Proposed Specification

Roof System:	elZinc Slate on structured underlay on ventilated plywood / elZinc slate gutter and downpipes
Project Reference:	Walker Art Gallery, Liverpool
Prepared For:	Donald Insall Associates
Contact name:	Franziska Sieck
Contact details:	Franziska Sieck <Fran.Sieck@insall-architects.co.uk>
SITE ADDRESS:	**William Brown St, Liverpool L3 8EL**
Prepared By:	Simon Walker
Contact Tel:	07775 807900
Contact Email:	simonwalker0904@gmail.com

SIG Zinc and Copper is fully owned by SIG plc, a FTSE 250 organisation that focuses on delivering market leading solutions to the construction industry. We strive to be at the forefront of designing, supplying and guaranteeing exclusive 21st Century roofing solutions.

Teaming up with market leading manufacturers including NedZink, KME TECU, ElZinc and Uginox, as well as a national supply chain enables us to offer a complete and impartial design and supply service for both new build and refurbishment projects.
Key services include:

- Fully conversant technical team
- Advise on structural design
- Fabrication of bespoke designs
- Supplying all the materials on time
- Relationship with and understanding of market leading manufacturers
- Professional Indemnity Insurance and full system guarantees

Specification Pages

SIG Zinc & Copper specification for elZinc Slate standing seam roofing on structured underlay on ventilated plywood deck

H74 Zinc strip / sheet coverings / flashings

To be read in conjunction with preliminaries / general conditions

TYPES OF ZINC WORK

Roofing

- Roofing system: elZinc standing seam.
- Substrate: 18mm exterior grade WBP plywood, laid evenly with flush joints, fixings driven to avoid contact with underside of zinc. Any treatments to plywood to be compatible with zinc. A continuous ventilated air space of at least 50mm to be provided beneath plywood.
- Structured underlay: Klober Permo Sec
- Zinc: as per clause 520
- Finish: elZinc Slate
- Thickness: 0.7mm
- Longitudinal joints: 25mm high double lock standing seam as per clause 830 – seams below 5° must be sealed with ilmod stansing seam tape
- Seam spacing: 430mm centres
- Cross joints: as per manufacturers recommendations
- Ventilated eaves: as per clause 340
- Ridge / Hip detail: Ventilated as per clause 320
- Verge detail: as per clause 370

320 Ridge/hip standing seams – elZinc Low profile ridge

- Type: Double lock welt standing seam, 40 mm (minimum) high.
- Abutting roof standing seams: Fold down with allowance for lateral thermal movement and turn up into ridge/ hip double lock welt.
- Perforated zinc insect mesh as per drawing

340 Standing seam eaves – with closed ends

- Zinc underlap: Cover to roof slope: 100 mm (minimum) with anti-capillary welt at top edge.
- Projection: 25 mm for forming into drip welt.
- Fixing: To roof slope at 100 mm centres avoiding through fixings at standing seam positions.
- Standing seam ends: Closed: Cut and fold ends.

- Standing seam ends: Folded: Fold down ends with equal splays and allowance for lateral thermal movement.
- Roof covering: Fold around underlap projection and single welt to form a drip.

370 Standing seam verge

- Verge zinc: as per clause 520
- Finish: elZinc Slate
- Thickness: 0.7mm
- Top edge: Standing seam longitudinal joint.
- Position flush with verge.
- Forming: Secure top of verge into double welt and clips of standing seam.
- Bottom edge: Continuous clip, fix at 200 mm centres..
- Forming: Secure bottom of verge around clip with fold.
- Maximum spacing: 2000mm

410 Apron flashings

- Zinc: as per clause 520
- Finish: elZinc Slate
- Thickness: 0.7mm
- Joints in length: End to end lapped not less than 100 mm.
- Flashings restrained at joints or by fixed clips: Strip length 3 m (maximum).
- Flashing with one edge wedged and pointed into masonry: Strip length 2.5 m (maximum).
- Upstand: 100 mm (minimum).

420 Cover flashings

- Zinc: as per clause 520
- Finish: elZinc Slate
- Thickness: 0.7mm
- Joints in length: End to end lapped 100 mm (minimum).
- Flashings restrained at joints or by fixed clips: Strip length 3 m (maximum).
- Flashing with one edge wedged and pointed into masonry: Strip length 2.5 m (maximum).
- Cover to roofing upstand: 75 mm (minimum).

