

New Islington Phase 3C Manchester

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Hard Landscape Specification

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D20 Excavating and filling

Clauses

2 To be read with preliminaries/general conditions

Generally/the site

145 Variations in ground water level

1. Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

151 Existing services, features and structures

1. To be provided by contracts administrator.

Clearance/excavating

168 Site clearance

1. Timing: Before topsoil stripping, if any.
2. General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
3. Treatment: Apply a suitable non-residual herbicide to areas to receive planting

170 Removing small trees, shrubs, hedges and roots

1. Identification: Clearly mark trees to be removed.
2. Small trees, shrubs and hedges: Cut down.
3. Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
4. Safety: Comply with Forest Industry Safety Accord safety leaflets.

180 Chipping and shredding

1. General: Not permitted

244 Excavations adjacent to existing foundations

1. Prior to commencing excavation
 - 1.1. Excavate trial pits adjacent to existing foundations to determine extent and formation levels.
 - 1.2. Allow for inspection of trial pits.
 - 1.3. Allow time for amendment of details if required.
 - 1.3.1. Time period: 10 working days .
2. Backfill material to new excavation: Refer to clause 248

250 Permissible deviations from formation levels

1. Beneath mass concrete foundations: ± 25 mm.
2. Beneath ground bearing slabs and r.c. foundations: ± 15 mm.
3. Embankments and cuttings: ± 50 mm.
4. Ground abutting external walls: ± 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

271 Foundations generally

1. To engineers specification.

Disposal of materials

450 Water

1. **Generally:** Keep all excavations free from water until:
 - 1.1. Formations are covered.
 - 1.2. Below ground constructions are completed.
 - 1.3. Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
2. **Drainage:** Form surfaces of excavations and fill to provide adequate falls.
3. **Removal of water:** Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 Ground water level, springs or running water

1. **Give notice:** If it is considered that the excavations are below the water table.
2. **Springs/ Running water:** Give notice immediately if encountered.

Filling

500 Proposed fill materials

1. **Details:** Submit full details of proposed fill materials to demonstrate compliance with specification, including:
 - 1.1. Type and source of imported fill.
 - 1.2. Proposals for processing and reuse of material excavated on site.
 - 1.3. Test reports as required elsewhere.
2. **Timing:** At least 21 days before starting filling

530 Placing fill

1. **Surfaces of excavations and areas to be filled:** Free from loose soil, topsoil, organic material, rubbish and standing water.
2. **Freezing conditions:** Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
3. **Adjacent structures, membranes and buried services**
 - 3.1. Do not overload, destabilise or damage.
 - 3.2. Submit proposals for temporary support necessary to ensure stability during filling.
 - 3.3. Allow 14 days (minimum) before backfilling against in situ concrete structures.
4. **Layers:** Place so that only one type of material occurs in each layer.
5. **Earthmoving equipment:** Vary route to avoid rutting.

535 Compaction generally

1. **General:** Compact fill not specified to be left loose as soon as possible after placing.
2. **After compaction:** Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
3. **Defective areas:** Remove and recompact to full thickness of layer using new material.

540 Benching in fill

1. **Adjacent areas:** If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
2. **New filling:** Spread and compact to ensure maximum continuity with previous filling.

550 Geotextile sheet

1. **Manufacturer:** TERRAM or equal and approved
 - 1.1. **Product reference:** TERRAM T1000
2. **Type:** Woven
3. **Polymer type:** As supplied subject to approval by Landscape Architect
4. **Recycled content:** As supplied subject to approval by Landscape Architect
5. **Jointing:** 300 mm overlap
6. **Preparation of subgrade:** Before laying sheet, remove humps and sharp projections. Fill hollows
7. **Protect from**
 - 7.1. Exposure to light.
 - 7.2. Contaminants.
 - 7.3. Materials listed as potentially deleterious by geotextile manufacturer.
 - 7.4. Wind uplift.

610 Compacted filling for landscape areas

1. **Fill:** Material capable of compaction by light earthmoving plant.
2. **Filling:** Layers not more than 200 mm thick. Lightly compact each layer to produce a stable soil structure.

