

SCUNTHORPE 20/21 ARTS CENTRE REPAIRS REFURBISHMENT

SECTION 2: GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIP

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SUB-SECTION

SCAFFOLDING

STONEMWORK

NATURAL SLATE ROOFING

STAINLESS STEEL ROOFING

LEADWORK

CARPENTRY AND JOINERY

RAINWATER GOODS

LEADED GLAZING

PAINTING AND DECORATING

SCAFFOLDING

1.0 General

- 1.1 All scaffolding is to be designed, constructed and used in accordance with BS EN 12811 (BS5975) "Temporary works equipment. Scaffolds. Performance requirements and general design. All scaffold must, as far as possible, be erected in accordance with NASC TG20:21 compliance document.
- 1.2 The scaffolder shall take into account the nature and condition of the building, the surrounding site and ground conditions.
- 1.3 All scaffold tubes/poles shall be of galvanised steel, aluminium or other non-ferrous material. *In no circumstances* will rusty scaffold be accepted as this will risk staining the building fabric.
- 1.4 Drilling of the historic fabric for anchorages *is expressly forbidden* without the prior approval of the Architect.
- 1.5 All scaffold tubes within 50mm of the building fabric are to be protected with plastic end caps.
- 1.6 Any tendency for the scaffold to settle under its own or implied loadings must be taken into account in the design. The scaffold must not bear upon any carved or decorative elements of the building eg. gargoyles, pinnacles etc.
- 1.7 Any elements of the building which protrude through the boarded lifts are either to be carefully removed and reinstated on completion of the works or be securely protected from damage with timber boxing etc.
- 1.8 All uprights must be provided with base plates or prevented in some other way from slipping or sinking. Scaffold built off roofs must include for spreader boards and polystyrene or other suitable soft soft packing to prevent damage to roof materials. [Note: scaffold MUST NOT be build off roofs without prior approval from the project Structural engineer/Conservation Architect.]

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- 1.9 Scaffold at ground level is to be protected with a 4m high hoarding to all sides, to prevent unauthorised access. The hoarding must follow the contour of the ground and where it abuts the building must be scribed to fit to avoid any gaps. Doors in hoardings must be of robust construction, good fit and well secured.
- 1.10 Proper access must be provided to the scaffold platform including access from ground level to first lift.
- 1.11 Sufficient boards should be used at all working platforms in use. All boards should be free from obvious defects and arranged so as to avoid any trip hazards and be adequately secured with scaffold clips to prevent wind uplift.
- 1.12 Clear headroom between lifts (measured from top of boards to underside of scaffold tubes) to be not less than 2m.
- 1.13 At every side where a person might fall more than 2m, platforms, gangways and runs must be provided with guard rails and toe boards. Guard rails are to be not more than 760mm above the top of the toe board. Toe boards are to be not less than 150mm above the top level of the scaffold board.
- 1.14 Scaffolding erected in areas accessible to the general public must be provided with warning tape at least 3m clear of the scaffold.
- 1.15 Where glazing is at risk of damage, it is to be protected with plywood sheeting.
- 1.16 Debris netting or flexible sheeting is to be provided to all working lifts.
- 1.17 The scaffolder shall advise the main contractor on whether the scaffold requires to be earthed.
- 1.18 The scaffolding is to be designed for wind and snow loads in accordance with BS EN 1990 and BS EN 1991.
- 1.19 Where scaffolding does not/cannot comply with TG20:21 the contractor is to submit scaffolding design, including calculations and drawings, to the Structural Engineer/Architect for appraisal prior to commencing erection of scaffold. These submissions are to show clearly how the loads are to be transferred to the ground or structure and what provisions have been made to accept movement within the scaffolding without causing damage to the structure. Temporary roofs must be designed with due consideration being given to lateral stability and resistance to wind uplift.

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2.0 Health and Safety

2.1

Upon completion of erection, the scaffold is to be certified for use and inspected at least once a week and as appropriate in bad weather. The contractor will not be permitted to make any changes/alterations to the scaffold after certification. Any subsequent alterations are to be undertaken only by the scaffolder and re-certified upon completion.

3.0 Erection and Removal

3.1 The site is to be kept as tidy as possible during scaffold erection and where erection cannot be undertaken within one working day, all loose tubes, boards, clips etc., shall be securely stored to avoid theft/vandalism.

3.2 Competent and experienced site supervision must be provided by the scaffolder to ensure that no damage whatsoever is caused to the historic building fabric.

3.3 Any damage caused to the fabric, roof coverings, glazing etc., during erection/ dismantling is to be made good at the contractor's own expense and to the entire satisfaction of the Architect.

3.4 During removal *all* clips are to be removed from site. Debris from scaffold boards is to be swept up to leave the ground clear and tidy.

4.0 Security

4.1 During erection, ladders are to be removed overnight to deny unauthorised access to scaffold. Ladders from ground to first lift must be removed (and stored securely) when the site is not occupied or work taking place.

4.2 The scaffold is to be protected by a camera activated working alarm system with klaxon warning of detection. Security lighting is to be provided in accordance with the Client's requirements.