430 Step flashings

- Lengths (one edge wedged and pointed into masonry): Strip length 2.5 m (maximum).
- Cover to roofing upstand: 75 mm (minimum).
- Fixing: Zinc or lead wedges every course.

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440 Soakers and step flashings

450 Step and cover flashings

460 Change of roof pitch flashings

- Zinc: as per clause 520
- Finish: elZinc Slate
- Thickness: 0.7mm
- Zinc underlap: Continuous clip/fascia drip as clause 760.
- Cover to roof slope: Anti capillary welt at top edge – minimum 180mm.
- Lengths: Not more than 2000mm – lapped not less than 100mm
- Cover to roof upstand: Not less than 150mm.
- Fixings: clips as clause 750 at maximum 300mm centres.

470 Miscellaneous flashings

Execution
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.
- Installing contractor: Member of SIG Zinc and Copper - DATAC
- 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.

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515 Soldering and naked flame preheating

- In situ soldering and naked flame preheating: Permitted, subject to completion of a 'hot work permit' form and compliance with its requirements.

520 Zinc strip / sheet – standard temper alloy

- Zinc-titanium-copper-alloy:
- Standard: To EN 501 1994 and EN 988 1997 and manufactured under ISO 9002
- Stamped or labelled with type, finish and thickness.
- Type: elZinc Slate
  Available from SIG Zinc & Copper
  Mannheim House
  Gelders Hall Road
  Shepshed
  Leicestershire
  LE 12 9NH
- Product reference: elZinc Slate

535 Integrity of zinc – contractor determined parameters

- 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: Calculated to BS 6399-2

550 Lightning protection

- Zinc coverings: Attach to lighten protection system as required.
- Electrical continuity: Provide between zinc strips/sheets via welting of joints.

555 Layout

- Setting out of longitudinal and cross joints: Submit proposals

610 Suitability of substrates

- Condition: Dry and free of dust, debris, grease and other deleterious matter.
- 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: 22% (maximum) at time of covering.
- Protection: Keep dry and cover with zinc at the earliest opportunity.

630 Plywood underlay

- Standard: Manufactured to an approved national standard and to BS EN 636, section 7 (plywood for use in humid conditions).
- Sheet size 2400 or 1200 x 1200 mm and 18 mm thick.

- Laying: Parallel with perimeter edges with cross joints staggered and a 0.5–1 mm gap between sheets
- Fixing: With 25 mm annular ringed shank galvanized, sherardized or stainless steel nails, at 300 mm grid centres over the area of each sheet and at 150 mm centres along edges, set in 10 mm from perimeter edges and in pairs across joints.
- Nail heads: Set flush with or just below surface

645 Underlay

- Structured: Klober Permo Sec

650 Laying underlay - structured

- Handling: Prevent tears and punctures.
- Laying: Butt jointed onto a dry substrate.
- Fixing edges: With galvanized, sherardized or stainless steel staples or 20 x 3 mm extra large head clout nails.
- Do not lay over eaves and drip/ step zinc underlaps.
- Protection: Keep dry and cover with zinc at the earliest opportunity.

Fixing zinc

710 Fixings for clips

Nails for fixing clips

- To stainless steel clips: Stainless steel (austenitic). Shank type: Annular ringed, helical threaded or serrated. Shank diameter: 2.65 mm (minimum). Head: Flat.
  Length: 25 mm (minimum) or equal to substrate thickness.
  Screws for fixing clips to concrete/ masonry substrates
- To stainless steel clips: Stainless steel (austenitic) screws to BS 1210, table 4.
- Diameter: 3.35 mm (minimum).
- Length: 25 mm (minimum).
- Washers and plastic plugs: Compatible with screws.
  Screws for stainless steel clips to composite metal decks
- Type: Self tapping as recommended by the deck and zinc manufacturer.
- Sealant to flashings at masonry joints
- Standard: To BS EN ISO 11600

720 Standing seam fixed clips

- Stainless steel (austenitic) clips: As supplied or recommended by the zinc manufacturer to suit project conditions.
- Dimensions: Width: 30 mm (minimum). Base length: 20 mm (minimum). Upstand: To suit standing seam profile.
- Fixing: Secure each clip to substrate with two fasteners.

