**Suggested** **Specification**

**Project: Warrington Museum**

NATURAL SLATING to be read with Preliminaries/General conditions

### **TYPE(S) OF SLATING**

 **ROOF SLATING**

* Base: Timber Rafters
* Pitch: 35 degrees
* Underlay: TLX Gold 75mm Insulation

Lay as clause 240, directly over Timber Rafters

minimum horizontal lap:

* Battens: As clause, 245, size 50 x 25 mm.
* Fixing: As clause 265, using sheradized ring shank nails

to BS 1202 Parts 2 & 3

* Slates: To BSEN12326-1:2004 and produced by a company with

ISO 9002 accreditation and BS Kitemark

Supplier reference Welsh Slate, Penrhyn Quarry

 Bethesda, Gwynedd, LL57 4YG

 Tel 01248 600656

Quarry Source: Penrhyn

Colour/Type: Heather Blue

Grade: County Grade

Size: 500mmx300mm

Slate Fixing: As clause 275.

Minimum head lap: 80mm

* Other requirements:

### **SLATING GENERALLY**

 **BASIC WORKMANSHIP**:

* Keep slates clean and dry until laid.
* Set out to give true lines and regular appearance, fitting neatly at all edges, junctions and features.
* Fix slate roofing to make the whole sound and weathertight at the earliest opportunity.
* Repair any defects as quickly as practicable to minimise damage and nuisance.
* Keep gutters and pipes free of debris and clean out at completion.

 **EXISTING NATURAL SLATING:** Carefully remove slates, battens, underlay, etc., the minimum necessary to carry out alterations, ensuring minimum disturbance of adjacent slates.

**REUSE OF EXISTING SIZED SLATING**:

* Carefully remove sized slates, battens, underlay, etc. the minimum necessary to carryout alterations, ensuring minimum disturbance of adjacent slates.
* Check the quality of the slates for reuse by visual examination of the fabric of the

slate. Particular attention should be paid to ensure that there is no excessive

spalling to the nail holes and that there is no sign of delamination to the slate.

* Sort reusable slates into batches of slate of the same thickness.
* Check that the existing holes are at the correct gauge to maintain the specified headlap.
* Use the thicker slates at the eaves and the thinner slates as work progresses towards
* the ridge, finishing at the ridge with the thinnest batch of slates.
* Thickness grading should be both up the roof and from side-to-side in each course.
* When re-fixing the slates they should be fixed in accordance with clause 275.
* All work should be to the recommendations of BS5534 and BS8000 Part 6.

 **SUITABILITY OF STRUCTURE/BAS**E: Before commencement of slating, survey supporting structure/base, checking line, level and fixing points. Report immediately to the CA if the structure/base is unsuitable to receive slating.

 **UNDERLAY:**

* Handle carefully to prevent tears and punctures, repair any which do occur with adhesive tape and cover with underlay patch tucked under the horizontal lap above.
* Lay parallel to eaves, maintaining consistent tautness to minimise gaps.
* Vertical laps must be not less than 100 mm wide, coinciding with supports. Fix with galvanized steel, copper or aluminium extra large head felt nails.
* Where pipes and other components penetrate the underlay, use proprietary underlay seals or cut accurately and turn flanges up to give a tight, water shedding fit.
* Ensure that underlay does not obstruct roof ventilation.

**BATTENS/COUNTERBATTENS**:

* Sawn softwood, species type A or B to BS 5534 2014, clause 4.11.1.
* Permissible characteristics and defects must not exceed the limits given in BS 5534 2003Part 1, annex E.
* Moisture content: Not more than 22% at time of fixing.
* Preservative treatment: Organic solvent (OS) or micro-emulsion (ME) as British Wood Preserving and Damp-proofing Association Commodity Specification C8.

 **BATTEN FIXING:**

* In straight horizontal lines, aligned on adjacent areas, with no batten less that 1200 mm long.
* Joints to be square cut, butted centrally on supports and must not occur more than once in any group of four battens on any one support.
* Provide an additional batten where an unsupported lap in the underlay occurs between battens.
* Fix each batten to each support, with splay fixings at joints.

 **BATTENS FIXED TO MASONRY:**

* To be in straight horizontal lines with no batten less than 3 m long.
* Fix at not more that 400 mm centres.

**TIMBER FOR SLATING BASE WORK**:

* Sawn softwood, free from wane, pitch pockets, decay and insect attack (except pinhole borers).
* Moisture content: Not more than 22% at time of covering.
* Preservative treatment: CCA vacuum pressure or organic solvent double vacuum as section Z12 and British Wood Preserving and Damp-proofing Association Commodity Specification C8.

