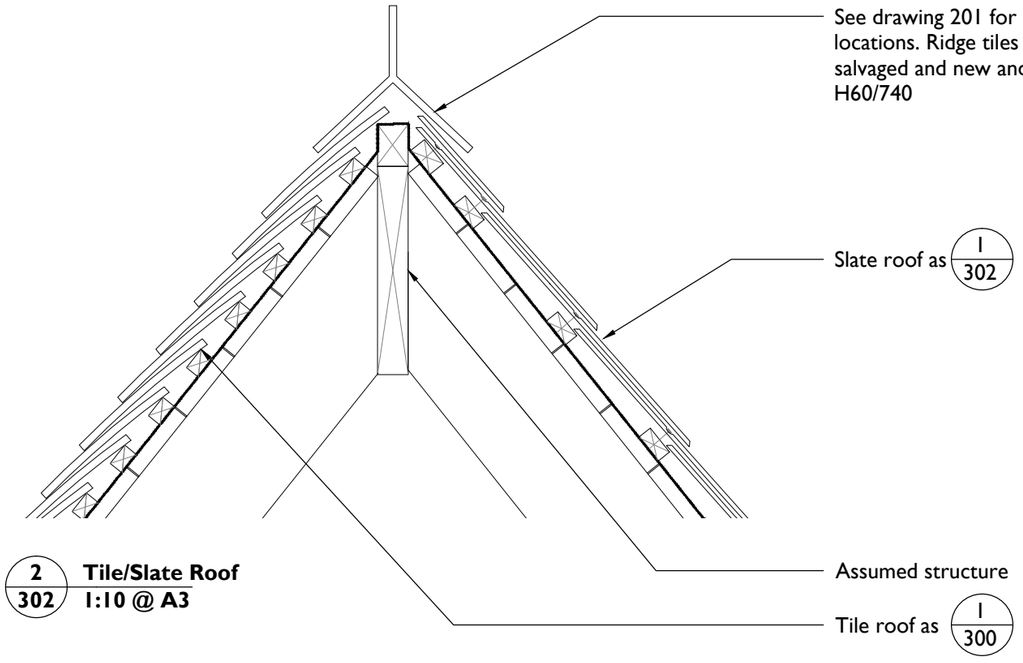
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types - Tile
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	300
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



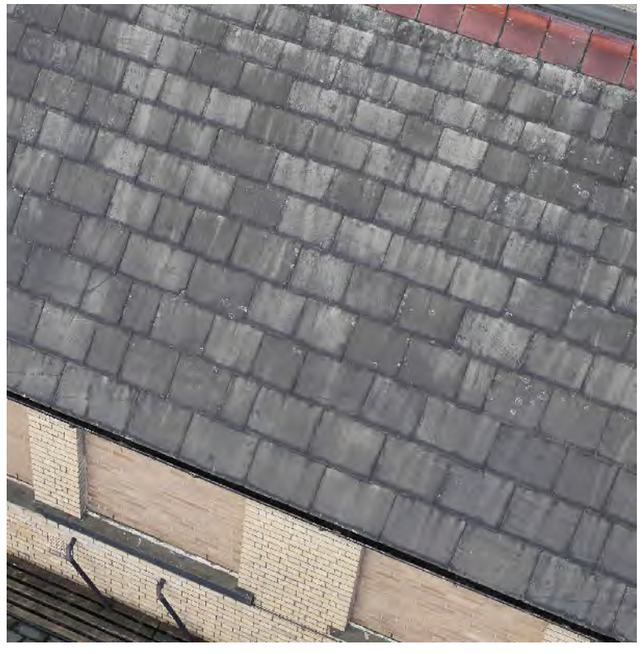
1/302 Slate Roof
1:10 @ A3



2/302 Tile/Slate Roof
1:10 @ A3



1/302 Welsh Slate in Regular Sizes
1:10 @ A3



1/302 Westmoorland Slate in Diminshing Courses
1:10 @ A3

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Notes:

Any details of roof build up below sarking boards such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

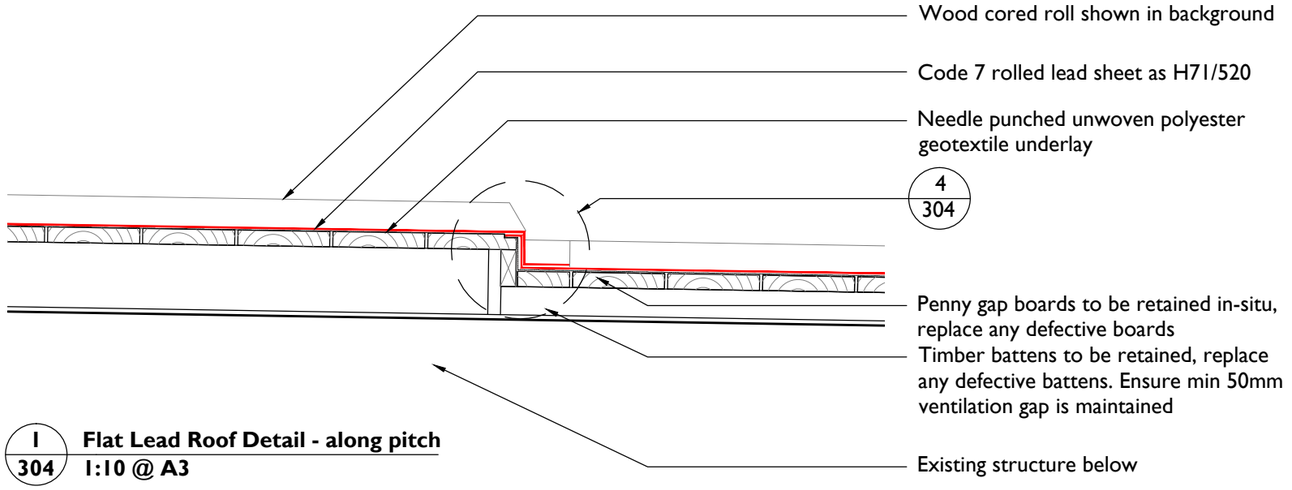
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types - Slate
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	302
REVISION	-

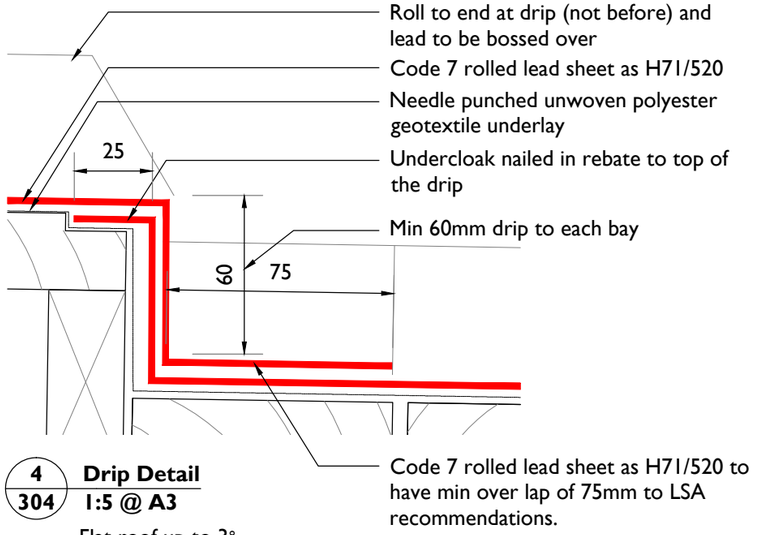
PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



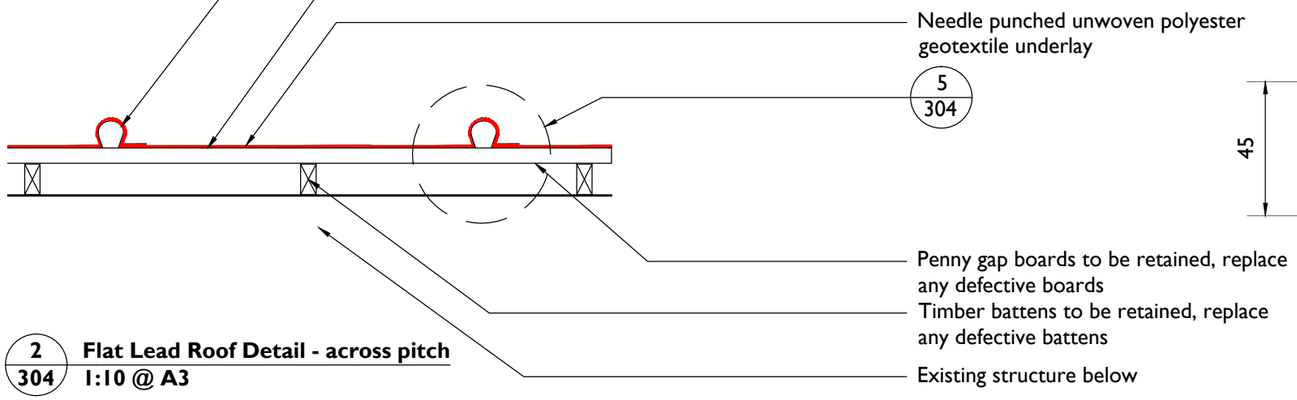
1 / 304 Flat Lead Roof Detail - along pitch
1:10 @ A3

Flat roof up to 3°
NBS H71/110



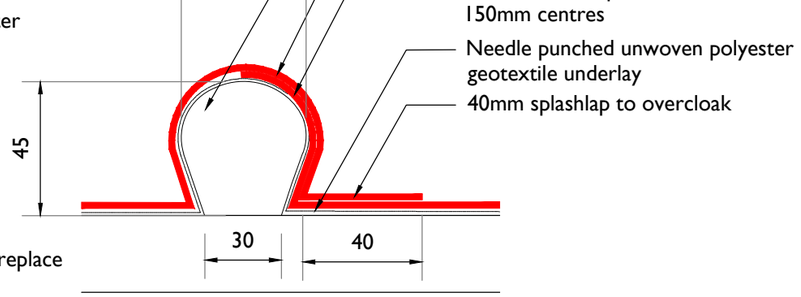
4 / 304 Drip Detail
1:5 @ A3

Flat roof up to 3°
NBS H71/110



2 / 304 Flat Lead Roof Detail - across pitch
1:10 @ A3

Flat roof up to 3°
NBS H71/110

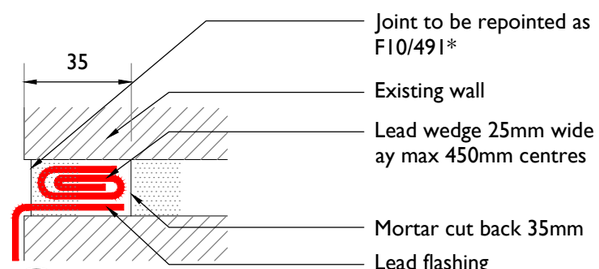


5 / 304 Roll Detail
1:5 @ A3

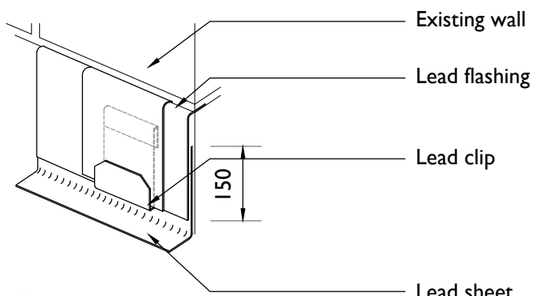
Flat roof up to 3°
NBS H71/110

BS1178 code of lead.	Lead covering to flat roof	
	Max. c/c's between solid core rolls.	Max. c/c's between drips.
6	675	2250
7	675	2500
8	750	3000

3 / 304 Flat Lead Roof Code Table
NTS



6 / 304 Fixing Detail
1:5 @ A3



7 / 304 Clip Detail
1:5 @ A3

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Assume all lead roofs are to be ventilated for tender. To be confirmed following roof stripping. Allow for ventilators below roof ridge, one per bay.

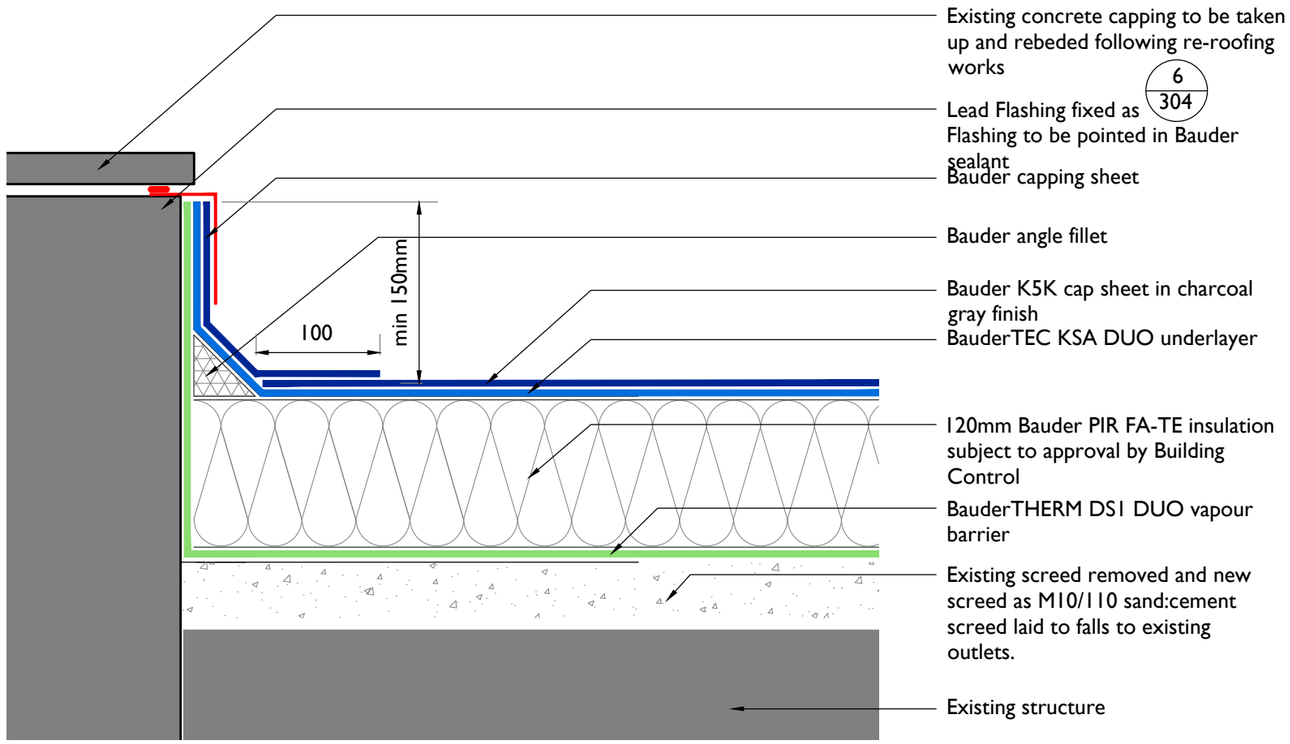
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

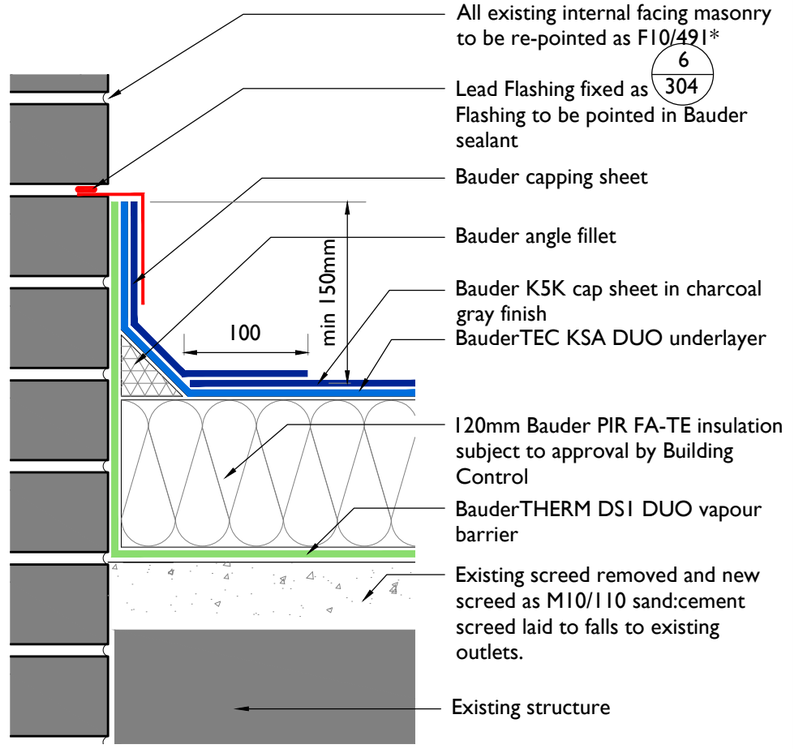
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types - Lead
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	304
REVISION	-

PURCELL

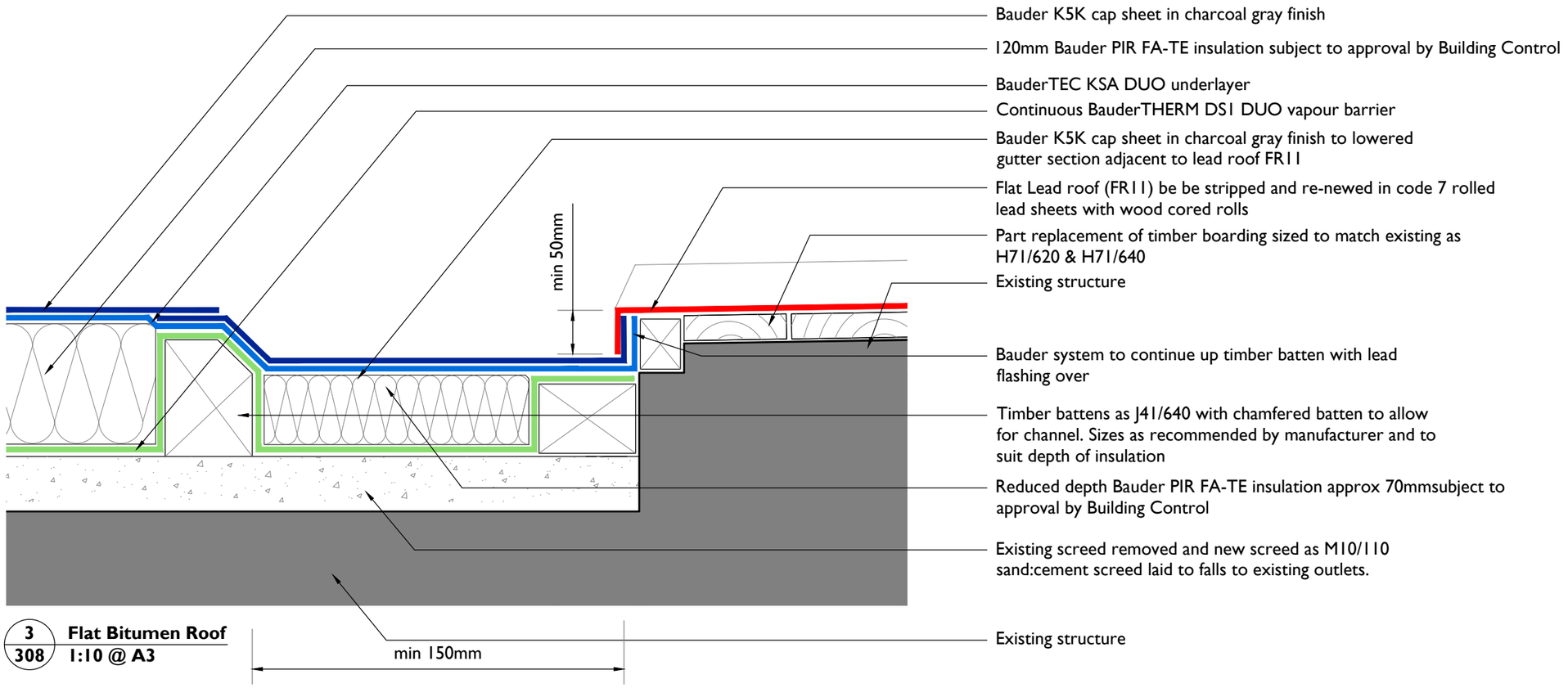
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T.0161 300 7747, E.manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



1 / **308** **Flat Bitumen Roof**
1:10 @ A3



2 / **308** **Flat Bitumen Roof**
1:10 @ A3



3 / **308** **Flat Bitumen Roof**
1:10 @ A3

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Notes:

Relaid Bitumen roofs to achieve min 0.18W/m²K to meet Part L2B.