Available from: SIG Zinc & Copper
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Gelders Hall Road
Shepshed
Leicestershire
LE 12 9NH

725 Standing seam sliding clips

- Stainless steel (austenitic) clips: As supplied or recommended by the zinc manufacturer to suit project conditions.
- Fixed component dimensions: Width: 90 mm (minimum). Base length: 20 mm (minimum). Upstand: 20 mm, with slot for locating sliding component.
- Sliding component dimensions: Width: 30 mm (minimum). Upstand: To suit standing seam profile.
- Fixing: Secure each clip to substrate with three fixings.

Available from: SIG Zinc & Copper
Mannheim House
Gelders Hall Road
Shepshed
Leicestershire
LE 12 9NH

750 Clips for flashings / cross joints

- Stainless steel (austenitic) clips:

Available from:
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Leicestershire
LE 12 9NH

- Fixing: Secure each clip to substrate with two 3.35 x 25mm Stainless Steel (Austenitic) Annular ring shank nails.

760 Continuous clips

- Material: Zinc of same thickness as that being secured.

Dimensions:

- Width: To suit detail
- Length: 1.8 m (maximum).
- Fixing: To substrate at 200 mm centres. Welt edge of strip/ sheet being fixed to continuous clip and dress down.

770 Wedge fixing into joints / chases

- Joint/ Chase: Rake out to a depth of 25 mm (minimum).
- Zinc: Fold 25 mm into joint/ chase with a water stop welted end.
- Fixing: Zinc or lead wedges at maximum 450 mm centres, at every change of direction, and with at least two for each piece of zinc.

780 Wedge fixing into damp proof course joints

- Joint: Rake/ Cut out under damp proof course to a depth of 25 mm (minimum).
- Zinc: Fold 25 mm into joint with a waterstop welted end.
- Fixing: Zinc or lead wedges at 450 mm (maximum) centres, at every change of direction, and with at least two for each piece of zinc.

790 Screw fixing into joint / chases

- Joint/ Chase: Rake out to a depth of 25 mm (minimum).
- Zinc: Fold into joint/ chase and up back face.
- Fixing: Into back face with galvanized, sherardized or stainless steel screws and washers and plastics plugs at 450 mm (maximum) centres, at every change of direction, and with at least two fixings for each piece of zinc.

Jointing zinc

810 Forming details

- Folding and welting: Do not thin, or split zinc strip/ sheet.
- Thermal movement: Form details with appropriate allowance for movement, without impairment of security at full expansion or contraction.

815 Free edge details

- Visible feature edges: Finish with 13 mm beads centred on plane of panels.

825 Soldering details

- Solder (not less than 40% tin content) and flux suitable for zinc.
- Flux residues: Wash away as work proceeds.
- Joints: Neat and consistent with an overlap of clean zinc as recommended for the particular joint by the zinc manufacturer.

830 Standing seam joints

- Joint allowances: 45 mm overlap, 35 mm underlap and 5 mm gap for thermal movement. Preformed interlocking profiles for overlap and underlap are permitted.
- Position of clips: Fixed clips (clause 720) to comply with clause 535. Sliding clips (clause 725) to comply with clause 535.

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- Forming: Double welt overlap and clips around underlap to form a standing seam 25 mm high of consistent cross section.

R10 Rainwater drainage systems

To be read with Preliminaries/ General Conditions.

GENERAL

110 GRAVITY RAINWATER DRAINAGE SYSTEM SIG Zinc & Copper Rainwater system
- Gutters, down pipes and all accessories (excluding brackets) in elZinc Slate Protect+
- Below ground drainage: Submit proposals.
- Disposal: To soak away as section R12.

SYSTEM PERFORMANCE

210 DESIGN
- Design: Complete the design of the rain water drainage system.
- Standard: To BS EN 12056-3 : 2000.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

221 COLLECTION AND DISTRIBUTION OF RAIN WATER
- General: Complete, and without leakage or noise nuisance.

230 DESIGN PARAMETERS - GENERAL
- Roof and gutter construction and finish: elZinc Slate / elZinc Graphite downpipes
- Design rate of rainfall: As BS EN 12056-3, National Annex NB.2.
  - Category: 4.
- Design life of building: 50 years.
- Available capacity of existing below ground drainage (maximum): To be determined by Architect / Engineer.