615 Loose tip filling for landscape areas

1. **Filling:** Do not firm, consolidate or compact when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

Q10

Kerbs/ edgings/ channels/ paving accessories

Clauses

2 To be read with preliminaries/general conditions.

Types of kerbs/edgings and channels

111 Proprietary precast concrete

1. Description: Edge type 1: upstand kerb
2. Standard: To BS EN 1340.
3. Manufacturer: Marshalls or equal and approved
4. - Product reference: 125 x 225 Half Battered Kerb
5. Recycled content: As supplied
6. Designations: HB2 Kerb, half battered
7. Size (width x height x length): H225mm x W125mm x L915mm
8. Upstand: 100mm
9. Special shapes: Corner units to be utilised and handed correctly
10. Finish: As cast
11. Colour: Mid Grey
12. Bedding: To engineers specification
13. Joints generally: Close jointed 2 - 4mm, no mitres accepted
14. Sealant movement joints: To engineers specification
15. Accessories: TBC

113 Proprietary precast concrete

1. Description: Edge type 2: flat top edging
2. Standard: To BS EN 1340.
3. Manufacturer: Marshalls or equal and approved
4. - Product reference: Flat Top Edging 50 x 200 x 914
5. Recycled content: As supplied
6. Designations: EF Edging, flat top
7. Size : H250mm x W50mm x L914mm
8. Upstand: 150mm / Flush
9. Special shapes: Corner units to be utilised and handed correctly
10. Finish: As cast
11. Colour: Mid Grey
12. Bedding: To engineers specification
13. Joints generally: Close jointed 2 - 4mm, no mitres accepted
14. Sealant movement joints: To engineers specification
15. Accessories: TBC

116 EDGE TYPE 5:PCC UPSTAND EDGE Proprietary precast concrete

1. Description: Edge type 2: flat top edging
2. Standard: To BS EN 1340.

3. **Manufacturer:** Marshalls or equal and approved
4. **- Product reference:** 150 x 305 Bullnosed Kerb.
5. **Recycled content:** As supplied
6. **Designations:** EF Edging, flat top
7. **Size :** W150 x H305 x L915.
8. **Special shapes:** Corner units to be utilised and handed correctly
9. **Finish:** As cast
10. **Colour:** Mid Grey
11. **Bedding:** To engineers specification
12. **Joints generally:** Close jointed 2 - 4mm, no mitres accepted
13. **Sealant movement joints:** To engineers specification
14. **Accessories:** TBC

114 Proprietary precast concrete

1. **Description:** Edge type 4: upstand kerb
2. **To engineers detail and specification.**
3. **Joints:** Tooled mortar joint to engineers detail and specification

181 Drainage channel to parking bays & paths

1. **Manufacturer:** ACO Technologies plc
 - 1.1. **Web:** www.aco.co.uk
 - 1.2. **Email:** [\[technical@aco.co.uk\]](mailto:technical@aco.co.uk)
 - 1.3. **Product ref:** Refer to Structural Engineer's design and specification.
2. **Accessories:**
 - 2.1. Refer to Structural Engineer's design and specification.
 - 2.2. As required to complete the system.
3. **Cover gratings:** HeelGuard TM Mesh Galvanised Steel Grating C250. Loading as per engineers detail

201 Metal edging

1. **Description:** Edge type 3: rigid aluminium edging
2. **Manufacturer:** Kinley, or equal and approved
 - 2.1. **Product reference:** AluExcel 150mm Rigid Edging
3. **Contact Info:**
 - 3.1. **Web:** www.kinley.co.uk
 - 3.2. **Email:** sales@kinley.co.uk
 - 3.3. **Tel:** +44 (0)1580 830688
4. **Size:** H150mm x L2500mm
5. **Special Shapes:** Corner specials to be used at changes in direction, angled units are to be preformed off site.
6. **Type/ Material:** Aluminium
 - 6.1. **Finish:** Mill
 - 6.2. **Colour:** As supplied subject to approval by Landscape Architect
7. **Accessories:** Spiral Fixing Stake
8. **Bedding:** To engineers specification in strict accordance with suppliers guidelines