Bauder system requires a min upstand of 150mm from top of roof covering to lead flashing

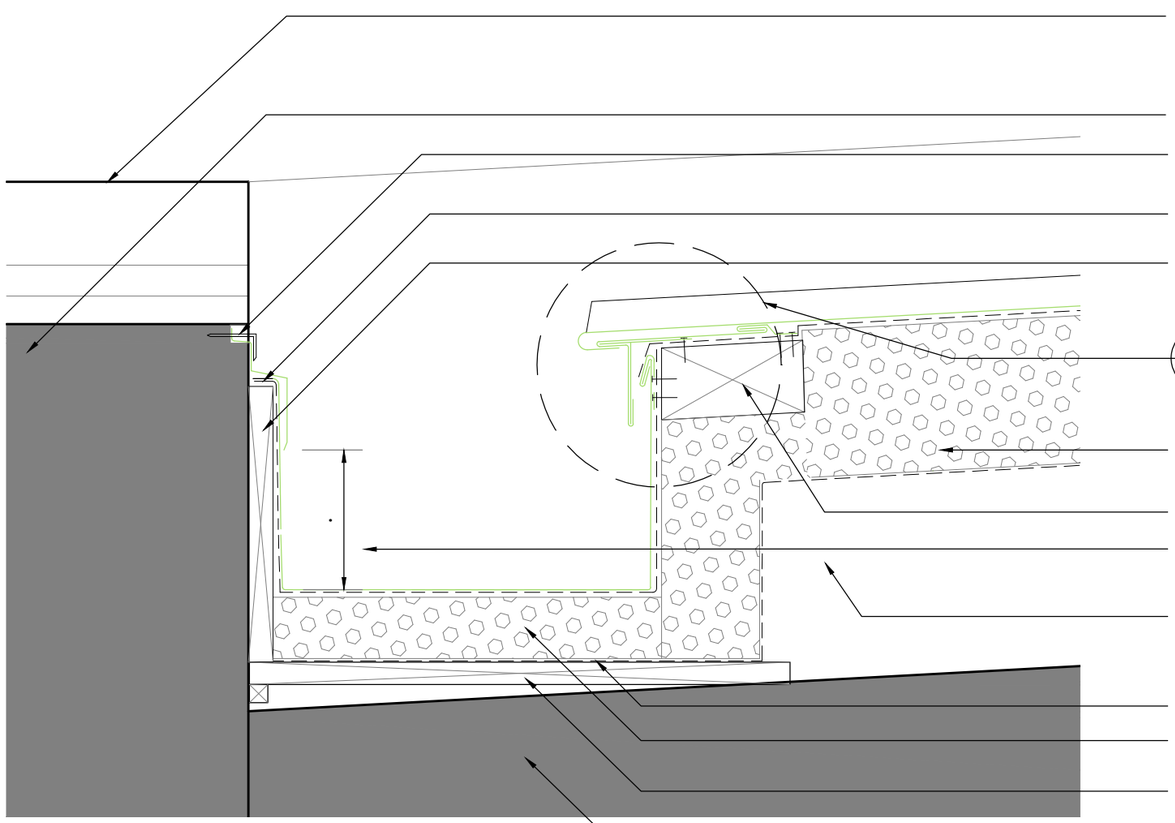
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types - Bitumen Flat Roof
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	308
REVISION	-

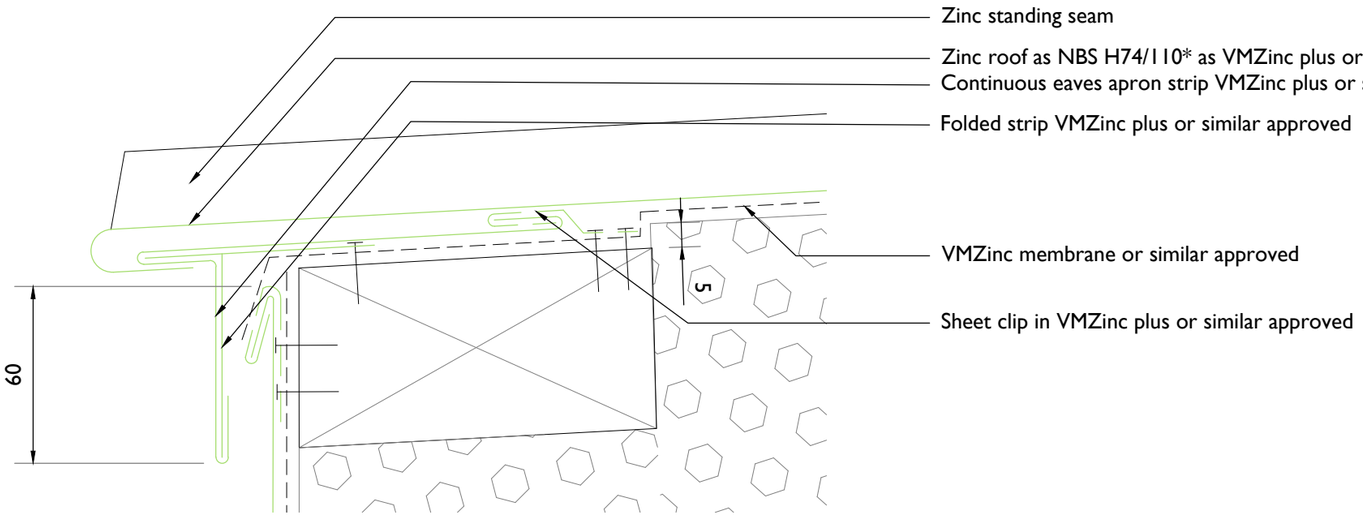
PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



1 / 310 Zinc Parapet Gutter Detail
1:5 @ A3

NBS H74/210



2 / 310 Eaves Detail
1:2 @ A3

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Zinc roof build up to NBS H74/110* to achieve max 0.18W/m2k

Drawing to be read in conjunction with 219

Exact dimensions to be confirmed following stripping of existing roof material and survey information provided to Conservation Architect locating heights and positions of existing trusses

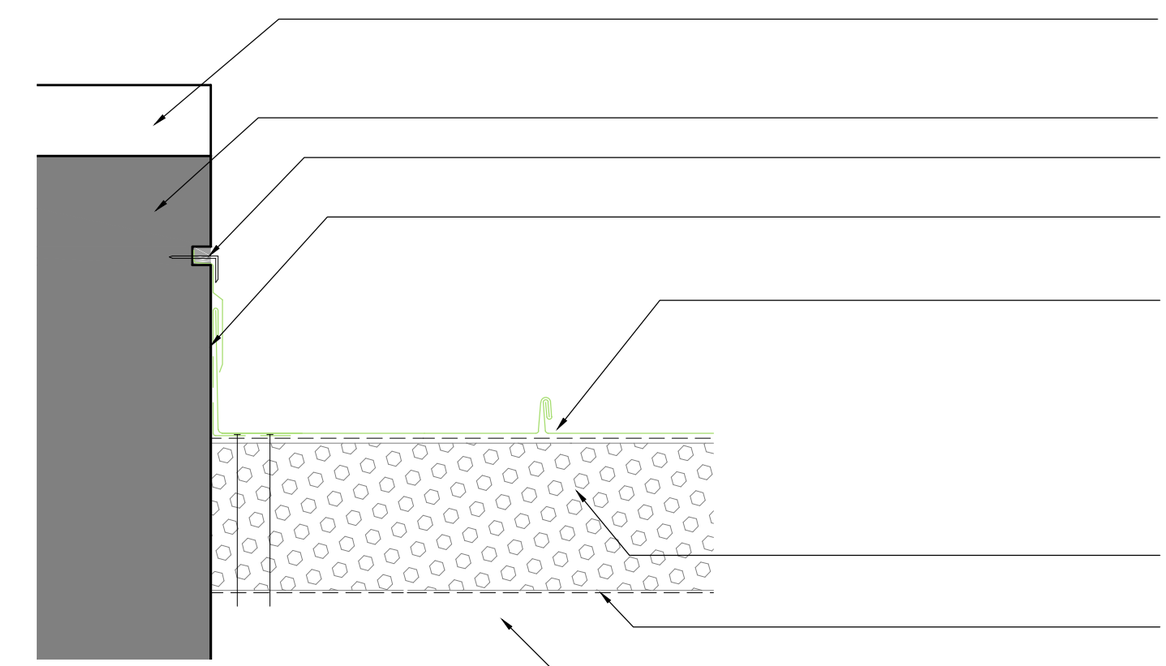
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types - Zinc
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	310
REVISION	-

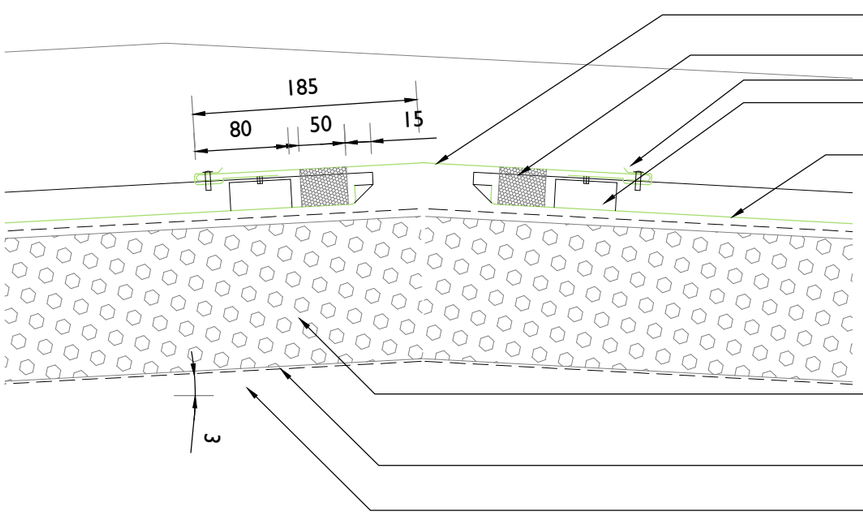
PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



3 / 311 Zinc Abutment Detail
1:5 @ A3

NBS H74/110* to acheive max 0.18W/m2k



4 / 311 Zinc Ridge Detail
1:5 @ A3

NBS H74/310*

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Zinc roof build up to NBS H74/110* to achieve max 0.18W/m2k

Drawing to be read in conjunction with 219

Exact dimensions to be confirmed following stripping of existing roof material and survey information provided to Conservation Architect locating heights and positions of existing trusses

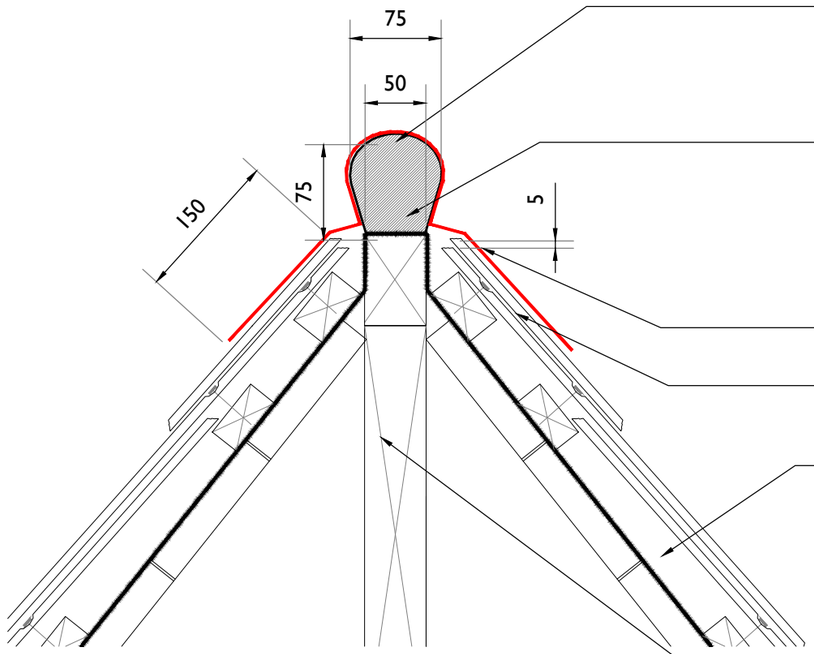
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Roof Types - Zinc Sheet 2
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	311
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



Code 7 Lead capping piece at maximum capping laps of 500mm

New 75mm wood cored king roll to ridge tapering to 50mm

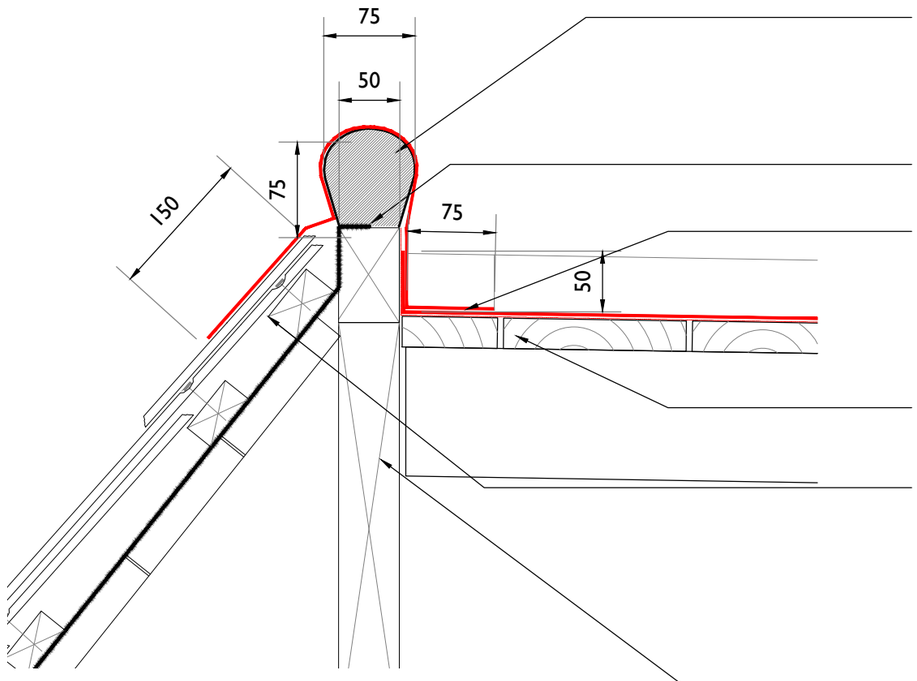
Wood cored roll min 5mm above top slate/tile

Laps of tile/slate roofs to be minimum 150mm

For pitched roof build ups see I/300 I/302

Assumed structure

R01/320 Tile/Slate Pitched Roof with Lead Ridge (drawn in Slate)
1:5 @ A3
NBS H71/315