355 ZINC GUTTERS
- Manufacturer: SIG Zinc & Copper, Mannheim House, Gelders Hall Road, Shepshed, Leicestershire, LE12 9NH . Tel: 0844 443 4772 - Email: sales@sigzincandcopper.co.uk
  Web: www.sigzincandcopper.co.uk
  -Product reference: SIG Zinc & Copper RWG.
- Profile: Parapet gutters as per architects drawings
  Half round gutter, ref: 250mm girth
- Thickness: 0.7 mm.
- Brackets: Galvanized steel and zinc, fascia type. Fix every 500mm
  - Fixings: Stainless steel screws.
    Size: 30 x 4 mm.
- Accessories: Half round gutter, ref: 250:

- 80mm downpipe
  Stop ends
  Bespoke Hopper
  Down pipe bend

360 Solder For SIG Zinc & Copper RWG
- Type 40 /60 Tin / lead solder

EXECUTION

600 PREPARATION
- Work to be completed before commencing work specified in this section:
  - Below ground drainage. Alternatively, make temporary arrangements for dispersal of rain water without damage or disfigurement of the building fabric and surroundings.

605 INSTALLATION GENERALLY
- Electrolytic corrosion: Avoid contact between dissimilar metals where corrosion may occur.

- 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: Silicone Adhesive or solder as per clause 360.
- Brackets: Securely fixed.
  - Fixings: To be determined by Architect / Engineer].
    Fixing centres: 450 - 500 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 back fall. Position high points of gutters as close as practical to the roof and low points not more than 50 mm below the roof. Minimum fall to be 1 in 200
- Outlets: Align with connections to below ground drainage.

630 INSTALLING RAINWATER OUTLETS
- Fixing: Secure. Fix before connecting pipe work.
- Junctions between outlets and pipe work: Accommodate movement in structure and pipe work.

635 FIXING PIPE WORK
- Pipe work: 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 pipe work 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 PIPE WORK

• Bracket fixings: To be determined by Architect / Engineer].
• Distance between bracket fixing centres (maximum): 1000 mm.

650 JOINTING PIPE WORK AND GUTTERS

• General: Joint with materials and fittings that will make effective and durable connections.
• Jointing differing pipe work 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.

700 ACCESS FOR TESTING AND MAINTENANCE

• General: Install pipe work and gutters with adequate clearance to permit testing, cleaning and maintenance.

COMPLETION

900 TESTING GENERALLY

• Dates for testing: Give notice.
  - Period of notice (minimum): To be determined by Architect / Engineer].
• Preparation:
  - Pipe work: 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.

905 INTERNAL PIPE WORK TEST - ENGLAND, WALES, IRELAND AND NORTHERN IRELAND

• Preparation: Temporarily seal open ends of pipe work with plugs.
• Test apparatus: Connect a 'U' tube water gauge and air pump to pipe work via a plug.
• Testing: Pump air into pipe work until gauge registers 38 mm.
• Required performance:
  - Allow a period for temperature stabilization, after which the pressure of 38 mm is to be maintained without loss for at least 3 minutes.