4.3 All security and warning signs are to be fixed to the scaffold above arms reach.

5.0 Ladders

5.1

All ladders are to be aluminium, in good condition and free from obvious defects such as twisting, damaged/missing rungs and are to be secured at the top (including those used for short periods) by lashing to the scaffold or securely fixing with metal clips.

5.2 All ladders are to be of sufficient height for their purpose and must rise a minimum of 1m above the stepping-off point, or the highest rung on which the user stands whilst working.

5.3 The angle of all ladders is to be approximately 75% but no steeper.

5.4 All ladders are to be properly positioned to allow easy on/off access and no scaffold rails are to pass across the access point which would result in the user having to climb over or under the rail.

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- 5.5 Where ladders pass between scaffold lifts, they are to be positioned to avoid the intrusion of scaffold poles and clips.
- 5.6 All traps through scaffold lifts are to be provided with safety hatches. Traps are to be of sufficient size to allow access by operatives wearing bulky winter clothing.

STONEWORK

Contractors

The main contractor is to specify in their tender their stonemason and to provide information on the recent experience and demonstrable skills of their proposed sub-contractor on similar size/type projects, including use of the specified cleaning system, and working with a variety of lime mortars.

The stone mason sub-contract should be a member of the Stone Federation (or equivalent body) and should ideally be running current apprenticeship schemes by one of the recognised construction trades bodies, such as NVQ 3 Heritage Masonry scheme.

Stonemasons who might be considered include:

Matthias Garn & Partner; e-mail info@matthiasgarn.com or mgmmp@hotmail.co.uk ; tel. 07967 828 780 tel. 01759 369565 contact Matthias Garn

or

Halestone Restoration Ltd.; e-mail stuart@halestone.co.uk ; tel. 07512 779 081

or

Historic Property Restoration Ltd.; e-mail steve@hprltd.co.uk ; tel. 0191 257 0808

6.0 Demolition

- 6.1 Where specified in the schedule of works, the existing structure is to be carefully dismantled and the stone salvaged, cleaned, recorded and stored on pallets in a secure area, ready for re-use in the new structure.

7.0 Re-used Original Stone

- 7.1 Repairs are to be carried out using sound stone from the original structure unless otherwise specified. Each individual stone must therefore be carefully taken down, cleaned and marked on an unexposed face and recorded so that it may be returned to its exact original position.
- 7.2 Original stones are not to be altered in shape or size or be re-dressed in any way without the Architect's permission and when repositioned are to present the same exposed face or faces as prior to removal.

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8.0 New Stone

8.1

Any additional stone which may be required is to be obtained by the contractor who will be responsible for taking his own measurements and templates. If the source is not specified by the Architect, it is to be new or sound re-claimed stone of the same geological type, structure, composition, texture and colour as the original. New or re-claimed walling stone is to have a finished thickness of not less than 150mm on bed from outer to inner face, and to match existing depth where deeper (so that no voids are left which may allow the wall core to settle).

8.2

The source of replacement limestone for tendering purposes, is to be: Ancaster Hard White limestone from the Middle Jurassic Upper Lincolnshire Limestone Member succession of the Ancaster area in Lincolnshire. Contact details for the relevant producer-suppliers are provided below:

8.3 *Blockstone Ltd.2, Ancaster Quarry, Quarry Farm, Ancaster, GRANTHAM, Lincolnshire, Tel: 01246 554450; Email: office@blockstone.com ; Website: <http://blockstone.com/>*

Or

8.4

Glebestone (Nick Bristow), Ancaster Glebe Quarry (Wilsford Heath Quarry), Wilsford Heath, Ancaster, GRANTHAM, Lincolnshire, Tel: 07711 589133 or 07945 414130; Email: n.bristow@glebestone.com ; Website: <http://glebestone.com/home.html>

8.5 The source of replacement ironstone is limited but for tendering purposes, is to be:

8.6

Johnston Quarry Group, Hornton Grounds, Banbury, Oxfordshire, OX15 6HH, Tel. (0)1295 678 897 ; E-mail: hs@buildingstone.co.uk

Or

8.7 *Ironstone Quarry, The Great Tew Estate, The Estate Office, Quarry Farm, Great Tew, Chipping Norton, OX7 4BT, Tel: 01608 683 636; Email: estateoffice@greattewestate.co.uk*

8.8 New stone is to be carefully selected by the mason at the quarry to ensure that it complies with the requirements previously stated.

8.9

Dressed samples of all new and re-claimed stone must be submitted to the Architect for approval prior to bulk quantities being ordered or obtained. Each sample is to be a true representation of the total amount of stone available from any one source of supply and be available in sufficient quantities to complete the whole of the work.