Code 7 Lead capping piece at maximum capping laps of 500mm

New 75mm wood cored king roll to ridge tapering to 50mm

Minimum overcloak to be 75mm

Minimum upstand to lead bays 50mm

For pitched roof build ups see I/300 I/302

Assumed structure

R02/320 Tile Pitched to Lead Flat Roof with Lead Ridge
1:5 @ A3
NBS H71/315

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

Allow for ventilator to each lead bay by ridges

For roof type locations please see drawing 201

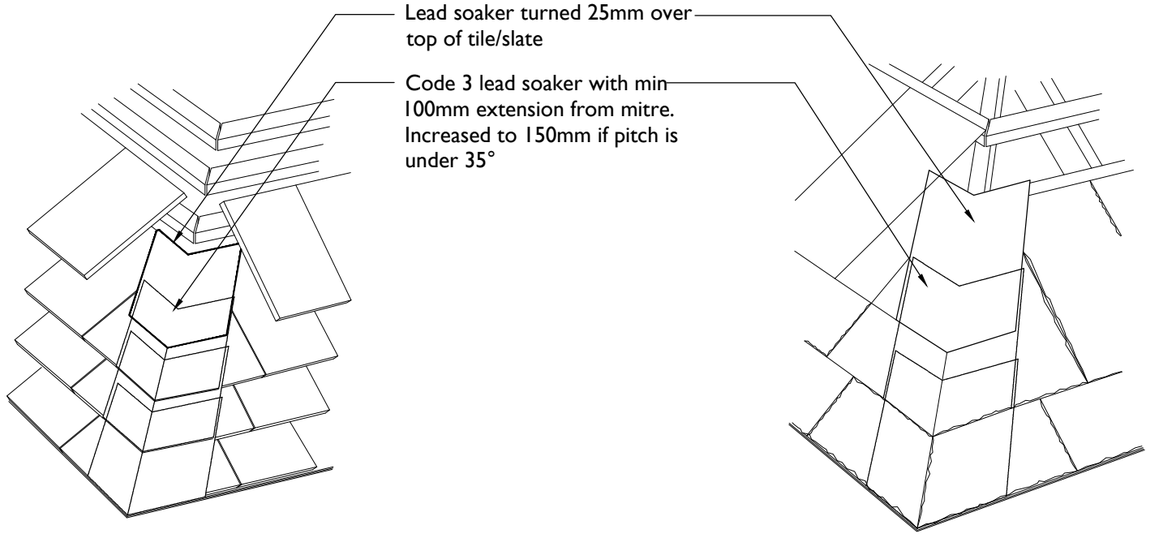
First Issue 26/04/2016 SA DW

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Ridges Sheet 1
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	320
REVISION	-

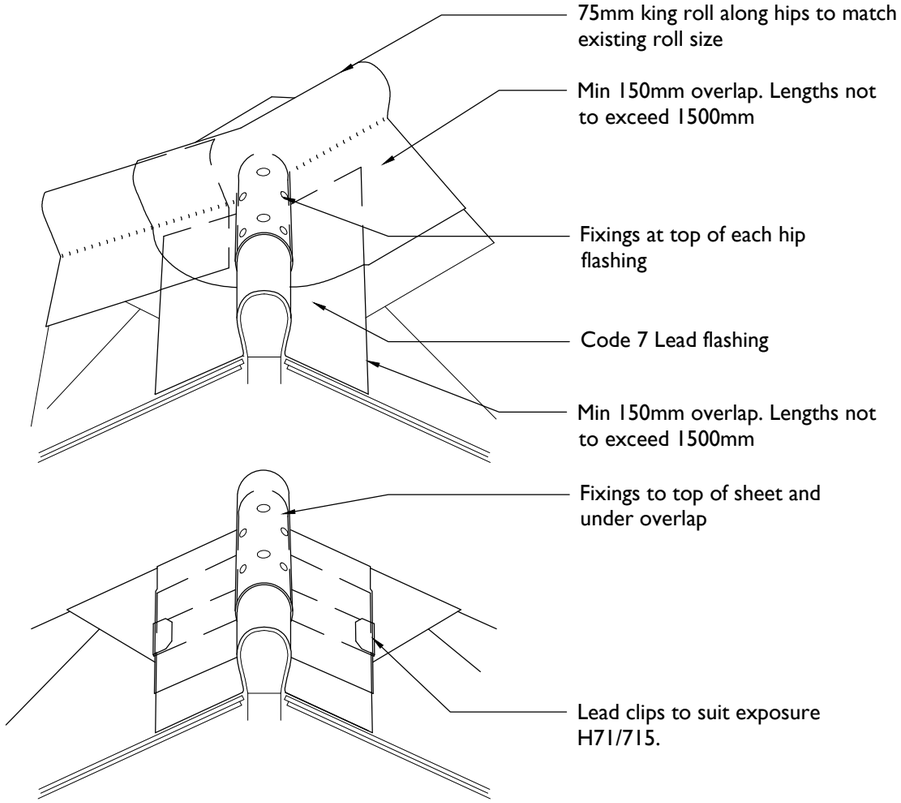
PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



H01 321 **Soakers for Mitred Tiled Hips**
NTS
NBS H71/322*
NBS H60/635
NBS H62/525

H02 321 **Soakers for Mitred Slate Hips**
NTS
NBS H71/322*
NBS H60/635
NBS H62/525



H03 321 **Slate/ Tile Hip with Wood Cored Roll**
NTS
NBS H71/315
NBS H62/525



H04 321 **Purpose Made Bonnet Hip Tiles**
NTS
Roof 11
NBS H60/595



H05 321 **Purpose Made Bonnet Hip Tiles**
NTS
Roof 18
NBS H60/595



H06 321 **Purpose Made Arris Hip Tiles**
NTS
Roof SS1 & SS2
NBS H60/585



H07 321 **Purpose Made Arris Hip Tiles**
NTS
Roof 35
NBS H60/585

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

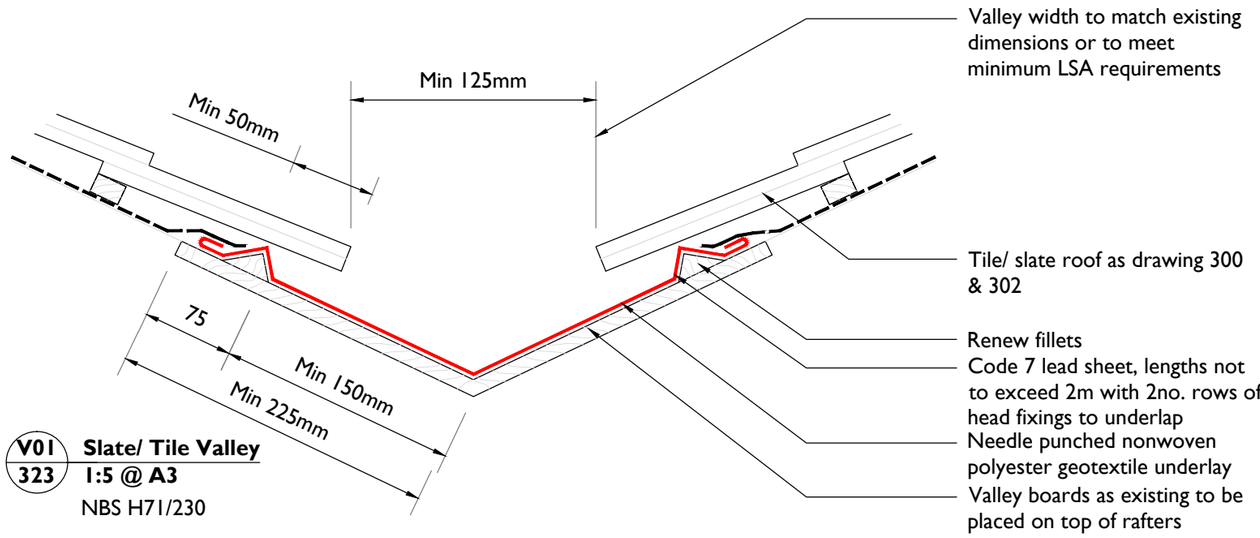
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

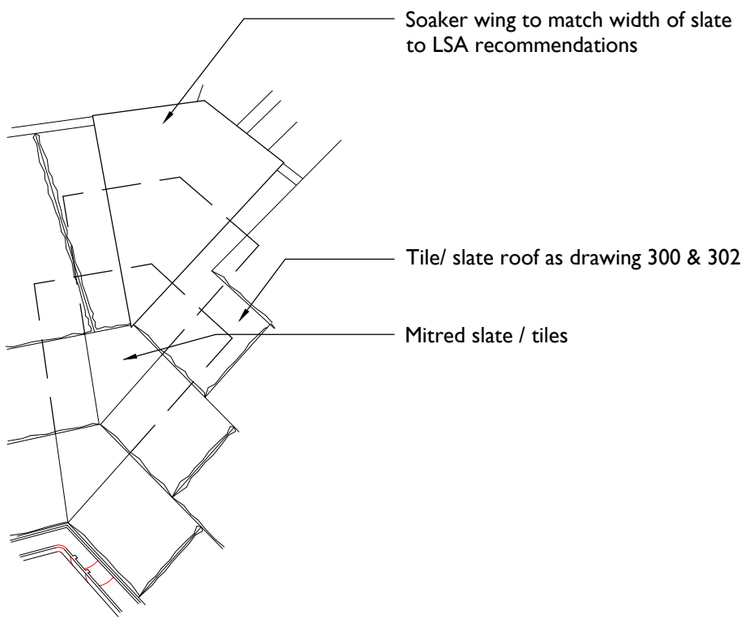
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Hip Sheet 1
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	321
REVISION	-

PURCELL

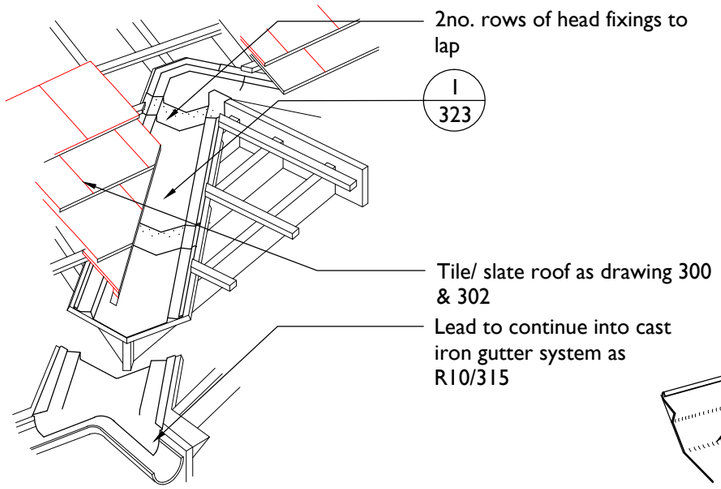
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



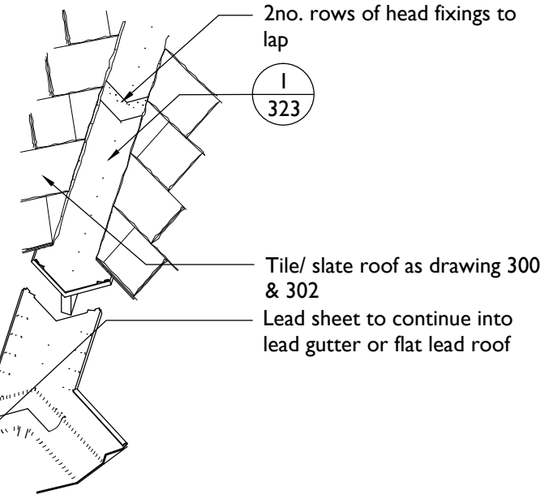
V01 323 **Slate/ Tile Valley**
1:5 @ A3
NBS H71/230



V04 323 **Mitred Slate/ Tile Valley Lead Detail**
1:5 @ A3
NBS H71/230
NBS H60/635
For pitches below 45°



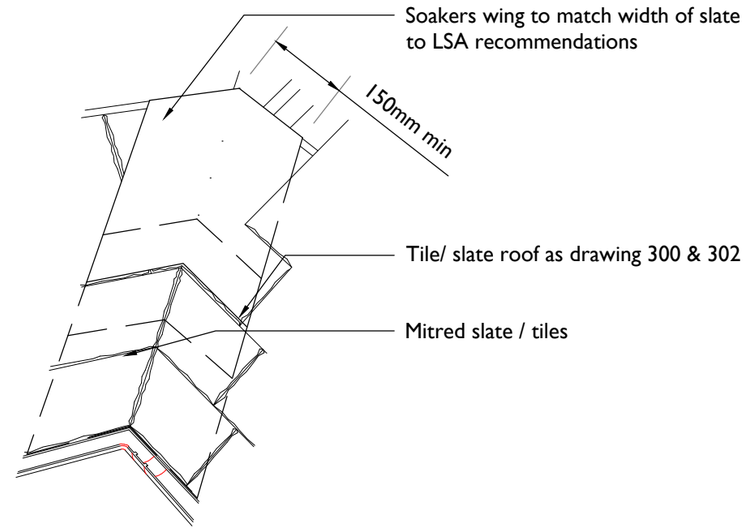
V02 323 **Slate/ Tile Valley Gutter Detail**
1:5 @ A3
Discharging into cast iron Gutter
NBS H71/230



V03 323 **Slate/ Tile Valley Lead Gutter Detail**
1:5 @ A3
Discharging into lead gutter or onto flat lead roof
NBS H71/230



V06 323 **Purpose Made Valley Tiles**
NTS
Roof 18



V05 323 **Mitred Slate/ Tile Valley Lead Detail**
1:5 @ A3
NBS H71/230
For pitches over 45°

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

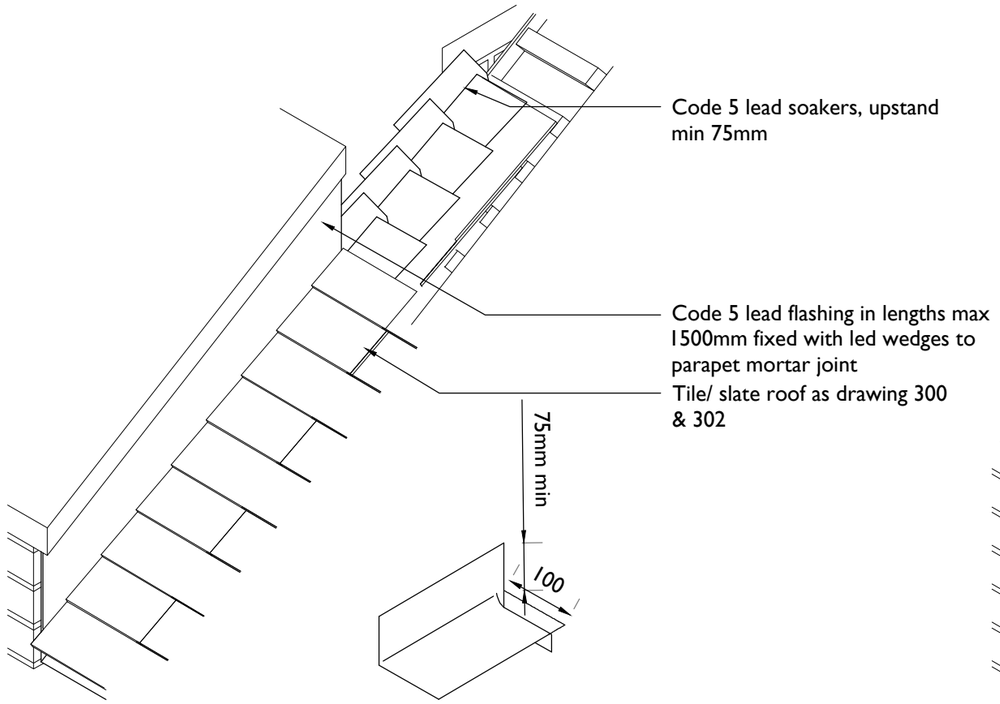
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Valley Sheet 1
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	323
REVISION	-

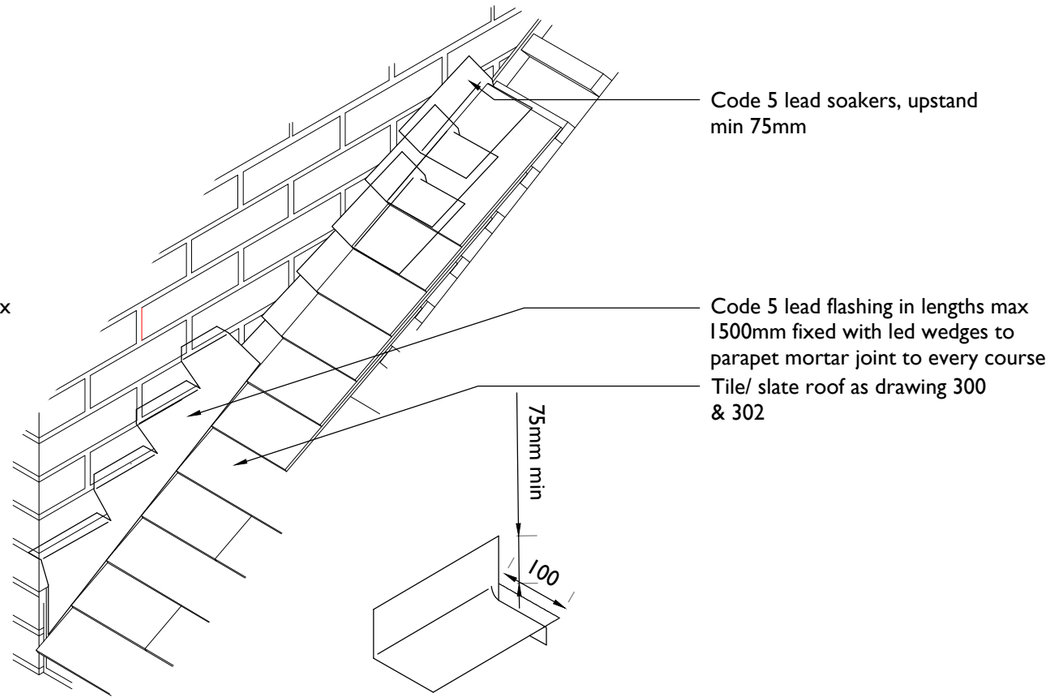
PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