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

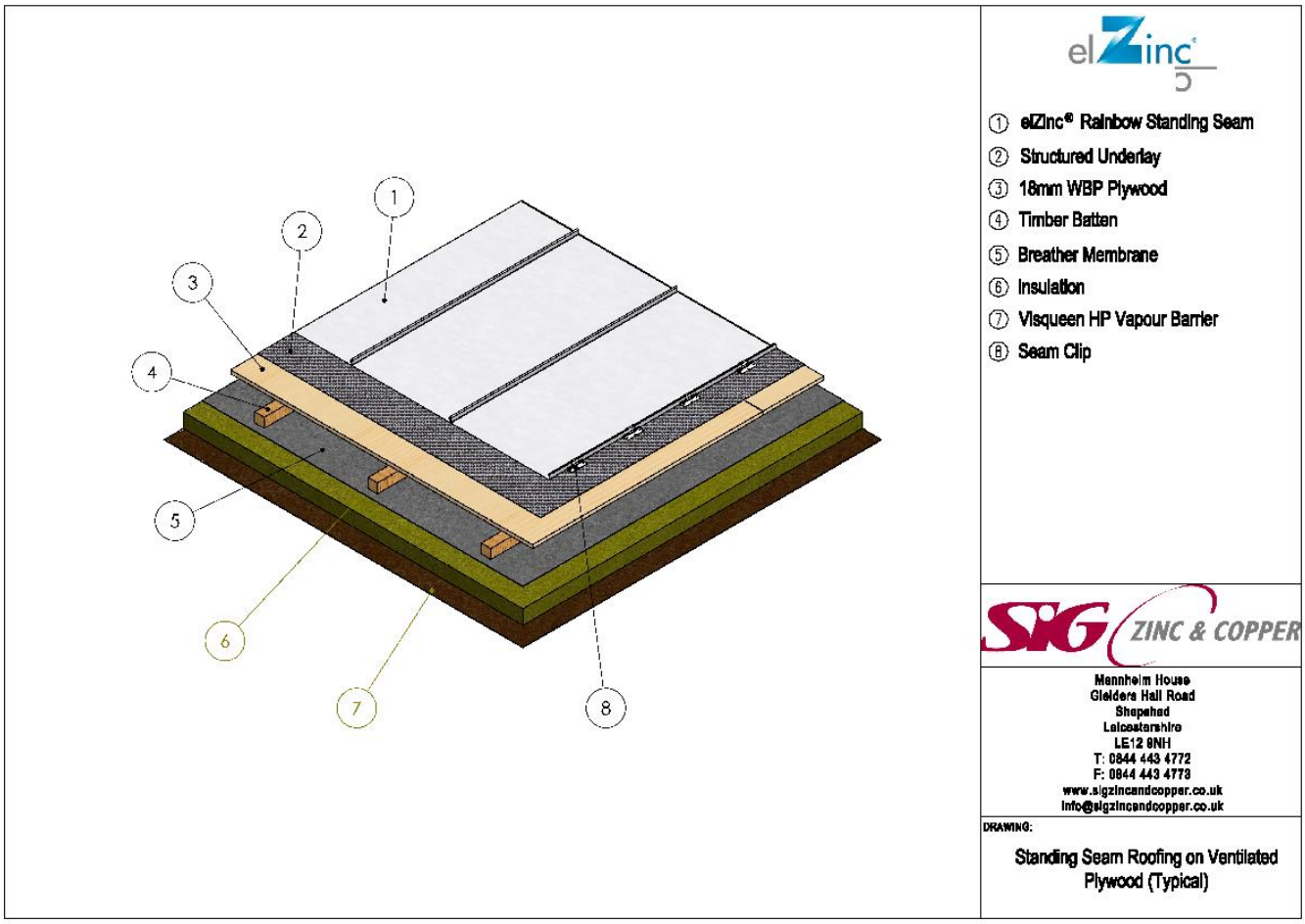
- General: At completion, submit printed instructions recommending procedures for maintenance of the rain water installation, including full details of recommended inspection, cleaning and repair procedures.

920 IMMEDIATELY BEFORE HANDOVER

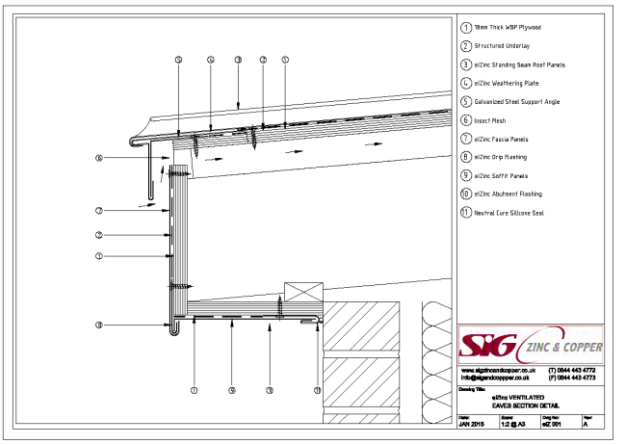
- Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.
- Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