**SLATE FIXING:**

* Lay with an even overall appearance, with slightly open butt joints and tails of slates aligned.
* Use slates of consistent thickness in any one course laid with thicker end as tail.
* Use extra wide slates generally at ends of courses to maintain bond and ensure that cut slates are as large as possible. Do not use slates or cut slates less than 150 mm wide.
* Centre fix each slate through countersunk holes 20-25 mm from side edges, with two copper nails to BS 1202: Part 2, of 3.35 mm shank diameter and length to provide adequate withdrawal resistance and not less than 18 mm penetration into batten.
* At sprocketed changes of pitch increase length of nails as necessary to ensure full penetration of battens.

 **MORTAR BEDDING/POINTING**:

* Mortar: As section Z21, 1:3 cement:sand, with plasticising admixtures permitted. Mortar mixes should comply with the requirements of BS5534 2014 Section 4.14.
* Do not use in wet or frosty weather or when imminent.
* Concrete and clay tile accessories to be bedded must be wetted and surface water allowed to drain before fixing.
* Finish neatly as work proceeds and remove any residue.

### **ROOF SLATING EDGES/JUNCTIONS/FEATURES**

 **GENERALLY:**

* Form details using the specified fittings and accessories; do not improvise without approval.
* Cut slates only where necessary, with an appropriate tool, to give neat, close fitting joints and straight, clean edges.
* Fix edge slates and fittings securely to neat, true lines.
* Ensure that all flashings are fixed with or immediately after the slating, and are neatly dressed down.

**FIRE SEPARATING WALLS:**

* Ensure that separating wall is cut on the rake 25 mm to 50 mm below top of adjacent rafters.
* Fix space over top of the wall with mineral fibre quilt so that, when overlaid, it is lightly compressed. Tuck edges of quilt between edges of wall and adjoining rafters.
* Lay 3000 mm wide pads of mineral fibre quilt thick enough to seal all gaps and cut to fit snugly between battens. Fix in position with continuous self-adhesive tape from ridge to eaves before slating.
* At boxed eaves completely seal air paths in the plane of the separating wall with wire reinforced mineral fibre, 50 mm thick, nailed to rafter and carefully cut to shape.

 **VENTILATED EAVES**:

* Fascia grilles:…………………………..
* Ventilator trays:………………………..
* Lay mineral fibre insulation over wallplate. Fix trays between each support to provide free passage of air over insulation.
* Continuous support for underlay at eaves to prevent water retaining troughs:………………………………
* Fix a strip of BS 747, type 5U felt, or comparable durable underlay, to underlap first full course of underlay.
* Dress underlay or underlay carrier down into gutter.
* Fix slates with tails projecting 50 mm over gutter or to centre line or gutter, whichever dimension is the lesser.

 **EAVES:**

* Ensure that thermal insulation is laid continuous out to eaves.
* Continuous support for underlay at eaves to prevent water retaining troughs:………………………………..
* Fix a strip of BS 747, type 5U felt, or comparable durable underlay, to underlap first full course of underlay.
* Dress underlay or underlay carrier down into gutter.
* Fix slates with tails projecting 50 mm over gutter or to centre line of gutter, whichever dimension is the lesser.

**MORTAR BEDDED VERGE WITH BEDDED UNDERCLOAK:**

* Carry underlay 50 mm onto outer leaf of gable wall and bed in mortar.
* Bed undercloak of slates sloping away from and projecting «Verge\_proj» mm beyond face of wall on mortar identical to that used in gable walling. Undercloak to be level with underside of slating battens.
* Carry slating battens over undercloak and finish 100 mm from verge edge.
* Bed edge of verge slates flush with undercloak on 75 mm wide bed of mortar as clause 290, ensuring that mortar is not displaced or cracked by mechanical fixing of slates.

 **MITRED HIP:**

* Lay courses of underlay over hip with overlaps of not less that 150 mm.
* Hip boards (230mm- 300mm wide) should be fixed either side of the hip rafter, level with the top of the slating battens.
* Cut extra wide slates and interleave with lead soakers to form a straight, weathertight, close mitred junction. Fix soakers by turning down over the head of mitred slates.

**LEAD ROLL HIP:**

* Lay courses of underlay over hip with overlaps of not less than 150 mm.
* Ensure that rounded timber roll is fixed to hip rafter or hip batten.
* Cut and fix slates closely to the roll to enable a weathertight junction to be formed by lead flashing.