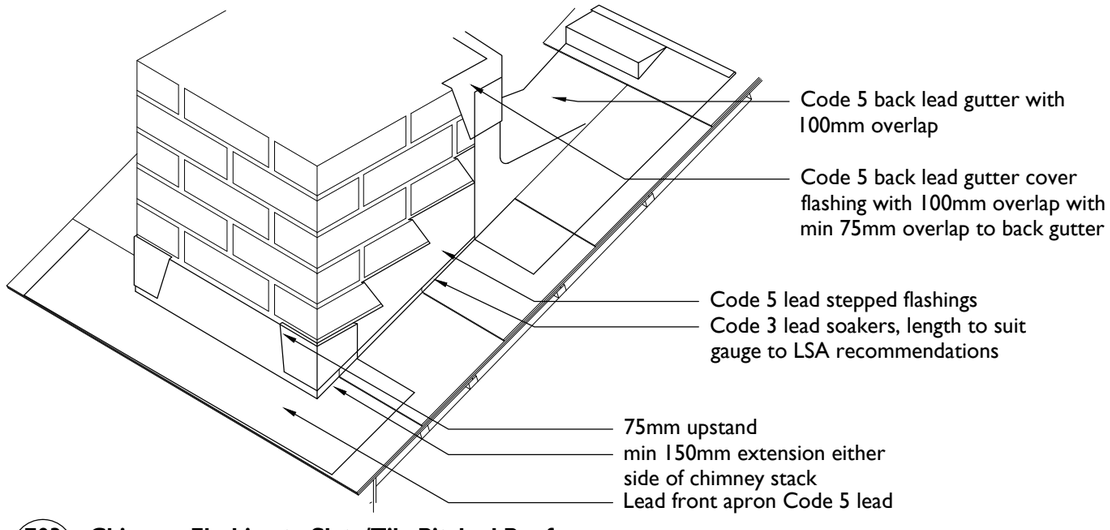
Soaker
NBS H71/440

F01 325 **Abutment Flashing to Slate/Tile Pitched Roof**
NTS
NBS H71/440

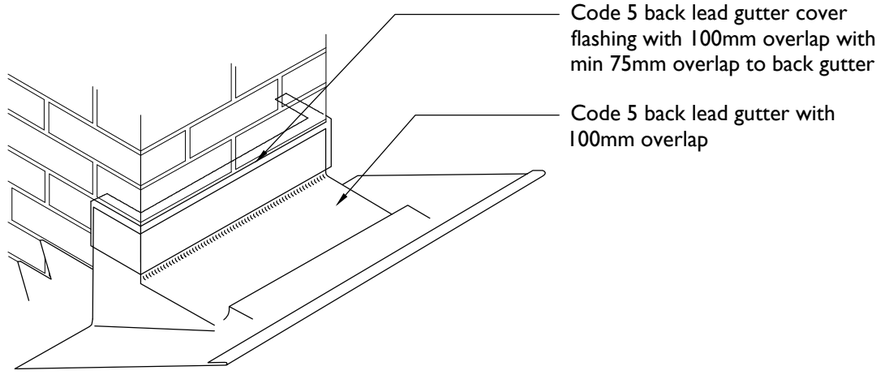


Soaker
NBS H71/440

F02 325 **Abutment with Stepped Flashing to Slate/Tile Pitched Roof**
NTS
NBS H71/440



F03 325 **Chimney Flashing to Slate/Tile Pitched Roof**
NTS
NBS H71/472



Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

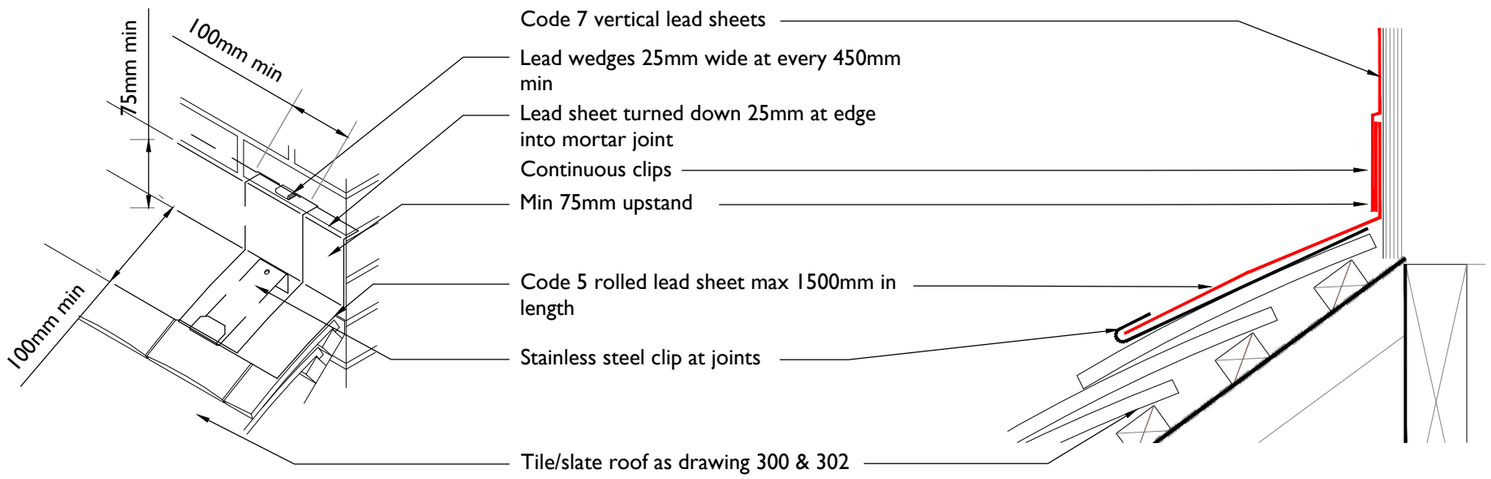
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Flashing Sheet 1
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	325
REVISION	-

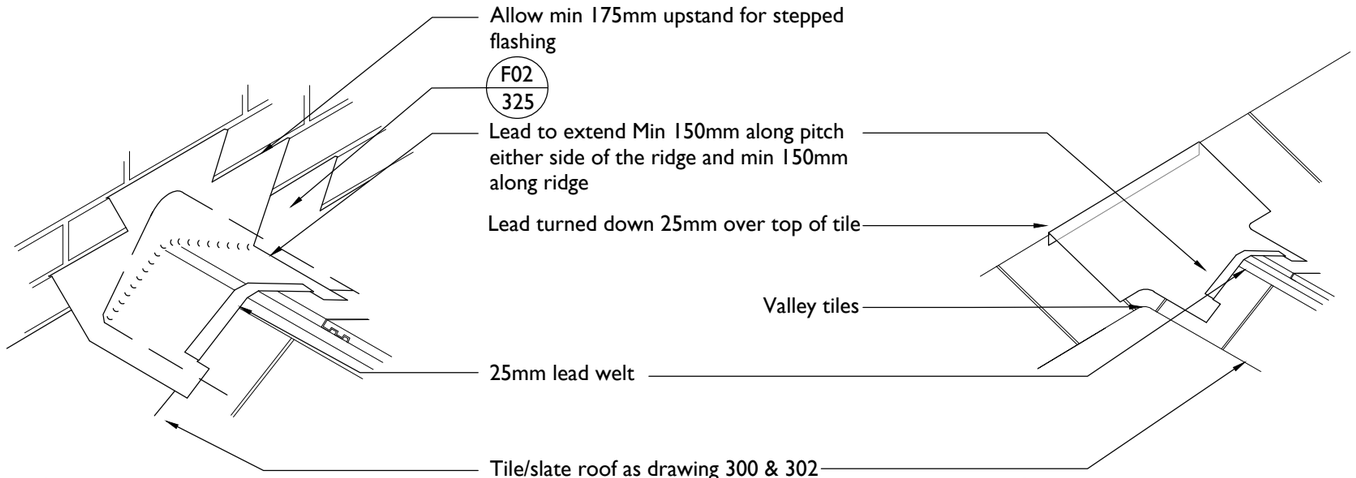
PURCELL

Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:44[0]161 3007747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



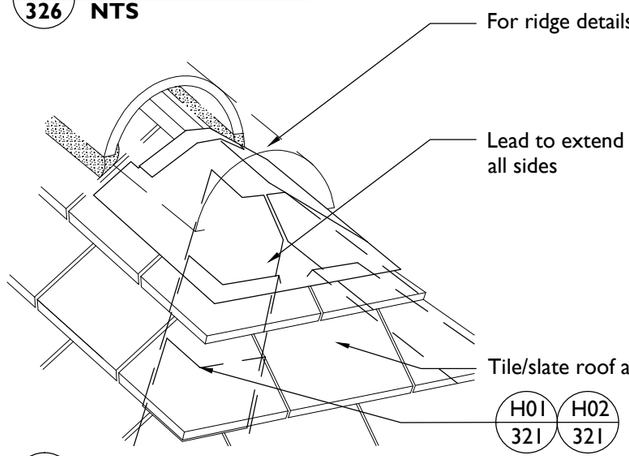
F04 / 326 **Lead Apron Flashing**
NTS
NBS H71/410

F05 / 326 **Apron Flashing with Cover Flashing**
1:5 @ A3



F06 / 326 **Lead Saddle Flashing**
NTS

F07 / 326 **Lead Saddle Flashing**
NTS



F08 / 326 **Lead Saddle at Hip Detail**
NTS

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

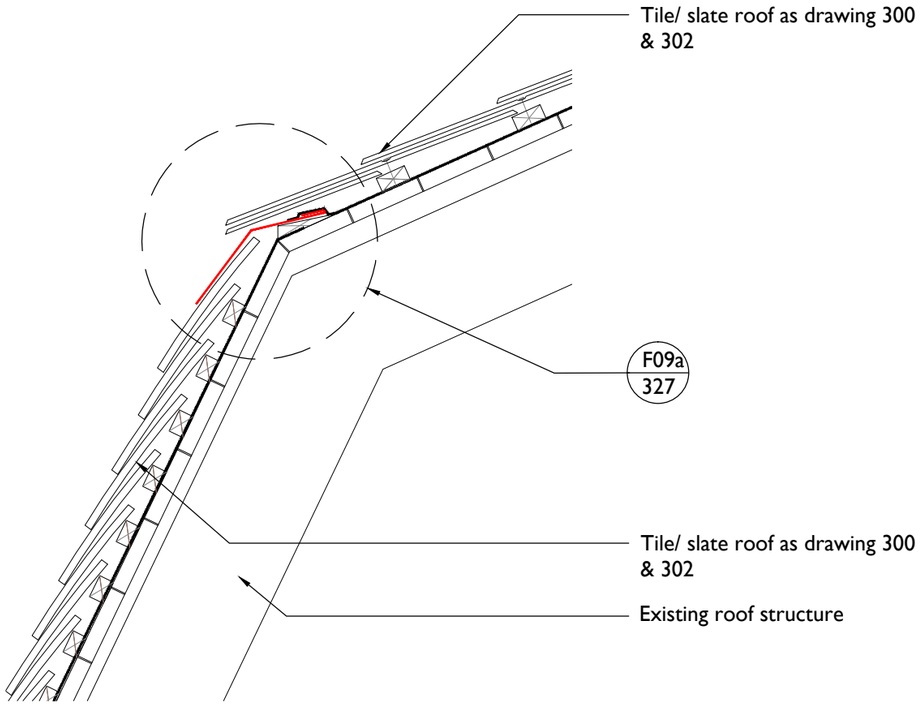
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

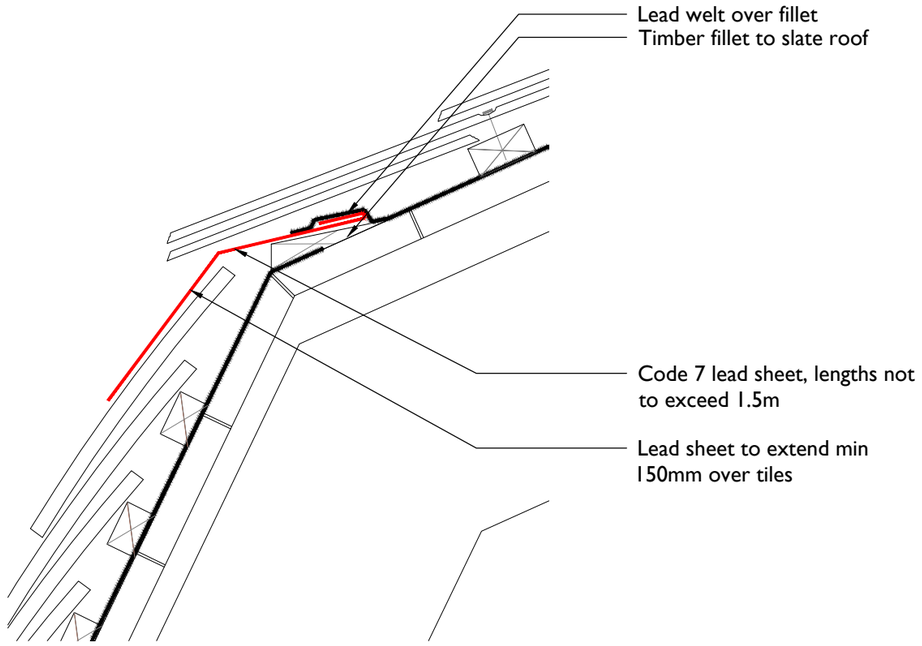
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Flashings Sheet 2
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	326
REVISION	-

PURCELL

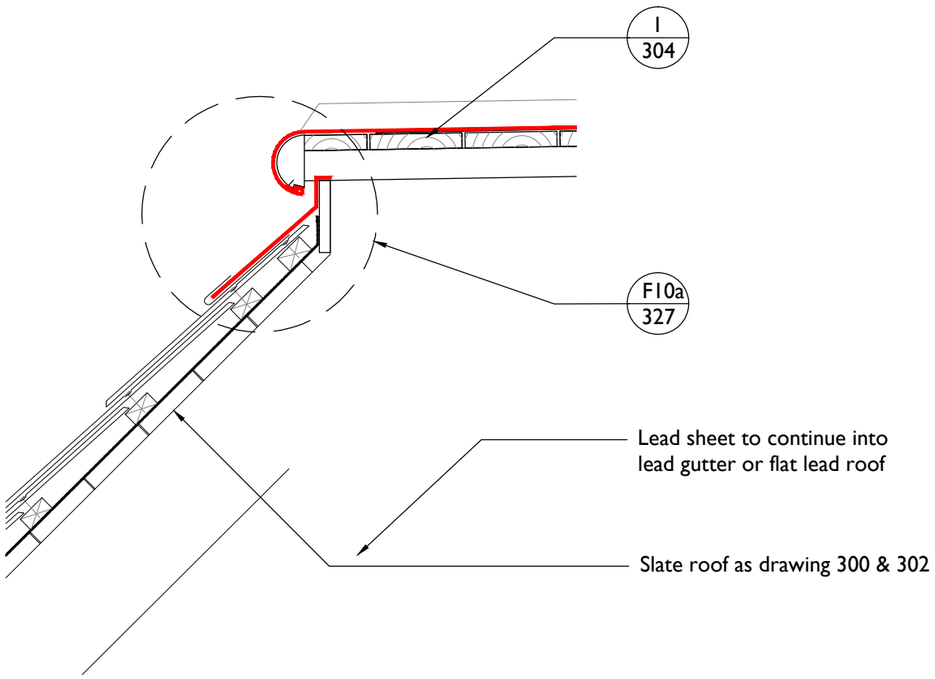
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



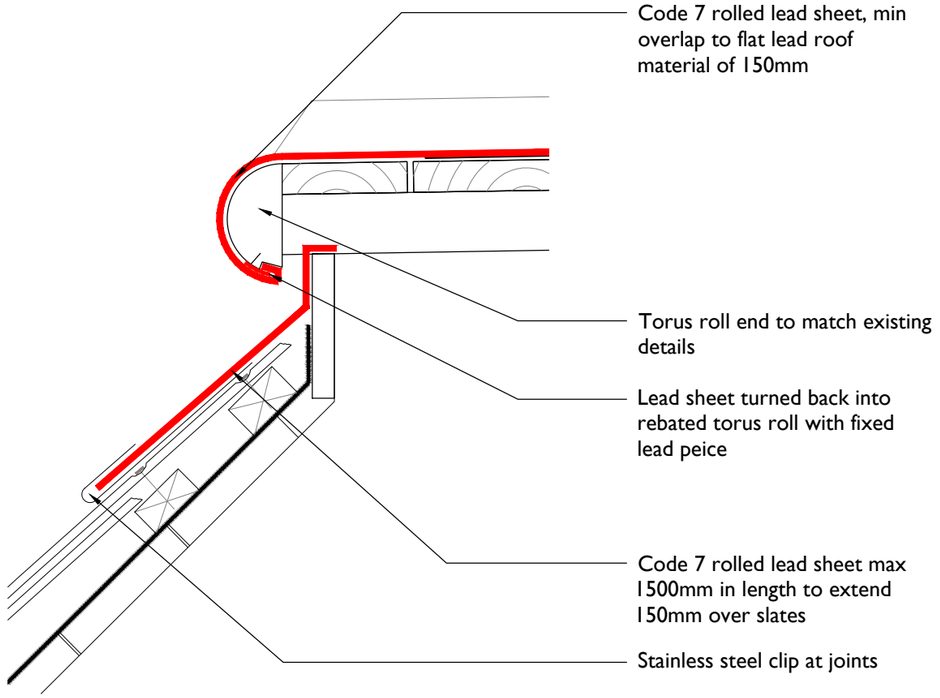
F09 / 327 **Mansard Roof Junction**
1:10 @ A3
NBS H71/460



F09a / 327 **Mansard Roof Junction**
1:5 @ A3
NBS H71/460



F10 / 327 **Mansard Roof Junction**
1:10 @ A3
NBS H71/461



F10a / 327 **Mansard Roof Junction**
1:5 @ A3
NBS H71/461

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

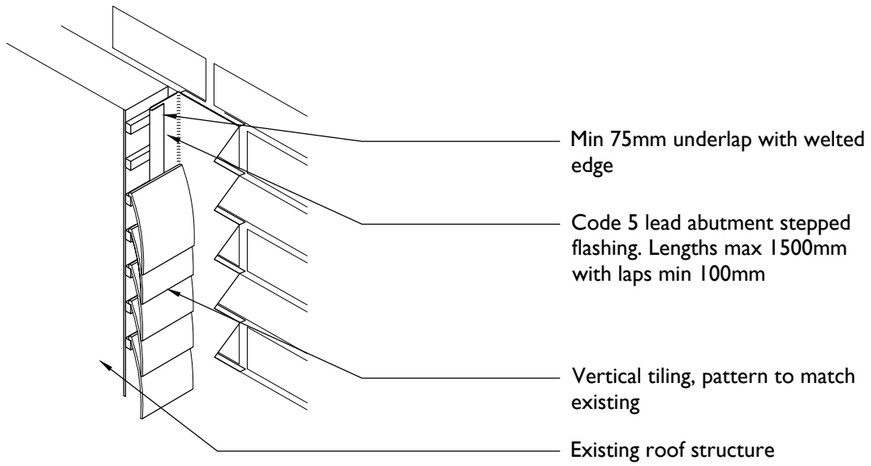
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - flashings Sheet 3
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	327
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