9. **Joints:** In strict accordance with manufacturers guidelines
10. **Installation:** To be used on straight lines to achieve a smooth and consistent alignment with minimal deviation

202 Metal edging

1. **Description:** Edge type 4: flexible aluminium edging
2. **Manufacturer:** Kinley or equal and approved
 - 2.1. **Product reference:** AluExcel 150mm Flexible Edging
3. **Contact Info:**
 - 3.1. **Web:** www.kinley.co.uk
 - 3.2. **Email:** sales@kinley.co.uk
 - 3.3. **Tel:** +44 (0)1580 830688
4. **Size:** H150mm x L2500mm
5. **Special Shapes:** Corner specials to be used at changes in direction, curved units are to be preformed off site.
6. **Type/ Material:** Aluminium
 - 6.1. **Finish:** Mill
 - 6.2. **Colour:** As supplied subject to approval by Landscape Architect
7. **Accessories:** Spiral Fixing Stake
8. **Bedding:** To engineers specification in strict accordance with suppliers guidelines
9. **Joints:** In strict accordance with manufacturers guidelines
10. **Installation:** To be used on curved lines to achieve a smooth and consistent alignment with minimal deviation.

250 Material samples

1. **Samples representative of colour and appearance of designated materials:** Submit before placing orders.
 - 1.1. **Designated materials:** All kerbs, edgings, channels and paving accessories

Roads/paving accessories/ marking/ demarcation

301 Paving accessories

1. **Service cover and inspection chambers** to be galvanised steel recessed access covers to receive paving units.
2. **Manufacturer:** Jones of Oswestry or equal and approved
3. **Product:** Size to be coordinated with paving units.
4. **Loading:** To structural engineer
5. **Finish:** DG70 (25 year life expectancy)

Laying

511 Laying kerbs, edgings and channels

1. **Cutting:** Neat, accurate and without spalling. Form neat junctions, no mitre joints.
 - 1.1. **Long units** (450 mm and over) minimum length after cutting: 300 mm.
 - 1.2. **Short units** minimum length after cutting: The lower of one third of their original length or 50 mm.
2. **Bedding of units:** Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.

3. **Securing of units:** After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

520 Adverse weather

1. **Conditions:** Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

620 Accuracy

1. **Deviations (maximum)**
 - 1.1. **Level:** ± 6 mm.
 - 1.2. **Horizontal and vertical alignment:** 3 mm in 3 m.

625 Regularity of paved surfaces

1. **Maximum undulation of (non-tactile) paving surface:** 3 mm.
 - 1.1. **Method of measurement:** Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
2. **Difference in level between adjacent units (maximum)**
 - 2.1. **Joints flush with the surface:** Twice the joint width (with 5 mm max difference in level).
 - 2.2. **Recessed, filled joints:** 2 mm.
 - 2.2.1. **Recess depth (maximum):** 5 mm.
 - 2.3. **Unfilled joints:** 2 mm.
3. **Sudden irregularities:** Not permitted.

Ω End of Section

Q20

Granular sub-bases to roads/pavings

Clauses

2 To be read with preliminaries/ general conditions.

To be read with preliminaries/ general conditions.

111 To engineers detail and specification

Ω End of Section

Q21

In situ concrete roads/ pavings/ bases

Clauses

2 To be read with preliminaries/ general conditions.

Types of paving

115 Paving with embedded metal (designated concrete)

1. Description: Paving type 4
2. Subgrade improvement layer: To engineers detail and specification
 - 2.1. Compacted thickness: To engineers detail and specification
3. Geotextile filter: To engineers detail and specification
4. Granular sub-base: To engineers detail and specification
 - 4.1. Compacted thickness: To engineers detail and specification
5. Separation membrane: Polyethylene sheet 125 micrometres thick, edges lapped 300 mm.
6. Embedded metal: To engineers detail and specification
7. Concrete: To BS 8500-2.
 - 7.1. Designation: PAV1
 - 7.2. Fibres: To engineers detail and specification
 - 7.3. Aggregate
 - 7.3.1. Size (maximum): 10 mm (contractor to submit proposals for approval
 - 7.3.2. Coarse recycled concrete aggregate: Not permitted.
 - 7.3.3. Additional aggregate requirements: contractor to submit proposals for approval
 - 7.4. Consistence class: S2
 - 7.5. Additional mix requirements: contractor to submit proposals for approval
8. Slab thickness (minimum): To engineers details and specification
9. Finish: PT4 Broom Finished