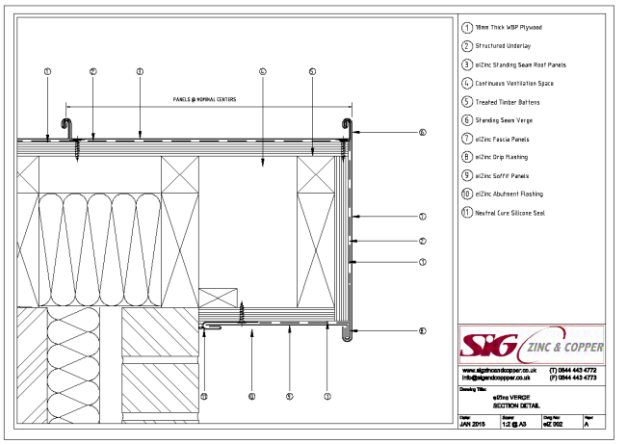
All instructions and recommendations contained in the guidelines for specification and installation published by SIG Zinc & Copper / elZinc

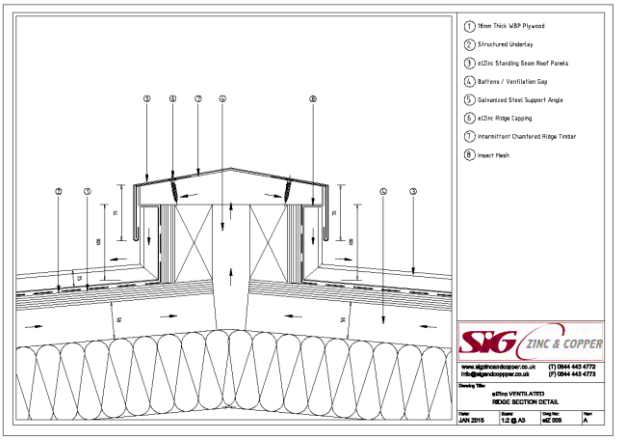
3d Build-up Page

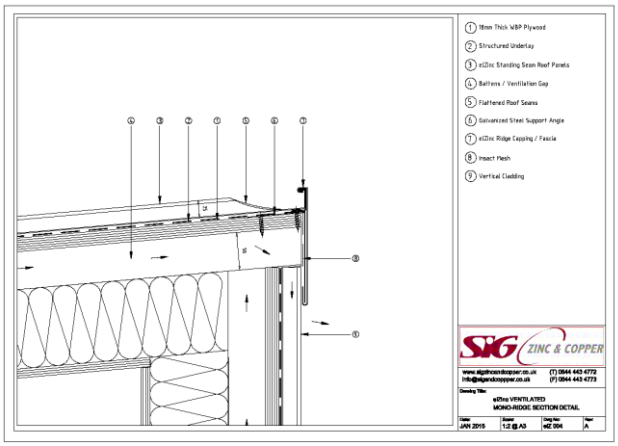


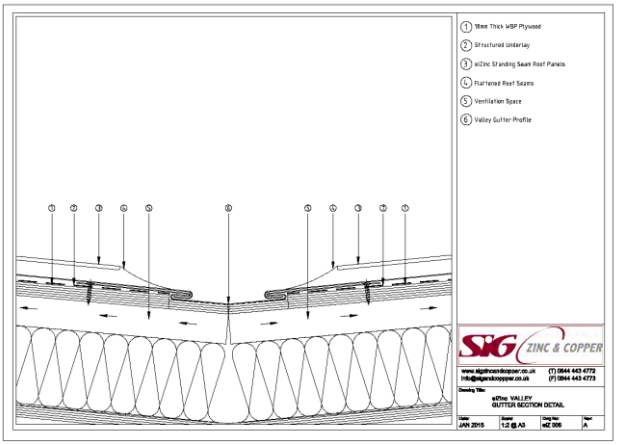
Project Details

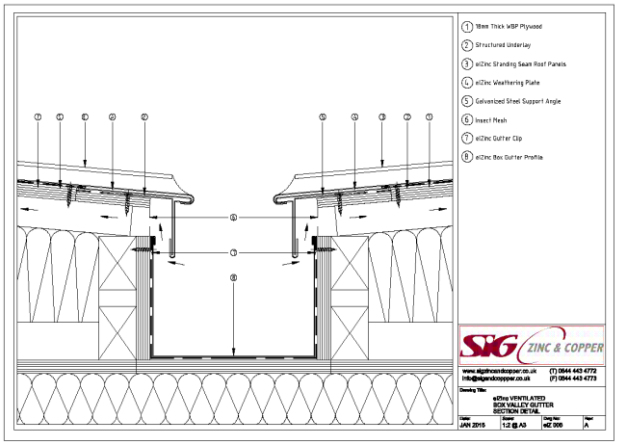


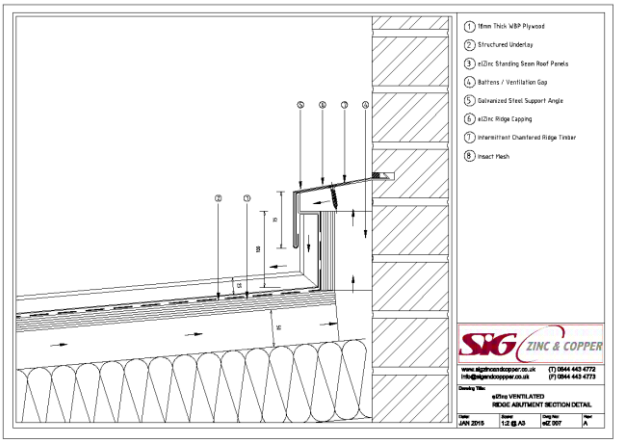


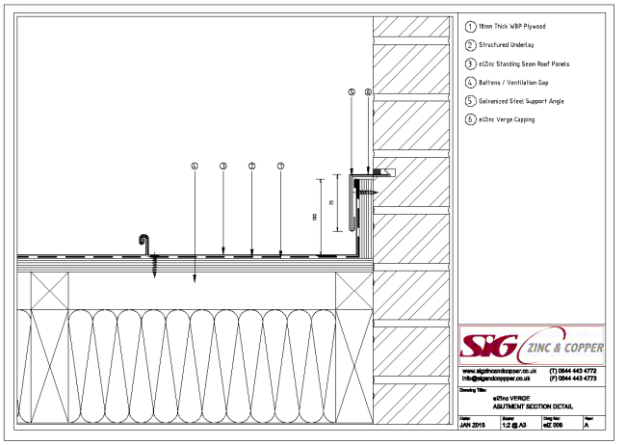


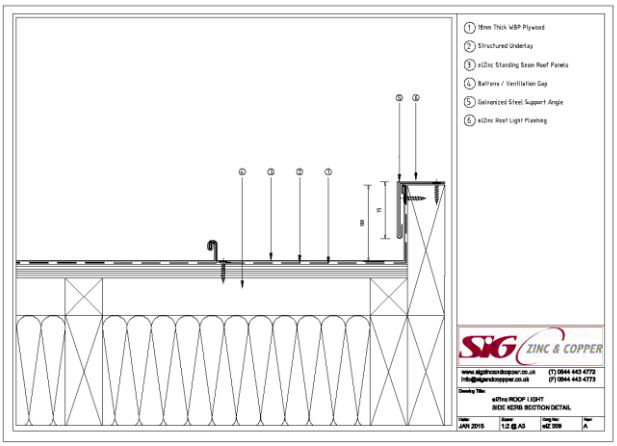


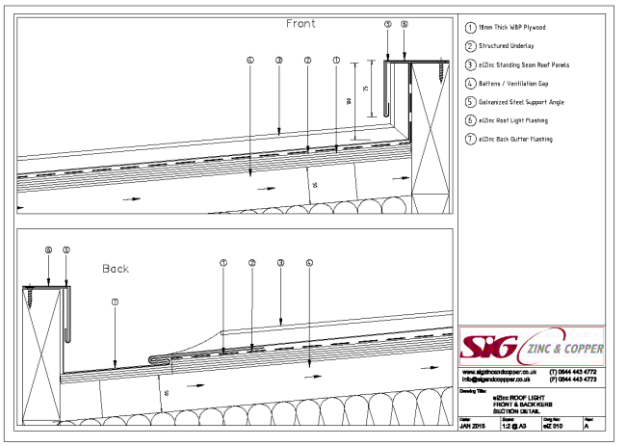





1 18mm Thick WBP Plywood
2 Structured Underlay
3 eZZinc Standing Seam Roof Panels
4 Battens / Ventilation Gap
5 Galvanized Steel Support Angle
6 eZZinc Ridge Capping
7 Intermittent Chamfered Ridge Timber
8 Insect Mesh
SIG ZINC & COPPER
eZZinc VENTILATED
RIDGE ABUTMENT SECTION DETAIL


1 18mm Thick WBP Plywood
2 Structured Underlay
3 eZZinc Standing Seam Roof Panels
4 Battens / Ventilation Gap
5 Galvanized Steel Support Angle
6 eZZinc Verge Capping
SIG ZINC & COPPER
eZZinc VERGE
ABUTMENT SECTION DETAIL


1 18mm Thick WBP Plywood
2 Structured Underlay
3 eZZinc Standing Seam Roof Panels
4 Battens / Ventilation Gap
5 Galvanized Steel Support Angle
6 eZZinc Roof Light Flashing
SIG ZINC & COPPER
eZZinc ROOF LIGHT
SIDE KERB SECTION DETAIL