F11 / **328** **Mansard Roof Junction**
1:10 @ A3
NBS H71/494



F12 / **328** **Veritical Tiling by Roof 29b**
1:10 @ A3
Example vertical tiling
Bottom edge flashings NBS H71/490
Top edge flashings NBS H71/492
Abutment flashings NBS H71/494



F13 / **328** **Veritical Tiling to Dormer - Roof 18**
1:10 @ A3
Example vertical tiling to dormer
Top edge flashings NBS H71/492
Abutment flashings NBS H71/494

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

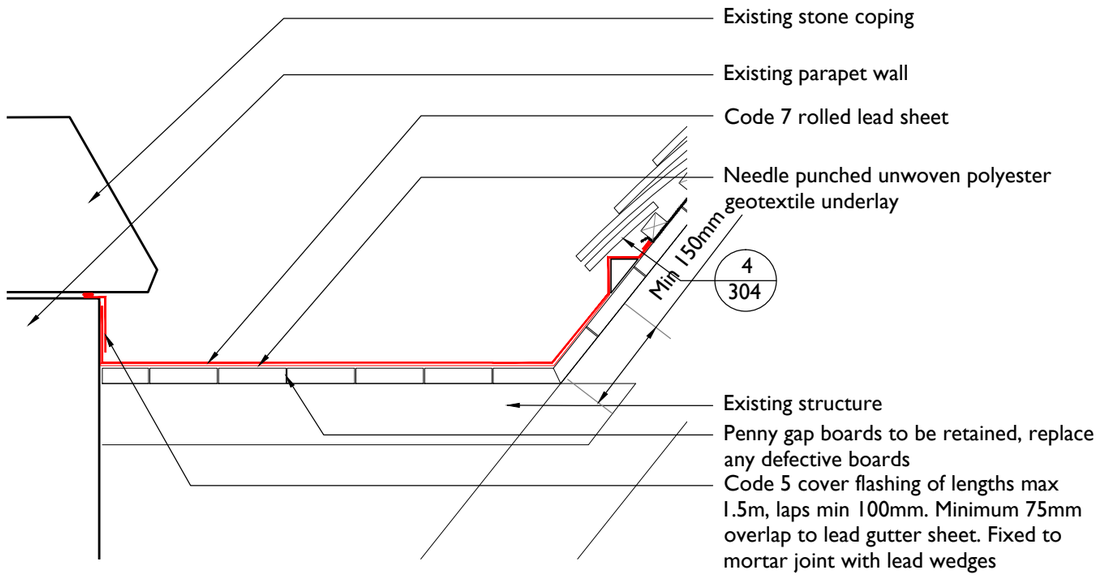
Ridge heights to match existing survey information.

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

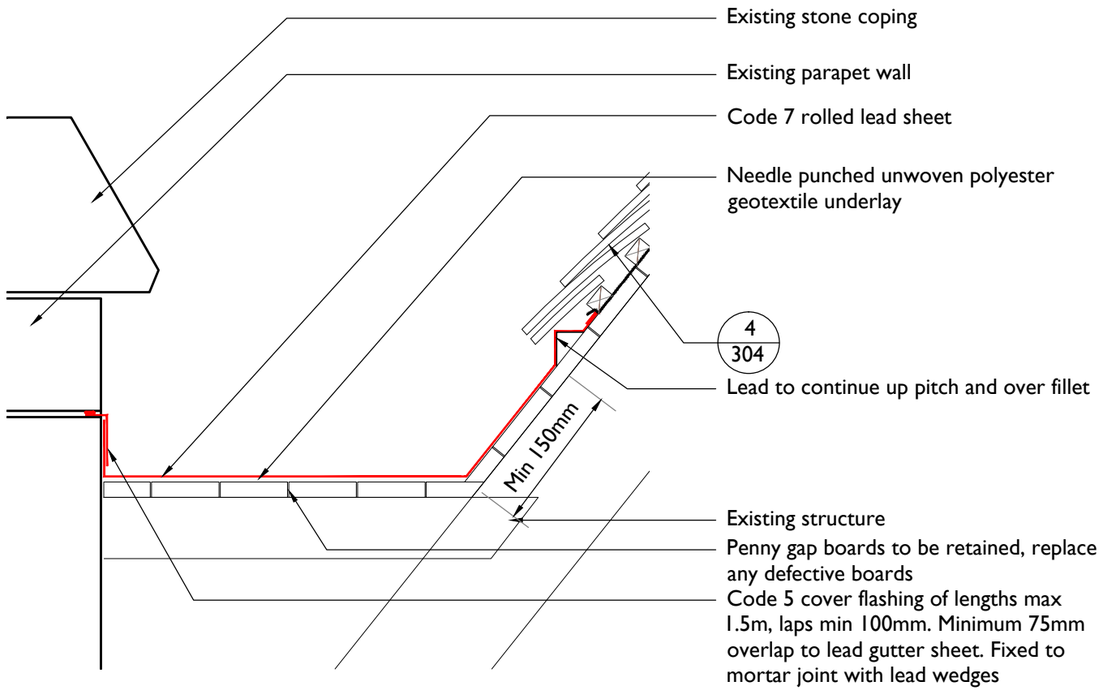
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Flashings Sheet 4 - Vertical Tiling
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	328
REVISION	-

PURCELL

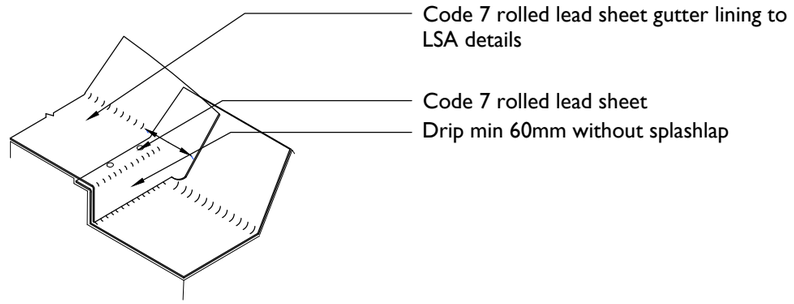
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



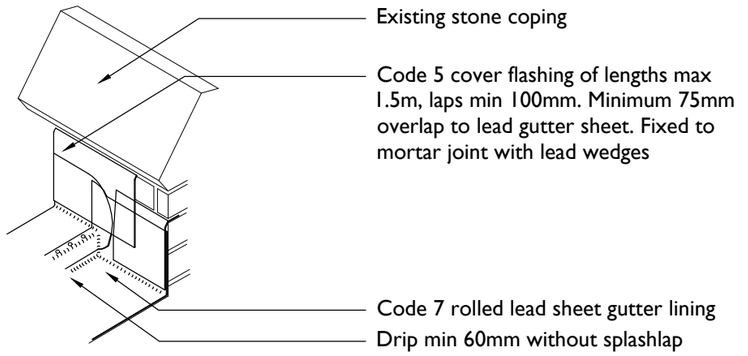
G01 330 **Section through lead Parapet Gutter - HIgh Level**
1:10 @ A3
NBS H71/200



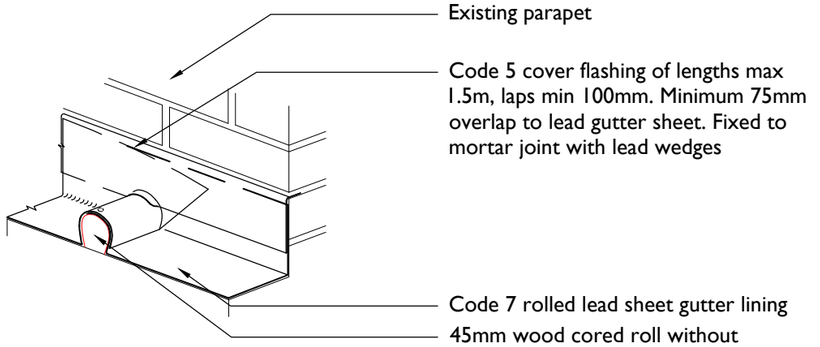
G02 330 **Section through lead Parapet Gutter - Low Level**
1:10 @ A3
NBS H71/200



G03 330 **Lead Gutter Drip - to pitch**
NTS



G04 330 **Lead Gutter Drip - to parapet**
NTS



G05 330 **Lead Gutter Roll**
NTS

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

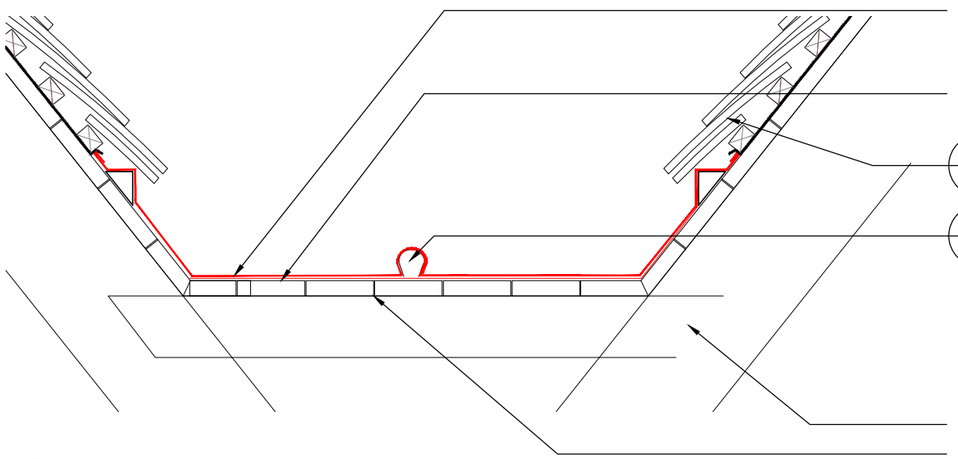
Ridge heights to match existing survey information.

For roof type locations please see drawing 201

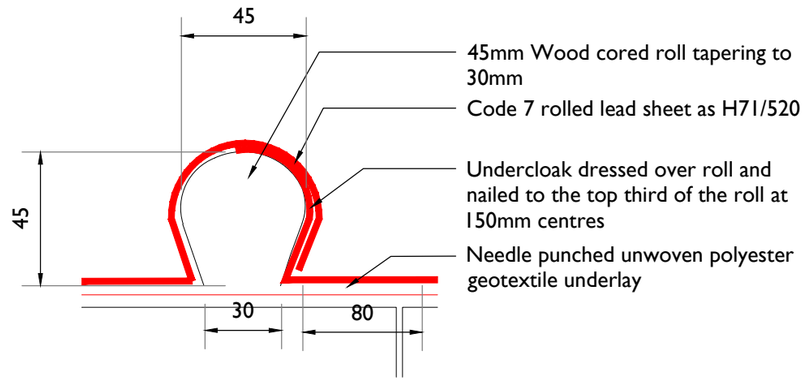
ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Gutters Sheet 1
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	330
REVISION	-

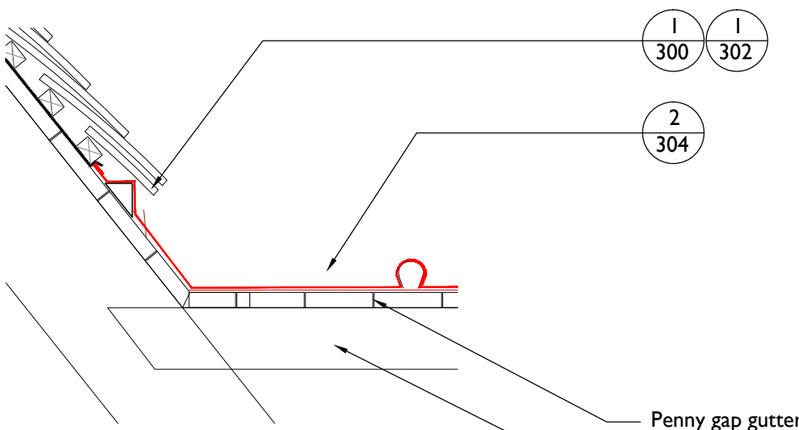
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



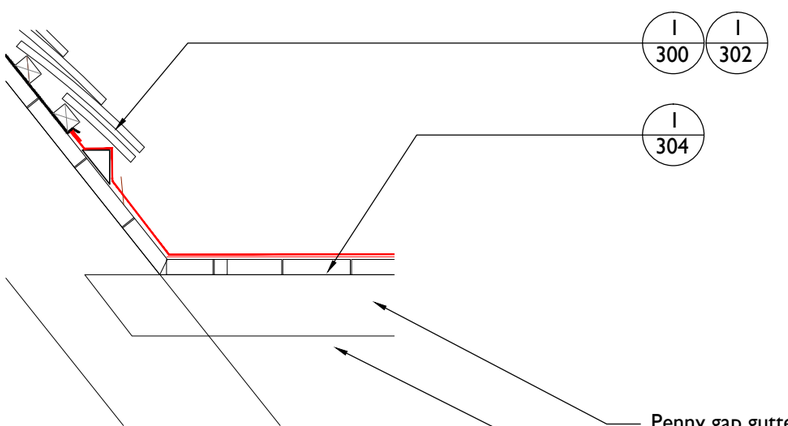
G06 / 331 Lead Gutter Between Pitched Roofs With Roll
1:10 @ A3



G07 / 331 Wood Cored Roll to Gutter
1:2 @ A3



G08 / 331 Lead Gutter Between Pitched Roofs With Roll
1:10 @ A3



G09 / 331 Lead Gutter Between Pitched Roofs With Roll
1:10 @ A3

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

For roof type locations please see drawing 201

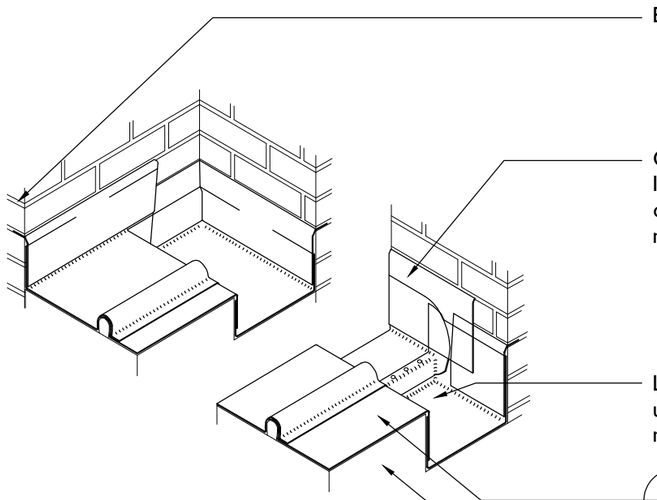
First Issue 26/04/2016 SA DW

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION

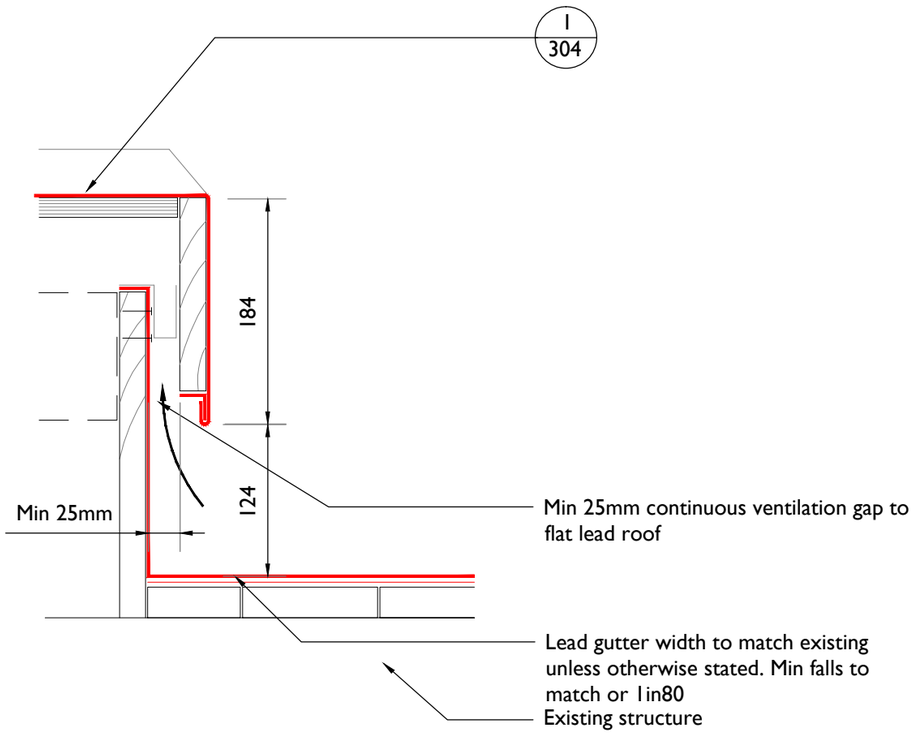
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Gutters Sheet 2
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	331
REVISION	-