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- 8.10 Individual replacement stones are to be the same size, shape and face finish as the original stones would have been before becoming damaged or defaced. All faces are to be dress finished and particular care is to be taken at edges. New stone blocks are to be tooled four sides at joints to remove sharp characteristics of machine cut stone.
- 9.0 Removal of Stones
- 9.1 Stones are to be removed or cut out by means of hammer and chisel. *Power tools are not to be used.*
- 9.2 Care must be taken not to damage arrises or break any of the original stones to be removed which are sound and re-usable, nor any adjoining stonework. No original stones are to be discarded without the Architect's permission.
- 9.3 Projecting stones must be cut out to a depth of not less than twice their projection. Where this exposes the internal core, it is to be cut out as necessary and grouted up solid. Core and new stone to be drilled and stainless steel dowels inserted at max. 450mm centres, set in epoxy mortar. Length of dowel to be twice the pocket depth.
- 9.4 All salvaged and re-claimed stone is to be clean and free from all deleterious matter and all costs in connection with cleaning stone on or off site by the main contractor or his other operatives is deemed to be included in the tender.
- 10.0 Materials for Mortars
- 10.1 Lime is to be naturally hydraulic lime (as below).
- 10.2 Stone dust is to be sound and not crystalline, sieved natural stone dust to match adjoining stonework. It is to be varied in size and not be larger than 3-6mm nor finer than sand to BS EN 13139.
- 10.3 Fine aggregate is to be sieved natural stone dust or clean sharp natural river or pit sand to BS EN 13139. Selection of source and colour is to be approved by the Architect. The sand for mortar for pointing of the ironstone should be chosen to provide a grey colour to match the existing.
- 10.4 Coarse aggregate is to be clean, sharp, natural grit or crushed stone or gravel to BS EN 13139. The size may vary between 3-6mm.
- 10.5 *Sea dredged aggregates may not be used.* The supply of aggregate deems the supplier to have taken the necessary steps to establish that aggregates capable of producing alkali silicate reaction in combination with ordinary Portland cement will not occur. Sand must be clean and uncontaminated by clay/silt.
- 10.6 Water is to be clean, fresh and free from harmful impurities.

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- 11.0 Mortar for masonry
- 11.1 Lime is to be naturally hydraulic, available from: Womersley's Ltd, Walkley Lane, Heckmondwike, WF16 OPG. Strength NHL2 to be used for general repointing, NHL 3.5 for pointing copings, hoodmoulds, spires and other exposed areas.
- 11.2 Hot mix non-hydraulic mortars may be used where the mason is experienced and skilled in their use; Calbux Quick Lime 90 (or equal and approved) lime for mixing can be obtained from Womersleys Ltd.
- 11.3 NHL mortar mix (to be confirmed on site) is to be 2½ parts aggregate to 1 part lime, notionally mixed in the proportions 1 part stone dust and 1 part fine sand and ½ part coarser grit sand. Measuring of materials shall be with a gauging box or bucket. *Shovel mixing is not acceptable.*
- 11.4 Hot lime mix proportions are to be agreed on site with the foreman mason after sampling.
- 11.5 Mortar can be prepared using a conventional mixer, although a roller pan or paddle mixer is preferred as drum mixed mortars can be prone to balling and techniques must be employed to avoid this.
- 12.0 Laying and Bonding Stone
- 12.1 Generally, all stones including copings, are to be laid on their natural quarry bed. Mullions are to be bedded horizontally. All beds are to be true and flat. Moulded cornices and projecting moulded strings are to be laid joint bedded with grain vertical and at right angles to the wall face. Arch voussoirs are to have the natural bed at right angles to the arch face and perpendicular to the line of thrust.
- 12.2 All new and rebuilt stonework is to be correctly toothed, bonded and coursed to blend and marry exactly into the original stonework. Bonding stones are to be incorporated at suitable intervals where large areas of stonework are involved. Where stone is backed by brickwork it is to be protected from staining with a lime mortar slurry.
- 13.0 Joints and Pointing
- 13.1 Joints in new and rebuilt stonework are to be the same nominal width as those in the original and undisturbed stonework and are to be flat pointed as described. Where repointing is specified, great care should be taken in cutting out the joints as the existing stone is very friable. Rake out existing joints squarely (not v-shaped) to a minimum depth of 38mm or twice the width of the joint, whichever is the greater, taking care not to damage arrises. Clean out all joints to remove dust and loose debris and thoroughly moisten with clean water before repointing, avoiding unnecessary saturation. *The use of power tools is expressly forbidden. All cutting out is to be carried out using hand tools only. Sound original mortar is not to be removed.*