Front
Back
1 18mm Thick WBP Plywood
2 Structured Underlay
3 eZZinc Standing Seam Roof Panels
4 Battens / Ventilation Gap
5 Galvanized Steel Support Angle
6 eZZinc Roof Light Flashing
7 eZZinc Back Gutter Flashing
SIG ZINC & COPPER
eZZinc ROOF LIGHT
FRONT & BACK KERB
SECTION DETAIL

Data sheet

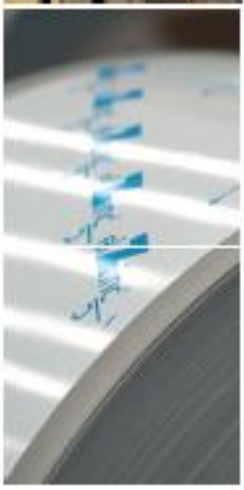
ficha de producto

elZinc Slate®

elZinc Slate® is a matt light grey rolled zinc with a very similar appearance to naturally weathered zinc.
The pre-weathering process uses a non-polluting phosphate treatment which gives it a uniform appearance that would have only developed naturally after a considerable period of exposure to the weather. elZinc Slate® is especially recommended for façades and soffits, where bright rolled zinc takes longer to naturally develop its patina.
elZinc Slate® clearly has applications in restoration and renovation work since its pre-weathering allows it to blend in very well with the existing zinc.

elZinc Slate® is produced according to the European Standards EN1179 and EN988, with a chemical composition similar to that of elZinc® Natural. Electrolytic zinc with a purity in excess of 99.995% zinc is used, to which small and tightly controlled quantities of copper and titanium are added to produce an alloy whose properties better the requirements stipulated in EN 988. These properties are unaffected by the pre-weathering treatment.

Main applications:
- Roofing
- Façades
- Soffits
- Interior decoration
- Rainwater systems



Specific recommendations for elZinc Slate®:
- Remove the protective film applied to each roll or sheet soon after installation.
- Most of the processes required for roofing and cladding can be carried out once the temperature of the zinc reaches 7°C (profiling and seaming) – please consult our technical manuals for more detail.
- In order to adequately solder the material the surface must be mechanically stripped until the natural base zinc is visible.

For more information about the correct application of the elZinc Slate® product, consult our technical manuals.

Standard supply dimensions:
Widths: 500 – 600 - 650 -670– 1000 mm
Thicknesses: 0.65 – 0.70 – 0.80 – 1.0 mm

Delivery formats:
1000 kg coils
Fixed length small coils (ca. 100kgs on pallets of six rolls)
Sheets (2000 x 1000 mm) in pallets of 1000 kg
Other formats are available on request.

This document only describes the characteristics of elZinc Slate®, and it is the responsibility of construction professionals to check that other materials and techniques used on the project are compatible with this material.

elZinc®
www.elzinc.es