PURCELL

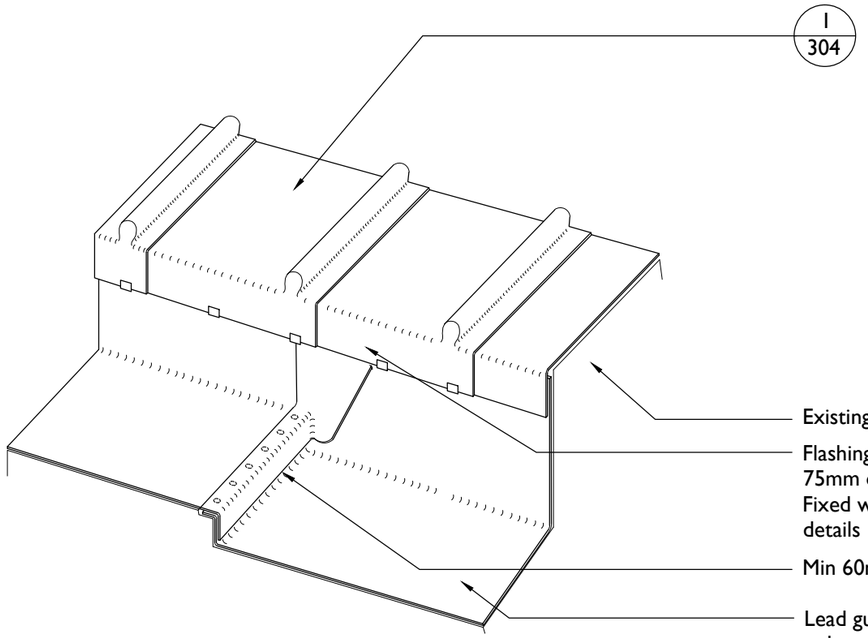
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



G10 / 332 Lead Parapet Gutter Detail
NTS



G12 / 332 Lead Eaves Ventilation Detail
1:5 @ A3



G11 / 332 Lead Gutter to Flat Lead Roof Detail with Drip
NTS

Lead to be taken over the cornice to match historic detail. These gutters will not comply with LSA recommendation subject to approval



G13 / 332 Lead Gutter to Roof 31 & 33
NTS

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

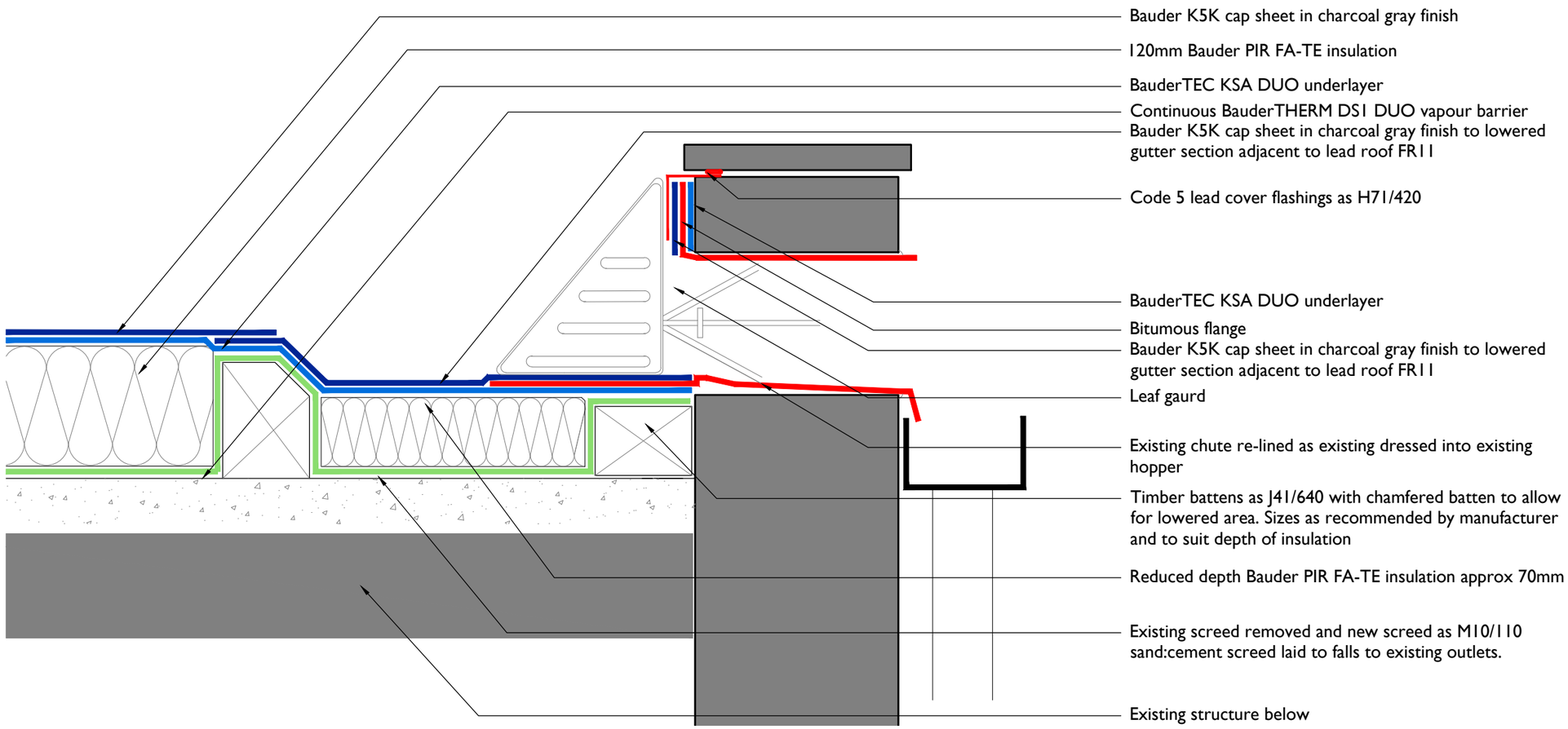
For roof type locations please see drawing 201

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

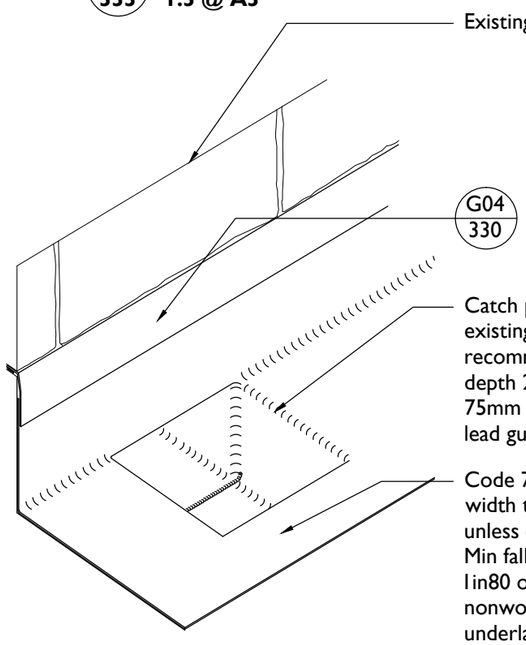
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - Gutters Sheet 3
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	332
REVISION	-

PURCELL

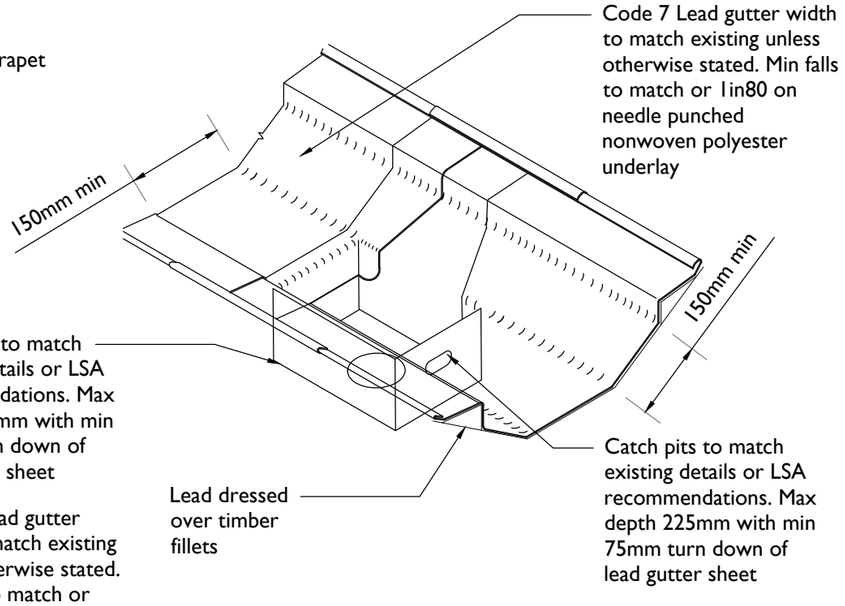
Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



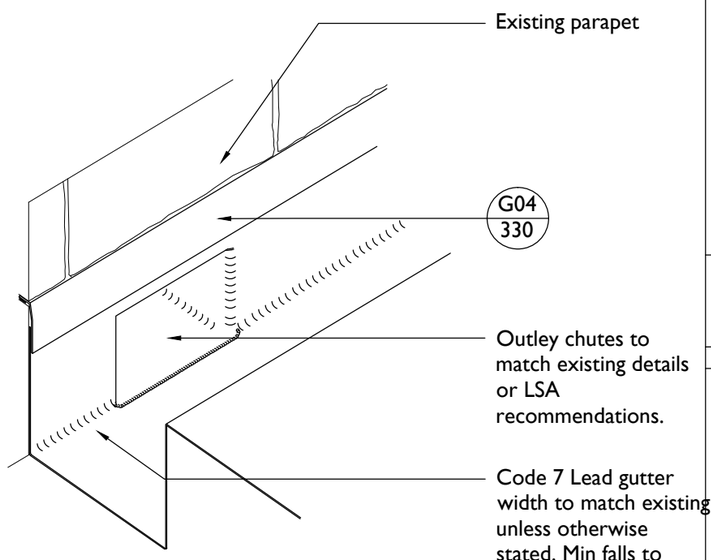
G14 333 **Bitumin Flashing**
1:5 @ A3



G15 333 **Lead Sump Detail**
1:5 @ A3



G16 333 **Lead Catch Pit to Tapered Valley Gutter**
1:5 @ A3



G17 333 **Lead Chute Detail**
1:5 @ A3

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

All new lead works to be to LSA recommendations as agreed with the Conservation Officer

Any details of roof build up below sarking boards, such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

For roof type locations please see drawing 201

Rain water pipe quantity and sizes as existing

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Lead Details - gutters Sheet 4
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	333
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, Emanchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP









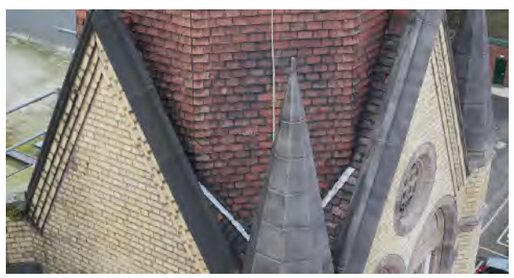
1 / 377 **SS1 - North East Facing**
NTS











2 / 377 **SS1 - East Facing**
NTS











3 / 377 **SS1 - South Facing**
NTS

Final to be repaired as C50 and decorative flashings re-instated to match existing in code 7

Lead hooded vents to be repaired and re-instated as existing

Tiling to be stripped and re-covered using salvaged tiles as H60/146

Mitred hips as H71/322*

Tiling to be stripped and re-covered using salvaged tiles as H60/146

Mitred hips as H71/322*

Lightning protection be to installed to same location following localised completion of roof works to specialist design

Existing lead flashings to be removed and replaced with code 7 lead, detail to be approved

Code 5 Lead soakers as H71/494

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Drawing to be read in conjunction with NBS specification and Schedule of Works

Any details of roof build up below sarking boards such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

For roof type locations please see drawing 201

Annotations apply to all sides of spires

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

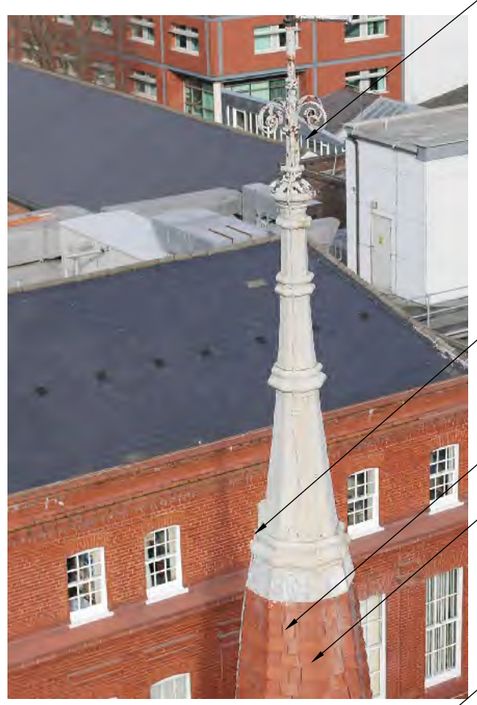
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Spire Repairs - MC
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	377
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T.0161 300 7747, E.manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP







Final to be repaired as C50 and decorative flashings re-instated to match existing in code 7

Lightning protection be to installed to same location following localised completion of roof works to specialist design

Tiling to be stripped and re-covered using salvaged tiles as H60/146

Arris hip tiles as H60/585

Tiling to be stripped and re-covered using salvaged tiles as H60/146

Arris hip tiles as H60/585



Paint to be stripped from timbers and repairs undertaken as C51. Extent of repairs to be agreed with CA following inspection. Timbers to be painted as M60, colour to match exisitng

Code 7 Lead flashing to match existing

Code 5 Lead soakers as H71/494

Code 5 Lead flashings as H71/490





1/378 **SS1 - North Facing**
NTS

2/378 **SS1 - West Facing**
NTS

3/378 **SS1 - South Facing**
NTS

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Drawing to be read in conjunction with NBS specification and Schedule of Works

Any details of roof build up below sarking boards such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

For roof type locations please see drawing 201

Annotations apply to all sides of spires

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Spire Repairs - SS1
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	378
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP









1/379 **SS2 - North Facing**
NTS

2/379 **SS2 - West Facing**
NTS



Final to be repaired as C50 and decorative flashings re-instated to match existing in code 7

Tiling to be stripped and re-covered using salvaged tiles as H60/146

Arris hip tiles as H60/585

Lead valley flashings to match existing details

Code 7 lead gutters to match existing. Lead to be stripped and any defective timbers replaced as G20, Lead sheets to lap as corners of parapet min 150mm

Code 7 Lead saddle flashing to lap over parapet min 150mm

3/379 **SS2 - South Facing**
NTS

Notes:

Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

Purcell shall be notified in writing of any discrepancies.

Drawing to be read in conjunction with NBS specification and Schedule of Works

Any details of roof build up below sarking boards such as insulation and vapour control layers to be provided by Wilson Mason.
The details provided by Purcell in this package have not been co-ordinated with Wilson Mason and it has been assumed that all insulation will be between and below trusses with a suitable VCL.

All eaves details to be as existing with any ventilation re-instated.

Ridge heights to match existing survey information.

For roof type locations please see drawing 201

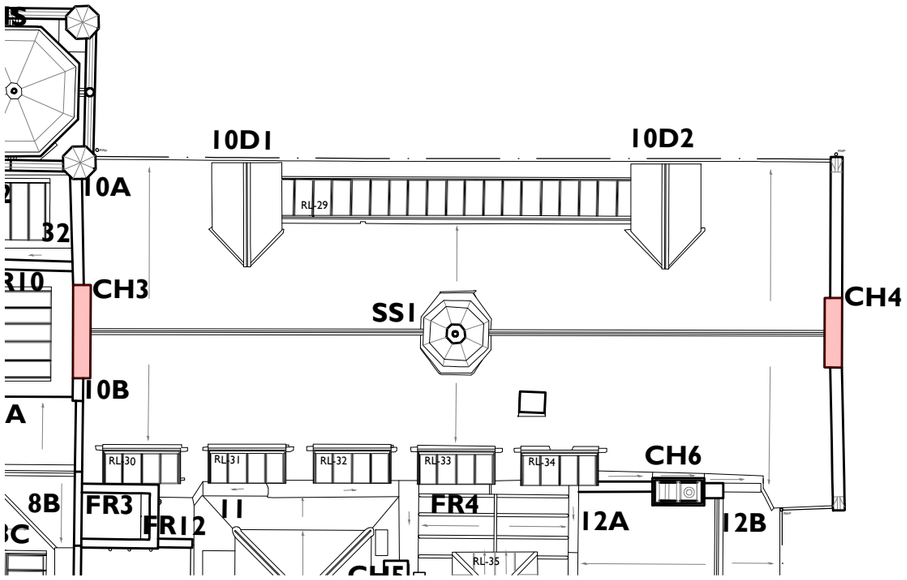
Annotations apply to all sides of spires

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

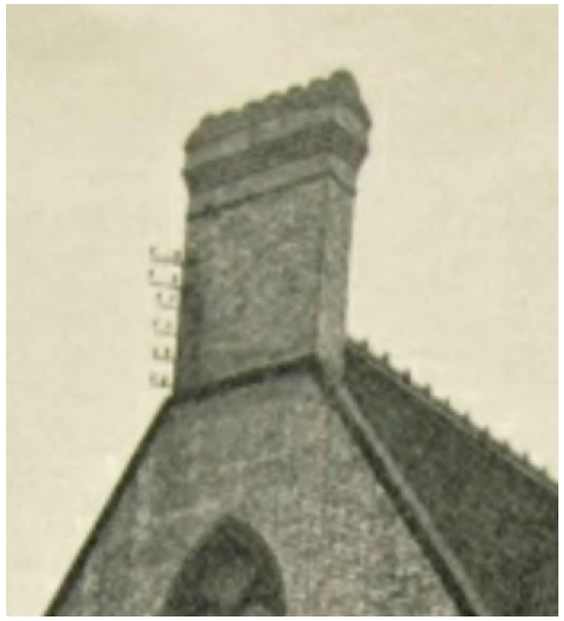
CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Spire Repairs - SS2
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	379
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP



C1 380 **Roof 10 Plan Chimney Locations**
1:200 @ A3



'A small collection of prints with brief descriptions' 1902. Stirling, William (MMC/1/StirlingW/45)

C2 380 **Historic Photo of Chimney CH4**
NTS

Notes:

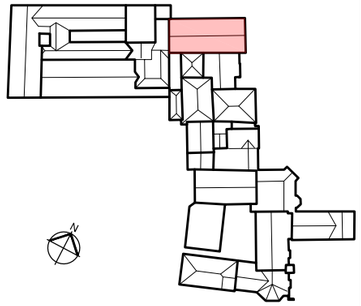
Drawings are based on survey data and may not accurately represent what is physically present.