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- 13.2 Where deep tamping is specified, ensure that all loose material is removed from wide joints, holes etc., before the joints are completely filled.
- 13.3 With wide joints, the adoption of galleting will be necessary and is to be included.
- 13.4 Joints should be completely filled with fresh mortar, pressed well home with an appropriate tool to prevent voids between new and old mortar. Fill is to be solid so joints are flush with the general wall face and surplus should be struck off.
- 13.5 Before final set takes place, joints should be scraped back and then firmly tamped with the stiff bristle brush to compact the mortar and expose the aggregate content of the mortar, care being taken not to smear the stone faces.
- 13.6 Upon completion, finished pointing should be flat, generally flush with the stone face and free from all trowel marks (such as 'lining in'). Where stone arrises have weathered away and left rounded or broken corners and arrises, the pointing is to be recessed slightly to avoid exposed feathered edges.
- 13.7 Lime mortar has a much slower setting time than gauged or cement based mortars, which will be extended if the material is re-worked and the initial set broken. It is therefore essential that, once placed in the joints, the mortar be protected from drying out too quickly. Areas of fresh mortar must be covered with damp hessian or canvas sheeting for an average period of two weeks. Dependant upon prevailing weather conditions, this period may need to be longer. During this time, it is important for the sheeting not to be allowed to dry out. In warm or windy weather it must be sealed to prevent evaporation.
- 13.8 Lime mortars should not be used during frosty weather, however if weather conditions deteriorate once the mortar has been placed, additional insulation (in the form of straw-filled sacking or other approved method) will be necessary to prevent the mortar freezing. Exposed surfaces, eg. Wall tops, copings, pinnacles, ledges etc., are particularly susceptible to frost damage and may require protection for extended periods by tarpaulins (weighted down with straw bales).
- 13.9 Rain must not be allowed to strike the mortar until the setting process is complete.
- 13.10 After drying out, the finished mortar colour should closely match the colour of the stone and the choice of aggregate is therefore critical to this result and must be carefully selected and controlled.
- 13.11 The contractor should allow in his tender for preparing several trial areas of pointed stonework for approval by the Architect and approved samples should then be clearly marked for reference.

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14.0 Mouldings for Carved Work

14.1 Replacement moulded and carved work, whether done in-situ or off site, is to match the profile and finish of the original stone prior to it becoming weathered or damaged and is to be carried out by competent craftsmen who will be responsible for taking their own site measurements and templates.

14.2 Where window sills, mullions, transoms and traceries are due to be repaired or replaced, the mason is to liaise with the glazier and provide all necessary grooves and pockets for the fixing of glass and saddle bars and include for providing attendance on the glazier whilst glass is removed and refixed.

15.0 Masonry Anchors

15.1 All old iron cramps, dowels and other existing fixings which are exposed during the work are to be carefully cut out and replaced by similar phosphor bronze or stainless steel fixings to BS EN 10149 austenitic grade Type 316 S16.

15.2 Joggles, grooves and pockets in stones for masonry anchors, cramps and dowels are to be cut as necessary, fixed and run with lead for securing rebuilt stonework and replacement stones.

16.0 Brushing Stonework

16.1 Where de-scaling and brushing off is specified, all dry, flaking and friable material is to be very carefully and gently removed by means of a wooden spatula followed by gentle brushing with a dry natural bristle brush *without the use of water*. No metal tools are to be used to prevent damage to exposed stone faces.

17.0 Piecing-in

17.1 Where piecing-in (sometimes called dentistry or indents) is specified for small partial repairs, new stone should be neatly cut out and pieced-in and, where necessary, glued with epoxy resin mortar, applied "dotted" on the surfaces to be bonded, drilled and pinned with stainless steel dowels where necessary, maintaining continuity of bed.

17.2 Where minor repairs to cornice mouldings, later to be lead covered, are to be carried out, carefully cut out back to a firm base and build-up in mortar as specified for ashlar work. Keep the mortar wet with sacks to slow down drying. Maintain continuity of colour and grain. Include stainless steel reinforcement where necessary.

18.0 Galleting

18.1 Where partial repair is specified by galleting, neatly cut out and fill with roughly cut tiles/stone slivers with mortar for random and coursed rubble masonry. *On no account may tiles/stone slivers be machine cut*. Where specified, this repair may be finished with a render.

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19.0 Removal of Organic Growth

19.1

Where required, plants and thick cushions of moss etc., should be removed as much as possible with knife blades, spatulae and stiff bristle brushes. If the surface below the growth is delicate or liable to marking, limit the lifting off to the moss only.

NATURAL SLATE ROOFING

Contractors

Roofing contractors working on this project must be on the National Heritage Roofing Contractors register and be able to demonstrate recent experience of similar size/type of project.

20.0 Temporary Protection

20.1

Where present, any internal plaster ceilings must be protected from water and vibration. No nail hammering will be allowed. Temporary protective sheeting must be in place as soon as areas are stripped and to hand during the works to protect the building from sudden rain showers.

21.0 Slating

21.1

Slating is to comply with BS 5534 and BS 8000. Slates to be laid with head laps of not less than 75mm to nave and chancel (approx.. 45 deg. pitch) and 95mm to lower pitched side aisles (approx.. 26 deg. pitch). Each slate to be secured with two copper jagged shank nails. Perpendents to be kept vertical and pieces less than 150mm wide are not to be used.

22.0 Battens

22.1

Battens to be minimum 25 x 50mm, softwood impregnated sawn to BS 5534 and secured with 63mm 10 SWG stainless steel annular ring clout headed nails over existing rafters/boards. All battens to be completely solid and free from knots and waney edges.

23.0 Counterbattens

23.1

Counterbattens to be minimum 75 x 50mm, softwood impregnated sawn to BS 5534 and secured with 100mm stainless steel screws over existing rafters/boards. (NOTE: screws should not be over tightened so that they break through the inner face of the sarking boards). All counterbattens to be completely solid and free from knots and waney edges.