**MORTAR BEDDED AND MECHANICALLY FIXED TILE HIP:**

* Lay courses of underlay over hip with overlaps of not less that 150 mm.
* Hip tile fixing batten:………………..
* Cut and fix slates closely at junction.
* Hip tiles:……………………….
* Make weathertight with edges continuously bedded and joints solidly bedded in mortar as clause 290.
* Fix to hip rafter or hip batten with nails/wire ties or screws recommended by tile manufacturer.
* Shape first hip tile neatly to align with corner of eaves and fill end with mortar and slips of tile finished flush.

 **METAL VALLEY:**

* Ensure that valley boards, plywood valley sheathing and tilting fillets provide full support for metal valley.
* Cut underlay to rake and dress over tilting fillets to lap onto metal valley. Ensure that underlay is not laid under metal.
* Cut extra wide slates neatly and fix with a gap «Valley\_Gap» mm wide centred on valley.

**MITRED VALLEY**:

* Ensure that bearers or boards provide continuous support for ends of slating battens on each side of valley.
* Cover valley with a strip of underlay not less than 600 mm wide, underlapping general underlay.
* Cut extra wide slates, interleave with lead soakers and fix to form a straight, weathertight, close mitred junction. Fix soakers by turning down over the head of mitred slates.

**SIDE ABUTMENT:**

* Turn underlay not less than 100 mm up abutment.
* Cut slates as necessary and interleave with metal soakers. Fix soakers by turning down over the head of each slate.
* Fix slates close to abutment to enable a weathertight junction to be formed by metal step flashing.

**TOP EDGE ABUTMENT:**

* Turn underlay not less that 100 mm up abutment.
* Finish slating with head-nailed short course to maintain headlap.
* Fix slates close to abutment to enable a weathertight junction to be formed by metal apron flashing.

 **ROOF WINDOW:**

* Turn underlay not less than 100 mm up against window surround and cover with integral flashing/soakers all round to form a weathertight junction.
* Cut slates as necessary and fix closely all round.

 **DRY VENTILATED TILE RIDGE**:

* Lay top courses of underlay to provide an air gap at apex as recommended by ridge tile manufacturer.
* Dry ridge fixing batten(s):……………………..
* Finish slating with head-nailed short course to maintain headlap and provide an air gap.
* Dry ridge tiles:……………………….
* Ridge terminals:………………………..

**LEAD ROLL RIDGE**:

* Lay top course of underlay from one side of ridge over apex to overlap top course of underlay at other side by not less that 150 mm.
* Ensure that rounded timber roll is fixed to ridge board or ridge tree batten.
* Finish slating with head-nailed short course to maintain headlap.
* Fix slates close to the roll to enable a weathertight junction to be formed by lead flashing.

**MORTAR BEDDED AND MECHANICALLY FIXED TILE RIDGE**:

* Lay top course of underlay from one side of ridge over apex to overlap top course of underlay at other side by not less than 150 mm.
* Ridge tile fixing batten:………………………….
* Finish slating with head-nailed short course to maintain headlap.
* Ridge tiles:……………………..

Make weathertight with edges continuously bedded and joints solidly bedded in mortar as clause 290. Fix to ridge tile fixing batten with nails/wire ties or screws as recommended by ridge tile manufacturer.

* Ridge terminals:……………………….
* Fill ends of ridges at gables with mortar and slips of tile finished flush.

 **DRY VENTILATED TILE MONO-RIDGE:**

* Lay top course of underlay to provide an air gap at apex as recommended mono-ridge tile manufacturer.
* Finish slating with a head-nailed short course to maintain headlap.
* Dry mono-ridge tiles:………………………….

 **MORTAR BEDDED TILE MONO-RIDGE**:

* Carry underlay over apex not less that 150 mm.
* Finish slating with a head-nailed short course to maintain headlap.
* Mono-ridge tiles:……………………….
* Make weathertight with sloping edge continuously bedded and joints solidly bedded in mortar as clause 290.
* Fix vertical face to ridge fixing batten with screws/nails as recommended by ridge tile manufacturer.
* Fill ends of ridges at gables with mortar finished flush.

**CHANGE OF ROOF PITCH:**

* Fix timber tilting to support flashing and courses of slates above change of pitch.
* Finish slating with head-nailed short course below change of pitch, and eaves courses above change of pitch.
* Fix courses of slates above and below change of pitch to form a weathertight junction in combination with metal flashing.

 **JUNCTIONS**: Cut slates and fix closely to enable a weathertight junction to be formed by metal flashing between:………….

**ROOF SLOPE VENTILATORS Cold Roof:**

* Ventilator slates: Welsh Slate Natural Slate Ventilator
* Position in place of standard slates, without cutting. Fix with underlay seal (if any), to ventilate roof space, as follows:…………………………………………
* at……….m centres.

**SUNDRY ACCESSORIES**:

 …………………..