Do not scale from this drawing. All dimensions are to be verified on site before proceeding with the work.

All dimensions are in millimeters unless noted otherwise.

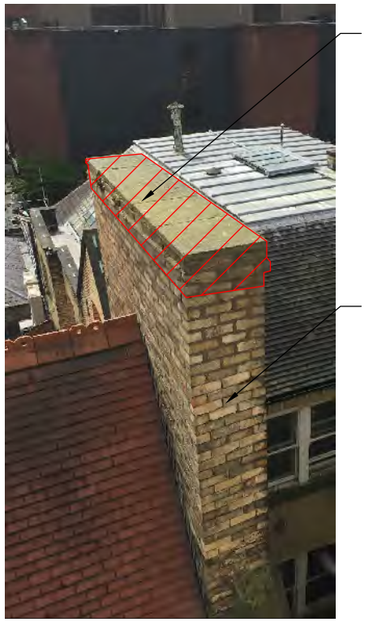
Purcell shall be notified in writing of any discrepancies.

Key Plan
not to scale



Note

Drawing to be read in conjunction with schedule of works and NBS specification.



Remove top 3no. courses and reinstate element to match in coursing detail and size as CH1 including feathers and stone coping and stone fins. Bricks to be in stretcher bond as truncated element

Repoint all faces to existing brickwork as C41*/131*. Cut out any damaged bricks and indent with new/reclaimed to match existing as C41*502*

C3 380 **CH3 as Existing**
NTS
NBS C41*/910



Remove top 3no. courses and reinstate element to match in coursing detail and size as CH1 including feathers and stone coping and stone fins. Bricks to be in stretcher bond as truncated element

Repoint all faces to existing brickwork as C41*/131*. Cut out any damaged bricks and indent with new/reclaimed to match existing as C41*502*

C4 380 **CH4 as Existing**
NTS
NBS C41*/910



Reproduce details to hatched area including string courses and corbelling to match existing details to both CH3 & 4. Stone coping and feathers to match. Brick bonding to match existing on CH3 & 4.

C5 380 **Details as Proposed (To Match Existing Chimney CH1)**
NTS
NBS C41*/910

ISSUE	DATE	DRAWN	CHECKED	DESCRIPTION
First Issue	26/04/2016	SA	DW	

CLIENT	Wilson Mason LLP
PROJECT	The University of Manchester - Coupland 3
DRAWING TITLE	Chimney Reinstatement to Roof 10
SIZE & SCALE	A3L As Stated
DRAWING STATUS	ISSUED FOR TENDER
JOB NUMBER	234500
DRAWING NO.	380
REVISION	-

PURCELL

Purcell, Carver's Warehouse, 77 Dale Street, Manchester M1 2HG, T:0161 300 7747, E:manchester@purcelluk.com
© PURCELL 2012. PURCELL ® IS THE TRADING NAME OF PURCELL MILLER TRITTON LLP

Schedule of Works

Ref	Description	Quantity	NBS Ref.	Notes
To be read in conjunction with 234500-100 & 201 Roof Plan and the Specification. This schedule does not include reference to access, temporary works or other such general items. This schedule is ***not*** *a sequence of work.*				
SCOPE OF WORKS				
	CHIMNEYS			
	The scope of works entails the partial dismantling of chimneys and rebuilding with existing and new stone and brick to match existing and full repointing of all stacks. Allow to provide new chimney pots to match original details.			
	Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features etc.			
	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.			
	WALLS			
	The scope of works entails the complete repointing and repair to the internal faces of all parapets and all faces of internal cores, lightwells and other such masonry not accessible from the main scaffold.			
	Records of masonry to be repaired: Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, special features etc.			
	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.			
	SLATE ROOFS			
	The scope of works entails carefully removing existing slates and any ridge tiles and set aside slates for reuse grouped according to roof slope removed from. Remove any sarking felt and battens and cart away. Remove and cart away existing lead to flashings, box gutters, valley gutters and the like. Inspect existing timber boards and agree renewal of defective boards with the Conservation Officer. Renew timber boarding to roof slopes and fix new tilting fillets to receive new lead gutter linings. Fix new vapour permeable membranes and battens and dress over tilting fillets. Refix slates allowing to reinstate original patterns such as diminishing courses. Rebed ridge tiles in lime mortar or provide new lead rolled hip and ridge flashing as required to match original details. For tender purposes allow to supplement existing slates and ridge tiles with 30% - 50% new. Allow to provide new lead flashings, box gutters, valley gutters and the like to match original details.			
	Records of boards to be repaired: Before starting work, use measurements and photographs as appropriate to record layout, board sizes, joint widths, special features etc.			
	Identification of boards to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of timber or parts of boards to be cut out and replaced. Transcribe markings to drawings/ photographs.			
	PLAIN TILE ROOFS			
	The scope of works entails carefully removing existing tiles and any ridge tiles and set aside slates for reuse grouped according to roof slope removed from. Remove any sarking felt and battens and cart away. Remove and cart away existing lead to flashings, box gutters, valley gutters and the like. Inspect existing timber boards and agree renewal of defective boards with the Conservation Officer. Renew timber boarding to roof slopes and fix new tilting fillets to receive new lead gutter linings. Fix new vapour permeable membranes and battens and dress over tilting fillets. Refix tiles allowing to reinstate original patterns such as spade and fishscale tile bands. Rebed ridge tiles in lime mortar or provide new lead rolled hip and ridge as required to match original detail. For tender purposes allow to supplement existing tiles and ridge tiles with 30% new. Allow to provide new lead flashings, box gutters, valley gutters and the like to match original details.			
	Records of boards to be repaired: Before starting work, use measurements and photographs as appropriate to record layout, board sizes, joint widths, special features etc.			
	Identification of boards to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of timber or parts of boards to be cut out and replaced. Transcribe markings to drawings/ photographs.			
	SPIRES			
	The scope of work entails carefully removing existing tiles and set aside for reuse. The spires consist of softwood sarking boards with Plain Clay Tiles, with lead features, louvres and mitred hips. There are areas of missing tile, defective lead cladding, damaged louvres and cills. Tiles are to be replaced with new tiles to match existing. Leadwork is to repaired/ renewed as required. Repairs/ renewals to louvres and other timbers are to be undertaken.			
	Records of repairs: Before starting work, use measurements and photographs as appropriate to record layout of special features such as lead cladding, louvres struts etc. Removal and renewal of leadwork is to be agreed with the Conservation Officer prior to starting the work.			
	LEAD ROOFS			
	The scope of works entails carefully removing existing coverings to allow for repairs to penny gap boarding and gutter bases. Remove and cart away existing lead sheet coverings, flashings, box gutters and the like. Inspect existing timber boards and agree renewal of defective boards with the Conservation Officer. Provide new lead coverings, flashings, box gutters and the like, including new wood cored rolls and all other details to match existing coverings.			
	Records of boards to be repaired: Before starting work, use measurements and photographs as appropriate to record layout, board sizes, joint widths, special features etc.			
	Identification of boards to be removed, replaced or repaired: Mark clearly, but not indelibly, on face of timber or parts of boards to be cut out and replaced. Transcribe markings to drawings/ photographs.			
	REINFORCED BITUMEN FLAT ROOFS			
	The scope of works entails removal of all existing flat roof coverings and scabbling up of existing screeds, Allow to renew screeds to falls to existing outlet positions. Allow to undertake repairs/ modifications to rooflight kerbs and any other upstands to receive new roof coverings. Provide new outlets to suit.			
	CORRUGATED METAL ROOFS			
	The scope of works entails removal of all existing flat corrugated roof coverings and plastic corrugated rooflights. Provide new plywood roof deck and provide new zinc standing seam roof with zinc parapet gutters to existing outlet positions. Renewal of existing outlets.			
	RAINWATER GOODS			
	The scope of works entails careful removal of all existing high level cast iron hoppers and rainwater pipes to internal elevations and between roof slopes. Sort existing hoppers by location removed from. Allow for inspecting pipes, cleaning down, redecorating and for reinstating, supplementing damaged or corroded pipes, hoppers, shoes and the like with new cast iron to match existing sizes, details etc.			
	ACCESS LADDERS, WALKWAYS AND BALUSTRADING			
	The scope of works entails careful removal of all existing ladders and walkways and set aside for re-use. Remove and retain/ repair metal balustrading to FR1and 17.			

Ref	Description	Quantity	NBS Ref.	Notes
	SERVICES			
	The scope of works entails carful removal of all existing services and allowal for making good to masonry. All for all new services fixings including flashings and fixings. Full scope of service provision is yet to be determined.			
	LIGHTNING PROTECTION			
	All lightning protection to be stripped. New lightning protection to be re-instated as existing following roofing works.			
ROOF SLOPES 1A-B AND BASE OF MC PLAIN TILED ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet and box gutters to both slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet and box gutters -to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective sarking boards to valleys between slope IB and roof 3 and renew defective bottom boards to parapet and box gutters adjacent to external elevations and roofs 2, 4 and 5.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters between roof slopes 1B, 3A and 3B. Provide new lead linings on underlay to parapet and box gutters adjacent to external elevations and roofs 4 and 5. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes	Both slopes	K20/220*,	
3.4	Fix new plain clay tile roof using existing salvaged to slope 1A and new plain clay tiles to match existing details to slope 1B. Allow for new lead soakers and flashings to gable ends.	Both slopes	H60/105E, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new ribbed crested clay ridge tiles to match existing details.	Entire ridge	H60/105A, H60/740	
ROOF SLOPES 2A-D, 3B & 4A WESTMORLAND OLIVE GREEN SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Westmorland olive green slates and plain clay ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet and box gutters to both slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet and box gutters - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all internal walls.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective sarking boards to valleys between slopes 2A-D and slopes 3B, 4A & 6A and renew defective bottom boards to parapet gutters adjacent to external elevations.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters between roof slopes 3B and roof 2b and FR9. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes	All slopes	K20/220*,	
3.4	Fix new Welsh slate roof using new Welsh slate regular sizes to match existing details to roof 14. Allow for new lead soakers and flashings to gable ends.	All slopes	H62/105B, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new ribbed crested clay ridge tiles to match existing details.	Entire ridge	H60/105A, H60/740	
3.6	Provide new cast iron gutter to slope 2B, 3B & 4A	Entire eave	R10/315	
ROOF SLOPE 3A PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet gutter.	All lead.	C20	

Ref	Description	Quantity	NBS Ref.	Notes
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet and box gutters -to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to parapet gutters adjacent to external elevation.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters between roof slopes 1B, 3A and 3B. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes	Entire slope	K20/220*,	
3.4	Fix new plain clay tile roof using existing salvaged to match existing details. Allow for new lead soakers and flashings to gable ends.	Entire slope	H60/105E, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged ridge tiles supplemented with new ribbed crested clay ridge tiles to match existing.	Entire ridge	H60/105A, H60/740	
ROOF SLOPES 4B AND 5A-B WESTMORLAND OLIVE GREEN SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Westmorland olive green slates and plain clay ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet and box gutters to all slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to all slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet and box gutters -to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Allow provisional sum for repairs to blocked window cills below roof slope 4B.	-	C41*/102*	
2.2	Rake out and repoint internal faces of all parapet walls and wall below roof slopes 1B and 4B.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective sarking boards to valleys between slopes 5A-B and slopes 7A & B and renew defective bottom boards to parapet gutters adjacent to external elevations and box gutters between slopes 4B and 5A.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters between roof slopes 5A-B and slope 7A and to box gutters between slopes 4B and 5A. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new West Moorland slate roof using existing salvaged Westmorland slate to match existing details including diminishing courses. Allow for new lead soakers and flashings to gable ends.	All slopes	H62/105A, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new ribbed crested clay ridge tiles to match existing details.	Entire ridge	H60/105A, H60/740	
3.6	Provide new cast iron gutter to slope 5B	Entire eave	R10/315	
ROOF SLOPES 6A-B & 8A PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet gutters to both slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet gutters - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls and gable end to FR1.	All brickwork and sandstone copings.	C41*/131*	
2.2	Allow provisional sum for replacement of copings adjacent to 8A and C2 (32 & FR10).	5no. copings	C41*/106*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to parapet gutters adjacent to external elevation.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to parapet gutters adjacent to both slopes. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	

Ref	Description	Quantity	NBS Ref.	Notes
3.3	Renew sarking boards to eaves slopes.	Both slopes	K20/220*,	
3.3	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gable ends.	Both slopes	H60/105A, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.4	Mortar bed salvaged supplemented with new ribbed crested clay ridge tiles to match existing details.	Entire ridge	H60/105A, H60/740	
3.5	Provide new lead rolls to ridge to slope 8A	Entire ridge	H71/315	
ROOF SLOPES 32 PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet gutters to both slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet gutters - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to parapet gutters	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to parapet gutters adjacent to both slopes. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gable ends.	Both slopes	H60/105A, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
ROOF SLOPES 7A-B AND 8B & C WESTMORLAND OLIVE GREEN SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Westmorland olive green slates and plain clay ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to parapet and box gutters to all slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to all slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet and box gutters - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls. Repoint walls below slopes 7A, 7B and 8C.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective sarking boards to valleys between slopes 8B and slopes 8C and renew defective bottom boards to parapet gutters adjacent to external elevations and box gutters between slopes 8C and roofs 9.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters between roof slopes 8B and slope 8C and to parapet gutters adjacent to external elevations and box gutters between slopes 8C and roofs 9. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new Westmorland olive green slate roof using existing salvaged Westmorland olive green slate to match existing details including diminishing courses. Allow for new lead soakers and flashings to gable ends.	All slopes	H62/105A, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Provide new lead rolls to ridges.	Entire ridge	H71/315	
ROOF 9 PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Omitted			
1.3	Strip sarking felt and battens to all slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet gutters - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			

Ref	Description	Quantity	NBS Ref.	Notes
2.1	Rake out and repoint internal faces of all parapet walls..	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to parapet gutters adjacent to external elevation.	All valleys and box gutters	H71/620	
3.2	Omitted			
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.3	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gable ends.	All slopes	H60/105A, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.4	Mortar bed salvaged supplemented with new ribbed crested clay ridge tiles to match existing details.	Entire ridge	H60/105A, H60/740	
ROOF SLOPES 10A-B PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to dormer valleys, box and parapet gutters to both slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to parapet gutters - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls..	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to dormer valleys, box and parapet gutters adjacent to external elevation.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to dormer valleys, parapet gutters and box gutters adjacent to both slopes. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	Both slopes	K20/220*,	
3.4	Fix new plain clay tile roof using existing salvaged plain clay tiles to match existing details. Allow for new lead soakers and flashings to gable ends.	Both slopes	H60/105E, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed new slotted clay ridge tiles with inserts to match existing details.	Entire ridge	H60/105D, H60/740	
3.6	Fix new plain clay tile roof to dormers D1 and D2 using existing salvaged plain clay tiles to match existing details. Allow to replace lead cheeks.	2no. dormers	H60/105E, H71/150, H71/440	
ROOF 11 WELSH BLUE-GREY SLATE AND PLAIN CLAY TILED ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slates and plain clay tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings and dormer windows.	All lead.	C20	
1.3	Strip sarking felt and battens to all slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormers and valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Repoint walls below roof 11.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.2	Fix new Welsh slate roof using existing new Welsh slate to upper slopes and new plain clay tiles to lower slopes to match existing details. Allow for new lead soakers and new lead rolled ridges and hips to slate roof and purpose made nip tiles to tile roof.	All slopes	H60/105B, H62/105B, H71/315	
3.3	Reclad lead dormer windows.	4no. dormers	H71/150	
3.4	Provide new lead stepped gutter to 18C to parapet walls with new gutter boards to be set to LSA details	1no.	H71/200 (new timber gutter lining)	
ROOF SLOPE 12A WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			

Ref	Description	Quantity	NBS Ref.	Notes
1.1	Carefully remove existing Welsh blue-grey slates, clean of cement bedding and sort and store for reuse. Remove and tip 2 hole crested clay ridge tiles.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings and dormer access enclosure.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormers and valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Repoint walls adjacent to roof 12.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.2	Fix new Welsh slate roof using and new Welsh slate to match original details.	All slopes	H62/105E, H71/440	
3.3	Reclad dormer access enclosure.	1no. dormer.	H71/150	
3.4	Mortar bed new slotted clay ridge tiles with inserts to match existing details.	Entire ridge	H60/105D, H60/740	
ROOF SLOPES 12B, 13A-B PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to dormer valleys, box and parapet gutters to all slopes.	All lead.	C20	
1.3	Strip sarking felt and battens to both slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
1.5	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	All eaves and fascia's	G20/275*, M60/131*	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls..	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to valleys and box gutters adjacent to slopes 12B and 13A-B.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to box and valley gutters adjacent to slopes 12B and 13B and 12A. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	Both slopes	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gable ends.	Both slopes	H60/105C, H71/440	
3.5	Mortar bed new slotted clay ridge tiles with inserts to existing details.	Entire ridge	H60/105D, H60/740	
ROOF SLOPES 14A-D WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slates, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings.	All lead.	C20	
1.3	Strip sarking felt and battens to all slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormers and valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Repoint walls adjacent to roof 18, 20 and below roof 14.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.2	Fix new Welsh slate roof using new Welsh slate. Allow for new lead rolled hip and ridge flashings.	All slopes	H62/105B, H71/315	Repairs/ renewal of rooflights flashings to Wilson Mason details and specifications.
3.3	Reclad box vents.	1no. dormer.	H71/150	
3.4	Repair and redecorate box vents to 14A - to be agreed with Conservation Officer.	3no. Box vents	C51, M60/131*	
ROOF SLOPE 15A WELSH BLUE-GREY SLATE ROOF				