24.0 Sarking Felt

24.1

Sarking felt is to be proprietary bitumen based reinforced non-permeable felt to BS EN 13707, secured beneath head laps with 19mm 10 SWG galvanised clout nails, having horizontal weatherlaps of minimum 150mm. *Vertical joints are not allowed.*

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- 25.0 Sarking Felt (alternative clause)
- 25.1 Where insulation is specified, sarking felt is to be proprietary breathable membrane; Proctor Roofshield or equal and approved (A. Proctor Group; tel. 01250 872 261; e-mail: contact@proctorgroup.com) secured beneath head laps with 19mm copper clout nails, having horizontal weatherlaps of minimum 150mm. Vertical joints are not allowed.
- 26.0 Insulation
- 26.1 Where specified to re-laid roofs, foil insulation is to be laid over the existing boarded roofs and secured to the sides of the counterbattens by stapling (or other method approved by the manufacturer) to prevent slippage and maintain a 25mm air gap to the underside of the breathable membrane.
- 26.2 For tender purposes; foil insulation to be Actis "HControl Hybrid" 45mm thick, available from Actis Insulation Ltd., tel. 07800 612936; melanie.porter@insulation-actic.com
- 27.0 New Slates
- 27.1 New slates are to be grey-green Westmoreland slates (or equal approved) to match existing a graduated sizes, vailable from:
- 27.2 Burlington Slate Ltd., Kirkby-In-Furness, Cumbria, LA17 7UN, Tel: 01229 889 661, Email: sales@burlingtonstone.co.uk
- 27.3 The roofer will be responsible for providing sufficient samples to be representative of available product, and will ensure sufficient quantity of the approved slate is available to complete the project.
- 28.0 Salvaged Slates
- 28.1 Where possible, slates are to be carefully sorted and stored for reinstatement upon completion of the timber roof repairs. Where there is a shortfall in slates due to breakages or defects, sound 2nd hand slates to match existing from a known and reliable source may be used. Samples of any proposed slates must be submitted to the Architect for approval prior to placing of orders.
- 28.2 It is suggested, depending on the quantity of salvaged slate, that the salvaged material be re-used on the south pitch(s), with the new material used on the north pitch(s).
- 29.0 Ridges
- 29.1 All existing ridge pieces are to be reused. Where there is a shortfall in ridge pieces due to breakages or defects, new ridge pieces are to be provided to match existing.
- 29.2 Pointing to exposed gable copings, ridges and abutment flashings/details is to be in a gauged mix of ordinary grey Portland cement:hydrated lime:sharp/grit sand in the proportions 1:1:6.

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STAINLESS STEEL ROOFING

- 30.0 Terne-coated Stainless Steel
- 30.1 Sheetting for all roofs is to be terne-coated stainless steel such as Uginox AME 0.5mm gauge to BS EN 502: 2001, Grade 316 low carbon stainless steel.
- 30.2 Coil width to be 580mm for standing seam centres of 500mm.
- 30.3 Installation to be strictly in accordance with recommendations and typical design details of the manufacturer: Uginox & Alz UK Ltd, Tel: 01246 571660
- 31.0 Site Works
- 31.1 Do not allow terne-coated stainless steel to come into contact with carbon steel. Avoid cutting and grinding carbon steel components near stainless steel finishes.
- 32.0 Details
- 32.1 All longitudinal sheet joints are to be standing seams as Eurocom Technical Guide. Cross joints are to be avoided and will only be acceptable after discussion and agreement with the Architect on site.
- 33.0 Substrates
- 33.1 Uginox AME to be laid on existing or repaired timber boards to thicknesses shown on dwgs.
- 34.0 Acoustic Underlay
- 34.1 All Uginox AME roof sheeting is to be laid on "DELTA®-TRELA" underlay Delta Membrane Systems Ltd., Delta House, Merlin Way, North Weald, Epping, Essex CM16 6HR; info@deltamembranes.com ; Tel 01992 523 523 to control roof sheet flutter in high winds and reduce noise generated by sheet movement/rain.
- 35.0 Finish
- 35.1 A certain amount of minor undulations in the sheeting will be acceptable, however insitu dressing and splicing of sheets *must not be undertaken under any circumstances*, particularly at upstand cappings and corners. Surface ripping, bowing, quilting and "oil-canning" will not be acceptable.
- 36.0 Fixing
- 36.1 Use standing seam fixing cleats, allowing for normal expansion and contraction in accordance with manufacturer's recommendations with specific detailing at eaves, ridges and hips as noted.
- 36.2 Detail at eaves to be flanged and folded. Detail at concealed box gutter to be flanged. Cutter to be minimum 200mm wide x 50mm deep, nominal fall to sump.
- 36.3 Hip seams to be crimped with staggered roof seams.
- 36.4 Form all vents, abutments, drips etc., as manufacturer's details.

LEADWORK

- 37.0 General
- 37.1 All leadwork is to comply with BS 6915 "Design and construction of fully supported lead sheet roof and wall coverings".

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- 37.2 Sheet and strip lead is to be of British manufacture to BS EN 12588 and be of uniform thickness for the weight specified within permitted tolerances and free from all defects.
- 37.3 Leadwork is to be carried out in strict accordance with the Lead Sheet Association's technical literature, latest edition and copies of "Rolled Lead Sheet, The Complete Manual" and technical leaflets are to be kept on site and worked to.
- 37.4 The whole of the leadwork on the project is to be inspected and signed off by independent LSA agent. The lead contractor will be responsible for ensuring all detailing meets with the LSA guidance unless agreed beforehand as a non-conformity with the CA. Any defects noted by the LSA not so agreed will be corrected at the contractors expense.
- 37.5 All welts and laps are to be formed on non-prevailing wind side.
- 38.0 Solder
- 38.1 Solder is *not to be used*. All joints are to be achieved by lead burning/lead welding only. (See "Hot Work").
- 39.0 Lead Clips
- 39.1 Clips should be not less than 50mm wide and the thickness of lead sheet used should be not less than the thickness of the flashing, roofing or cladding sheet.
- 40.0 Copper Clips
- 40.1 Copper or tinned copper clips should be not less than 50mm wide and cut from copper sheet not less than 0.6mm thickness conforming to BSEN 1172; soft temper in welts, seams and rolls and ¼ hard temper elsewhere.
- 41.0 Stainless Steel Clips
- 41.1 Clips should be fully annealed stainless steel strip conforming to BSEN 10088 at least 50mm wide and not less than 0.4mm thickness. It should be terne coated if exposed to view.
- 42.0 Nails
- 42.1 Should be large-headed copper or a stainless steel conforming to BS 1202-1 & 2. The shanks should be annular ring, helical ring or serrated and not less than 20mm long. The shank diameter for heavy duty should not be less than 3.35mm and for light duty not less than 2.65mm.
- 43.0 Screws
- 43.1 Screws should be brass or stainless steel complying with BS1210, not less than 19mm long and 3.35mm in diameter.
- 44.0 Underlay
- 44.1 Lead sheet to be laid on DSS Sisalkraft "Moistop 728" building paper membrane, DSS Sisalkraft, Tel: 01634 292700. Underlay must not restrict free movement of the lead.

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45.0 Chalk Coating

- 45.1 All lead sheet to be treated with 2 coats of chalk emulsion (Rowan Technologies Ltd Tel: 0161 748 3644) applied in strict accordance with the manufacturer's instructions.

46.0 Contact with other materials

- 46.1 Where lead is likely to come into contact with concrete, mortar, stone etc., it must be painted on the back with 2 coats of bitumen coating solution to BS 3416, Type 1.

47.0 Sub-strates

- 47.1 To be softwood boarding, rough sawn, to a minimum thickness of 19mm, butt jointed with penny gaps. *Plywood, blockboard, MDF etc., will not be accepted*. Wherever possible, boards should be fixed in the direction of fall or diagonally.
- 47.2 Wood preservatives and other impregnation solutions are not in themselves harmful to lead but will cause damage if the substrate is wet at the time the lead is laid, therefore the moisture content of timber must not exceed 16% at the point when the lead is laid.

48.0 Sealant pointing

- 48.1 Where sealant pointing is specified in Section 3 to lead flashings etc., use "Arbomeric MP10" one part low modulus modified polymer sealant by Adshead Radcliffe (Tel: 01773 826661), light grey colour, applied strictly in accordance with the manufacturer's recommendations.
- 48.2 Stone joints and chases to receive pointing should be primed with "Arbo 2650 Primer" from Adshead Radcliffe. Use Arbo-polyethylene backing strip to leave 10mm deep sealant joint.

49.0 Samples

- 49.1 The leadworker is to provide samples of materials and workmanship as requested by the Architect.

50.0 Cover Flashings

- 50.1 To be Code 5, built in

51.0 Head Flashings

- 51.1 To be Code 5, clipped, lead wedged

52.0 Soakers

- 52.1 To be generally Code 4, nailed

53.0 Back Gutters

- 53.1 To be Code 7 to chimneys and other water traps, with a 10° pitch.

CARPENTRY AND JOINERY

54.0 General

- 54.1 All work to comply with BS EN 1995 "Design of timber structures" and BS EN 942 "Timber for workmanship in joinery", subject to any qualifications given below.

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55.0 Quality

55.1

All timber is to be fit for the purpose for which it is intended. It is to be clean, sound, merchantable, properly seasoned, free from defects or combination of defects, natural or otherwise which would make it unsuitable for its purpose. All new is to be from a sustainable source and if requested, the contractor must be able to produce documents confirming the origin. All timber is to be sawn unless otherwise stated. No piecing-in, lengthening or unnecessary jointing will be allowed. Moisture content of timber is to be within 16% plus or minus 3% at fabrication and building-in stage.

56.0 Sustainability

56.1 All timber and timber based products are to carry the Forestry Stewardship Council (FSC) trademark or other label from an equivalent internationally recognised, globally applicable, independent certification system for good forest management acceptable to the Architect.

57.0 Structural timbers

57.1 Structural timbers are to be strength class = C24 (BS 4978) or equivalent grading. Each piece of timber shall be marked with the grade and species (species to be agreed with the Architect prior to ordering).