Ref	Description	Quantity	NBS Ref.	Notes
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slates and two hole crested clay ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings.	All lead.	C20	
1.3	Strip sarking felt and battens to all slopes.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormers and valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Repoint walls adjacent to roof 18A and 13A.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.2	Fix new Welsh slate roof using new Welsh slate and lead soakers to match existing details.	All slopes	H62/105B, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.3	Mortar bed salvaged supplemented new two hole crested clay ridge tiles to match existing details.	Entire ridge	H60/105C, H60/740	
ROOF SLOPE 15B PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to dormer valleys.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormer valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapet walls..	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to dormer valleys.	All valleys	H71/620	
3.2	Provide new lead linings on underlay to dormer valleys. All to existing details.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	Both slopes	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gable ends.	Both slopes	H60/105B, H71/440	
3.5	Mortar bed salvaged supplemented with new two hole crested clay ridge tiles.	Entire ridge	H60/105C, H60/740	
3.6	Fix new plain clay tile roof to dormer using new plain clay tiles to match existing details. Allow to replace lead cheeks.	1no. dormer	H60/105C, H71/150, H71/440	
3.7	Repair and redecorate eaves and fascia's - to be agreed with Conservation Officer.	All eaves and fascia's	G20/275*, M60/131*	
ROOF SLOPE 16 WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slates, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormers and valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Repoint walls adjacent to roof 17.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.2	Fix new Welsh slate roof using new Welsh slate and lead soakers.	All slopes	H62/105B, H71/440	
ROOF 17 WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			

Schedule of Works

Ref	Description	Quantity	NBS Ref.	Notes
1.1	Carefully remove existing Welsh blue-grey slates, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, ridges and hips.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
2.0	**WALLS**			
2.1	Repoint interior faces of parapets to all elevations.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.2	Fix new Welsh slate roof using existing salvaged Welsh slate. Allow for new lead rolled hip and ridge flashings.	All slopes	H62/105C, H71/315	
ROOF SLOPES 18A-D PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to dormer valleys.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormer valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all walls adjacent to roof slopes 18A, C & D	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to dormer valleys.	All valleys	H71/620	
3.2	Provide new lead linings on underlay to dormer valleys. All to existing details.	All valleys	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	Both slopes	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to mitred hips.	Both slopes	H60/105C, H71/322*	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new two hole crested clay ridge tiles to existing details.	Entire ridge	H60/105C, H60/740	
3.6	Fix new plain clay tile roof to dormer using new plain clay tiles to match existing details. Allow to replace lead cheeks.	3no. Dormers	H60/105C, H71/150, H71/440	
3.7	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	All eaves and fascia's	G20/275*, M60/131*	
3.8	Allow provisional sum for repairs to wrought iron ridge finials.	2no. Finials	C50	
3.9	Provide new lead apron flashing to finials to match existing details	2no. finials	H71/410	
3.10	Fix purpose made tiled hips to all slopes using new tiles to match existing details.	All hips	H60/585	
3.11	Provide new lead stepped gutter to 18C to parapet walls with new gutter boards to be set to LSA details	2no.	H71/200 (new timber gutter lining)	
ROOF SLOPES 19A-B PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to dormer valleys.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to dormer valleys - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all walls adjacent to roof slopes 21 and 22.	All brickwork and sandstone copings.	C41*/131*	
2.2	Provide new stone jamb to window to west gable to match existing.	1no. Jamb	C41*/111*	
2.3	Rebed ridge coping to west gable.	All brickwork and sandstone copings.	C41*/106*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to dormer valleys.	All valleys	H71/620	

Ref	Description	Quantity	NBS Ref.	Notes
3.2	Provide new lead linings on underlay to dormer valleys. All to existing details.	All valleys	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	Both slopes	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gables.	Both slopes	H60/105D, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts.	Entire ridge	H60/105D, H60/740	
3.6	Fix new plain clay tile roof to dormer using new plain clay tiles to match existing details. Allow to replace lead cheeks.	3no. Dormers	H60/105D, H71/150, H71/440	
3.7	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	All eaves and fascia's	G20/275*, M60/131*	
3.8	Retain and repair metal tie to CH10, add lead flashing to join at roof pitch	1no.	H71	
ROOF SLOPES 20A-B & 23A-B WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slates and clay ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, box gutters and parapet gutters to all roofs.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
2.0	**WALLS**			
2.1	Repoint interior faces of parapets to all elevations.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to dormer valleys, box and parapet gutters adjacent to external elevations.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to parapet gutters and box gutters adjacent to all slopes. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new Welsh slate roof using existing salvaged Welsh slate. Allow for new lead soakers and flashings to gables.	All slopes	H62/105C, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts to match existing details.	Entire ridge	H60/105D, H60/740	
ROOF SLOPES 21, 22A-B & 24A WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slates and clay ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Ridge tiles and slates to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, box gutters and parapet gutters to all roofs.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
2.0	**WALLS**			
2.1	Repoint interior faces of parapets to all elevations.	All brickwork and sandstone.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to dormer valleys, box and parapet gutters adjacent to external elevations.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to parapet gutters and box gutters adjacent to all slopes. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new Welsh slate roof using new Welsh slate. Allow for new lead soakers and flashings to gables.	All slopes	H62/105B, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts to 24A.	Entire ridge	H60/105D, H60/740	
3.6	Provide new lead rolls to ridges to 21, 22A & 22B	Entire ridge	H71/315	
ROOF SLOPES 24B, 26A-B & 30A PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			

Ref	Description	Quantity	NBS Ref.	Notes
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	**All tiles.**	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings to all roofs.	**All lead.**	C20	
1.3	Strip sarking felt and battens.	**All felt and battens.**	C20	
1.4	Repair defective sarking boards to valley gutters to all roofs - to be agreed with Conservation Officer.	**Allow 30% sarking boards.**	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapets, gable ends of roofs 24, 26 & 30	**All brickwork and sandstone copings.**	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to valley gutters to all roofs.	**All valleys and box gutters**	H71/620	
3.2	Provide new lead linings on underlay to valley gutters, box gutters and parapet gutters to all roofs. All to existing details.	**All valleys and box gutters**	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	**All slopes**	K20/220*,	
3.4	Fix new plain clay tile roof using existing salvaged plain clay tiles to match existing details. Allow for new lead soakers and flashings to gables.	**All slopes**	H60/105E, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts to existing details	**Entire ridge**	H60/105D, H60/740	
3.6	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	**All eaves and fascia's**	G20/275*, M60/131*	
ROOF SLOPES 25A-B & 27A-B PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	**All tiles.**	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, valley gutters, box gutters and parapet gutters to all roofs.	**All lead.**	C20	
1.3	Strip sarking felt and battens.	**All felt and battens.**	C20	
1.4	Repair defective sarking boards to valley gutters, box gutters and parapet gutters to all roofs - to be agreed with Conservation Officer.	**Allow 30% sarking boards.**	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapets, gable ends of roofs 25 and 29 and walls below roofs 27A and B.	**All brickwork and sandstone copings.**	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to valley gutters, box gutters and parapet gutters to all roofs.	**All valleys and box gutters**	H71/620	
3.2	Provide new lead linings on underlay to valley gutters, box gutters and parapet gutters to all roofs. All to existing details.	**All valleys and box gutters**	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	**All slopes**	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gables.	**All slopes**	H60/105D, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts to match existing details.	**Entire ridge**	H60/105D, H60/740	
3.6	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	**All eaves and fascia's**	G20/275*, M60/131*	
ROOF 28 METAL ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Remove and tip existing corrugated metal roof coverings, roof deck and corrugated plastic rooflights.	**All coverings**	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapets.	**All brickwork.**	C41*/131*	
3.0	**ROOFS**			
3.1	Supply and fix new standing seam zinc roof on plywood deck.	**Entire roof**	H74/110*	
3.2	Supply and fix new zinc gutter lining to perimeter of roof.	**Entire roof**	H74/210*	
ROOF SLOPES 29A-B, 30B & 36A-B PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			

Ref	Description	Quantity	NBS Ref.	Notes
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, valley gutters, box gutters and parapet gutters to all roofs.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to valley gutters, box gutters and parapet gutters to all roofs - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapets and wall between roofs 29 and 30.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to valley gutters, box gutters and parapet gutters to all roofs.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters, box gutters and parapet gutters to all roofs. All to existing details.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to gables.	All slopes	H60/105D, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts to existing details.	Entire ridge	H60/105D, H60/740	
3.6	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	All eaves and fascia's	G20/275*, M60/131*	
3.7	Reclad dormer cheeks to roof 29 with fishscale plain clay tiles to match existing.	1no. dormer	H60/145	
3.8	Provide new lead rolled roof covering to dormer.	1no. dormer	H71/150	
ROOF SLOPES 31A-D, 32 AND 33 WELSH BLUE-GREY SLATE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing Welsh blue-grey slat, clean and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, ridges and box gutters to all roofs.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
2.0	**WALLS**			
2.1	Omitted			
3.0	**ROOFS**			
3.1	Renew defective bottom boards to valleys and box gutters adjacent to external elevations.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valleys and decorative cornice gutters adjacent to all slopes. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All valleys gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new Welsh slate roof using existing salvaged Welsh slate. Allow for new lead rolled hip and ridge flashings.	All slopes	H62/105C, H71/315	
ROOF SLOPES 34A-B AND 35A-D PLAIN CLAY TILE ROOF				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles and ridge tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings, valley gutters, box gutters and parapet gutters to all roofs.	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to valley gutters, box gutters and parapet gutters to all roofs - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Rake out and repoint internal faces of all parapets and gable end of roof 29 .	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Renew defective bottom boards to valley gutters, box gutters and parapet gutters to all roofs.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters, box gutters and parapet gutters to all roofs. All to existing details.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new plain clay tile roof using new plain clay tiles to match existing details. Allow for new lead soakers and flashings to roof 34.	All slopes	H60/105D, H71/440	Repairs/ renewal of rooflights and flashings to Wilson Mason details and specifications.
3.5	Mortar bed salvaged supplemented with new slotted clay ridge tiles with inserts to match existing details.	Entire ridge	H60/105D, H60/740	

Ref	Description	Quantity	NBS Ref.	Notes
3.6	Repair and redecorate defective eaves and fascia's - to be agreed with Conservation Officer.	All eaves and fascia's	G20/275*, M60/131*	
3.7	Allow provisional sum for repairs to cupola to roof 35.	1no. dormer	H60/145	
FLAT ROOFS FR1, FR3 & FR10 REINFORCED BITUMEN MEMBRANE				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove all existing membrane coverings including upstands and kerbs.	All coverings	C20	
1.2	Scabble up all existing screed.	All screed.	C20	
2.0	**WALLS**			
2.1	Repoint interior faces of parapets to all elevations.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Provide new screed to falls.	Entire roof.	M10/110	
3.2	Provide new reinforced bitumen membrane warm roof covering.	Entire roof	J41/110*	
3.3	Allow for modifications to existing kerbs to rooflight to FR10 to receive new roof build-up.	1no. Rooflight	-	
FLAT ROOFS FR2, FR4, FR5, FR7, FR8, FR9, FR12, FR11, FR13, FR14, FR15, FR16 & FR17 LEAD SHEET ROOFS				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove all existing lead sheet coverings including flashings.	All coverings	C20	
1.2	Omitted			
1.3	Repair defective penny gap boards to all roofs - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**WALLS**			
2.1	Repoint interior faces of parapets to all elevations.	All brickwork and sandstone copings.	C41*/131*	
3.0	**ROOFS**			
3.1	Repair defective penny gap boards to roof surface and box gutters.	All valleys and box gutters	H71/620	
3.2	Provide new lead sheet roofs with wood cored rolls on underlay to roof surface and adjacent box gutters with associated cover flashings. All to existing details. Allow for lining existing sumps and connecting to existing gutter linings.	All roofs	H71/ 110, H71/230, H71/430	
SPIRES MS, SS1 AND SS2 PLAIN CLAY TILE AND LEAD CLAD SPIRES				
1.0	**DEMOLITION/STRIPPING OUT GENERALLY**			
1.1	Carefully remove existing plain clay tiles, clean of cement bedding and sort and store for reuse.	All tiles.	C20	Tiles to be stored in groups identifying location removed from.
1.2	Strip old lead to flashings and claddings to all roofs. (Allow to carefully peel back existing sand cast lead flashing to struts to MS and kead bossed spires of MS, SS1 and SS2 and leave in-situ during retiling works).	All lead.	C20	
1.3	Strip sarking felt and battens.	All felt and battens.	C20	
1.4	Repair defective sarking boards to valley gutters, box gutters and parapet gutters to base of spires - to be agreed with Conservation Officer.	Allow 30% sarking boards.	C20	
2.0	**ROOFS**			
3.1	Renew defective bottom boards to valley gutters, box gutters and parapet gutters to bases of spires.	All valleys and box gutters	H71/620	
3.2	Provide new lead linings on underlay to valley gutters, box gutters and parapet gutters to all roofs. All to existing details.	All valleys and box gutters	H71/ 620, H71/230	
3.3	Renew sarking boards to eaves slopes.	All slopes	K20/220*,	
3.4	Fix new plain clay tile roof using existing salvaged tiles to match existing details including arris hips.	All slopes	H60/105E, H60/585 H71/322*	
3.5	Provide new lead flashings and claddings, bossed to match existing details to SS1.	All slopes	H71/470A	
3.6	Repair and redecorate louvres to SS1.	All slopes	G20/275*, M60/131*	
3.7	Allow provisional sum for new wrought iron weathervane to MS to match original details.	1no. Weathervane	H60/145	
CHIMNEYS				
1.0	**MC**			
1.1	Undertake cramp repairs to lintol above louvre to south elevation and rebed adjacent lintol.	1no. Cramp	C41*/146*, C41*/151*	
1.2	Rebed 3no. Ashlar quoin stones.	3no. Quoins	C41*/106*	

Schedule of Works

Ref	Description	Quantity	NBS Ref.	Notes
1.3	Rebed kneeler stone to coping to south elevation.	1no. Coping	C41*/106*	
1.4	Repoint north and south elevations and main stack.	100% repointing	C41*/131*	
1.5	Defrass surface of stone banded dressings to main stack.	3no. Bands	C41*/116*.	
1.6	Clean north and south elevations and main stack.	100% cleaning	C40*	
2.0	CH1			
1.1	Repoint all faces.	100% repointing	C41*/131*	
3.0	CH2			
3.1	Remove corroded fixings, and cut out isolated damaged bricks and indent with new to match existing.	30% to all faces	C41*/502*	
3.2	Repoint all faces.	100% repointing	C41*/131*	
4.0	CH3			
4.1	Take down top 3no. Courses. Reinstate truncated element to match original detail (Stack crown, copings and flue dividers to match CH1).	1no. Chimney	C41*/910*	
4.2	Repoint all faces.	All faces	C41*/131*	
5.0	CH4			
5.1	Take down top 3no. Courses. Reinstate truncated element to match original detail (Stack crown, copings and flue dividers to match CH1).	1no. Chimney	C41*/910*	
5.2	Cut out isolated damaged bricks and indent with new to match existing,	30% to all faces	C41*/502*	
5.3	Repoint all faces.	All faces	C41*/131*	
6.0	CH5			
6.1	Cut out isolated damaged bricks and indent with new to match existing,		C41*/502*	
6.2	Repoint all faces.	All faces	C41*/131*	
6.3	Rebed cappings.		C41*/106*	
7.0	CH6			
7.1	Rebed all stone copings and flue dividers. Remove existing chimney pot.	1no. chimney	C41*/910*	
7.2	Repoint all faces.	All faces	C41*/131*	
8.0	CH7			
7.1	Rebed all stone copings and flue dividers, removing cement mortar and break out previous cement emergency repairs. Piece in new stone coping to damaged areas to match existing profiles. Remove existing chimney pot if redundant	1no. chimney	C41*/910*	
7.2	Repoint all faces.	All faces	C41*/131*	
9.0	CH8			
9.1	Repoint all faces.	All faces	C41*/131*	
10.0	CH9			
10.1	Repoint all faces.	All faces	C41*/131*	
11.0	CH10			
11.1	Repoint all faces.	All faces	C41*/131*	
11.2	Redecorate iron tie bar.	1.no tie bar	M60/193*	
12.0	CH11			
12.1	Repoint all faces.	All faces	C41*/131*	
13.0	CH12			
13.1	Repoint all faces.	All faces	C41*/131*	
14.0	CH13			
14.1	Repoint all faces.	All faces	C41*/131*	
15.0	CH14			
15.1	Repoint all faces.	All faces	C41*/131*	
16.0	CH15			
16.1	Repoint all faces.	All faces	C41*/131*	
16.2	Replace stone bearers supporting saddleback capstones.	8no. Stones	C41*/111*	
16.3	Replace cracked coping stones,	3no. Stones	C41*/111*	
17.0	CH16			
17.1	Repoint all faces.	All faces	C41*/131*	
17.2	Rebed coping stones top row of brickwork and chimney pots.	1no. chimney	C41*/106*	
18.0	CH17			
18.1	Repoint all faces.	All faces	C41*/131*	
18.2	Provide new terracotta chimney pots.	8no. Pots	F30/940	
19.0	CH18			
19.1	Repoint all faces.	All faces	C41*/131*	
19.2	Defrass stone banding.	All faces	C41*/116*.	
20.0	CH19			
20.1	Repoint all faces.	All faces	C41*/131*	
21.0	CH20			
21.1	Repoint all faces.	All faces	C41*/131*	
21.2	Clean all faces.	All faces	C40*	
22.0	CH21			
22.1	Repoint all faces.	All faces	C41*/131*	
22.2	Provide new terracotta chimney pots.	1no. Pots	F30/940	
23.0	CH21			
23.1	Repoint all faces.	All faces	C41*/131*	
23.2	Provide new terracotta chimney pots.	1no. Pots	F30/940	
24.0	CC			
24.1	Repoint all faces.	All faces	C41*/131*	
24.2	Cut out isolated damaged bricks and indent with new to match existing,	30% all faces	C41*/502*	

Schedule of Works

Ref	Description	Quantity	NBS Ref.	Notes
24.3	Clean all faces.	All faces	C40*	