57.2 Repairs to existing oak timbers are to be made with natural air dried English oak of sufficient length and girth to yield the necessary finished sizes and shapes and have maximum 16% moisture content. Where required, fixings should be non-ferrous or grade 316 stainless steel.

58.0 Softwood for Joinery

58.1 Softwood is to be Grade 1 selected imported softwood, free from all defects and imperfections and conform to the general requirements of BS EN 942. Moisture content to be between 8 and 12%. *Knots at arrises are not permitted.*

59.0 Hardwood for Joinery

59.1 Hardwood is to be English oak, air dried (maximum moisture content 16%) to finished dimensions as shown on drawings, moulded and finished to receive beeswax polish.

60.0 Preservatives

60.1

All new softwood timber carcassing is to be treated for the prevention of insect and fungal attack by double-pressure impregnation to BS 5268 Part 5 Class C before delivery and the contractor must inform the Architect and obtain his agreement in advance to the treatment proposed. All timber cuts made on site are to be liberally treated with the same preservative. All preservative treatments must be non-harmful to bats.

61.0 Plywood

61.1 To be exterior quality WBP, to BS EN 636.

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62.0 Fixings and Metalwork

- 62.1 All metalwork, nails, screws, bolts and other mechanical fastenings are to be Grade 316 austenitic stainless steel to BS EN 10149 unless specified otherwise.
- 62.2 Nails are to be round, ring shank wire nails to BS 1202, of suitable size and type for use. Lengths are to be no more than the total thickness of sections to be joined, less 5mm, but otherwise no less than twice the thickness of section through which they are to be driven.
- 62.3 Screws are to be to BS EN ISO 3506 of suitable size and type.
- 62.4 Coach screws are to be to BS EN ISO 3506 of suitable size and type.
- 62.5 Plain hexagonal bolts are to be to BS EN ISO 3506 of suitable size and type.
- 62.6 Washers are to be to BS EN ISO 3506 of suitable size and type.

63.0 Adhesives

- 63.1 Generally to be of epoxy type, to BS ISO 13007 (as appropriate) of the correct class for the duty and type of joint.

64.0 Carpentry

- 64.1 Carpentry work is to be framed up, put together and finished in a workmanlike manner and provided and fitted with all necessary screws etc. All timber to be sawn die-square.

65.0 Joinery

- 65.1 All joinery work is to be prepared as soon as practicable and well exposed to the air but kept in a dry place, under cover. No gluing and wedging up to be done until required for use.
- 65.2 All carpentry and joinery is to be properly framed together using correct joints. All glued joints are to be cross-tongued and all mouldings and frames are to be properly mitred and/or scribed as required.
- 65.3 All joinery work which may split, fracture, shrink, part in the joints more than 2mm or show flaws or other defects of soundness for want of seasoning or bad workmanship is to be removed and replaced with new materials at no cost to the Employer.
- 65.4 Items of 2nd fix joinery should be allowed to adjust to the temperature and humidity levels in the building before being fixed into their final positions.

66.0 Priming

- 66.1 All joinery work which is to receive a paint finish is to be wrot, smoothed with abrasive and sealed with 1 coat of wood primer on all faces and ends prior to being fixed. This must be arranged between the joinery and painter at the appropriate time. *Priming must not be regarded as a form of protection.*

SCUNTHORPE 20/21 ARTS CENTRE

REPAIRS REFURBISHMENT

LEADED GLAZING

74.0 General

74.1 Any new leaded glass or repairs to existing glazing is to be carried out by a glazier with UK Accreditation by the British Society of Master Glass Painters, Category 4.

74.2 Details of the proposed glazier must be submitted with the tender.

74.3 Such accredited glaziers, known locally, are:

- *Martin Johnson Leaded Glaziers, Tel: 01904 792299 e-mail: enquiries@martinjohnsonglass.co.uk*

The main contractor may propose their own sub-contractor subject to the above requirements.

75.0 Glass

75.1

Wherever possible, existing glass is to be re-used. Where new, the glazier is to allow for matching the existing glass in thickness, colour and texture as closely as possible. Glass samples are to be provided for the Architect's approval *prior to work being done*.

76.0 Lead Cames

76.1 To be as manufactured by Arnold & Heaps Ltd or equal and approved (Tel: 01709 837669); section must match existing and be fit for purpose with glass being set in traditional glazier's lead compound and brushed and wiped clean when set. Perimeter leads are to be of sufficient section for at least 12mm to be set into masonry and painted. All panel joints are to be sealed in appropriate compound.

77.0 Saddle Bars

77.1 Internal saddle bars are to be 9mm dia, bronze, with ends built into masonry not less than 25mm. All bars scheduled for refurbishment are to be rubbed down in-situ and prepared for new paint finish.

78.0 Glazing Bars

78.1 Glazing bars at panel joints are to be stainless steel with ends built in as saddle bars, of sufficient section to be fit for purpose as recommended by the specialist glazier.

79.0 Copper Ties

79.1 Panels are to be provided with copper wire ties, lead welded to comes, tied onto saddle and glazing bars as centres to give adequate stability.

80.0 Mesh Guards

80.1 Where specified, these are to be 17 x 38mm rectangular black powder-coated stainless steel mesh, framed in heavy gauge wire shaped to fit individual lights and fixed using black japanned stainless steel screws into stone joints within reveals.

81.0 Pointing

81.1 All new and refurbished glazing is to be pointed with mortar as specified.

SCUNTHORPE 20/21 ARTS CENTRE REPAIRS REFURBISHMENT

82.0 Cleaning

82.1 All quarries are to be cleaned. The method of cleaning will depend upon the type of glass and nature of soiling. Internally, it is to be cleaned only by use of soft brushes. Should this fail to produce the desired result, the Architect's advice must be sought. Externally, water should be tried in the first instance with de-ionised water being used for specially significant glass. If water alone is insufficient, a non-ionic detergent and brushes can be used, care being taken to ensure no seepage occurs internally. If gentler methods have failed, the use of alcohol or solvents may be required. Most unpainted quarries can be treated with acetone, ethanol, isopropyl alcohol or mineral spirits. After such treatment, all chemical residues must be removed with a non-ionic detergent and the glass rinsed with clean water. Normal protective measures must be taken when working with toxic chemicals.

82.2 Cleaned panels are to be sealed with rubbing compound.

83.0 Ventilation

83.1 Where trickle ventilation is specified, new stainless steel insect-proof fine woven mesh is to be inserted into lead comes in lieu of glazed quarries, in positions to be agreed with the Architect.

83.2 Where new ventilation hoppers are specified, they are to be of stainless steel or phosphor bronze with side hung pivots and bottom catches. Exact details are to be agreed with the architect or as shown on the drawings.

PAINTING & DECORATING

84.0 General

84.1 To comply generally with BS 6150 "Painting of Buildings" subject to any qualifications given below and BS EN ISO 12944 "Corrosion protection of steel structures by protective paint systems".

85.0 Extent of Works

85.1 The contractor must include for painting and decorating as noted in the schedule of works, including providing all materials, workmanship and protection as necessary.

86.0 Paint

86.1 Samples of each specified colour and finish are to be prepared for approval by the Architect and are to remain until completion of the works.

87.0 Storage

87.1 Materials to be stored strictly in accordance with the manufacturer's instructions.

88.0 Protection

88.1 Work in a sequence which ensures that completed work is not spoilt by dust and debris arising from other site works and protect all surfaces not intended for decoration.

SCUNTHORPE 20/21 ARTS CENTRE REPAIRS REFURBISHMENT

89.0 Preparation Generally

89.1

To be carried out to BS 6150. Preparation materials to be of types recommended by their manufacturers and coating manufacturer for the situation and surface being prepared. Substrates are to be suitably dry to suit the coating. Efflorescence, salts, dirt, grease and other contaminants are to be removed. Organic growth is to be removed with biocidal solution and infected coating similarly treated. Apply residual effect biocidal solution to inhibit re-growth. Joints, cracks, holes and other depressions in plaster are to be filled with stoppers/fillers and abraded to a smooth finish. Surface irregularities are to be abraded to a smooth finish and all residue removed. Doors, opening windows and other moving parts are to be eased before coating and resulting bare areas primed.

90.0 Previously Coated Surfaces

90.1

Prepare to BS 6150. Loose, flaking or otherwise defective areas are to be carefully removed to leave a firm edge. Alkali affected coatings are to be removed completely. Retained coatings to be thoroughly cleaned, gloss coated surfaces to be abraded to provide a key. Partly removed coatings to have additional preparatory coats. Completed stripped surfaces are to be prepared as for uncoated surfaces.

90.2

The contractor is to advise the Architect in the event discovering coatings suspected to contain lead; substrates suspected of containing asbestos; significant rot, corrosion or other serious degradation of substrates.

91.0 Timberwork

91.1

Where timber is to be painted, it is to be thoroughly rubbed down with glass paper ready for coating. Prime and paint 2 undercoats and 1 coat gloss finish. Timber is to be rubbed down between each coat. Include for all stopping and filling.

91.2

For preservative treatments, brush down existing surfaces and wash off dust with clean water. Allow to dry then thoroughly paint timber faces with 2 saturating coats of preservative in accordance with the manufacturer's instructions.

91.3

Hardwood oak joinery is to receive minimum 2 coats of beeswax/turpentine polish, mixed and applied in accordance with the attached technical data sheet (attached to rear of this Section).

92.0 Metalwork

92.1

De-grease with Dulux oil and grease remover. Wash down and allow to dry. De-rust using a proprietary de-rusting system and wire brush/abrade to bare metal. Apply 1 coat Dulux metal primer. For external metalwork apply 2 coats Dulux trade micaceous iron oxide followed by 2 coats Dulux weathershield gloss, colour to be agreed.

SCUNTHORPE 20/21 ARTS CENTRE REPAIRS REFURBISHMENT

93.0 Unsuitable Conditions

93.1 Do not apply coatings if:

- Airborne dust and grit is present. Air temperature is below 4°C. Relative humidity exceeds 80%. The temperature of the surface is too low (eg. heavy metalwork). Substrates have not dried. Lighting is inadequate to achieve the specified high quality finishing coats.