General/ preparation

140 Ready-mixed concrete

1. Production plant: Currently certified by a body accredited by UKAS to BS EN ISO/IEC 17065 for product conformity certification.
2. Source of ready-mixed concrete: Obtain from one source if possible. Otherwise, submit proposals.
 - 2.1. Name and address of depot: Submit before any concrete is delivered.
 - 2.2. Delivery notes: Retain for inspection.
3. Declarations of nonconformity from concrete producer: Notify immediately.

145 Admixtures

1. Calcium chloride and admixtures containing calcium chloride: Do not use.

151 Reinforcement

1. Description: To engineers detail and specification

156 Project testing of concrete - general

1. TOEngineers detail and specificatioT

Laying concrete

310 Transporting concrete

1. **General:** Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Protect from heavy rain.
2. **Entrained air:** Anticipate effects of transport and placing methods in order to achieve specified air content.
3. **Placing:** Use suitable walkways and barrow runs for traffic over reinforcement and freshly placed concrete.

320 Laying concrete generally

1. **Timing:** Place as soon as practicable after mixing and while sufficiently plastic for full compaction. After discharge from the mixer do not add water or retemper.
2. **Temperature of concrete at point of delivery**
 - 2.1. In hot weather (maximum): 30°C.
 - 2.2. In cold weather (minimum): 5°C.
3. **Cold weather**
 - 3.1. Do not use frozen materials.
 - 3.2. Do not place concrete against frozen or frost covered surfaces.
 - 3.3. Do not place concrete when air temperature is below 3°C on a falling thermometer. Do not resume placing until rising air temperature has reached 3°C.
4. **Surfaces on which concrete is to be placed:** Free from debris and standing water.
5. **Placing in final position:** Place in one continuous operation up to construction joints.
 - 5.1. Do not place concrete simultaneously on both sides of movement joints.
6. **Spreading:** Spread and strike off with surcharge sufficient to obtain required compacted thickness.
7. **Adjacent work:** Form neat junctions and prevent damage. Keep clean all channels, kerbs, inspection covers, etc.

330 Compacting

1. **General:** Fully compact concrete to full depth (until air bubbles cease to appear on the surface) especially around reinforcement, cast-in accessories, into corners and at joints.
2. **Poker vibrators:** Do not use to make concrete flow into position. Do not allow to come into contact with fabric reinforcement.
3. **Wet formed joint grooves:** Rectify any irregularities by means of a vibrating float.
4. **Finish:** A dense, even textured surface free from laitance or excessive water.
 - 4.1. **Excess concrete:** Remove from top of groove formers.

340 Manhole cover and gully grating frames

1. **General:** Set frames in independent concrete slabs placed over, but slightly larger than, exterior of manhole shaft or gully pot and any concrete surround.
2. **Positioning of joints in main slab:** Set out so that manhole/ gully slabs are adjacent to a main transverse joint, wherever possible.
3. **Joints:** Separate the independent slabs from main slabs with 25 mm thick joint filler board. Set board 20 mm below top of slab to form a sealing groove.

350 Levels

1. **Lines and levels of finished surface:** Smooth and even, with regular falls to prevent ponding.
2. **Finished surfaces:** Within ± 6 mm of required levels (+6 or -0 mm adjacent to gullies and manholes).

360 Surface regularity

1. **General:** Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge (with feet) placed anywhere on the surface to be not more than 5 mm.
2. **Sudden irregularities:** Not permitted.

Joins

410 Joints generally

1. **Layout:** All joints to be accurately located, straight and well aligned.
2. **Construction joints made at end of working day:** Form as contraction joints.
3. **Modifications to joint design or location:** Submit proposals.
4. **Temporary support:** Prior to concreting, set formwork, dowel bars, tie bars, joint filler boards, sealing groove fillets and the like rigidly in position and support to prevent displacement. Maintain support until concrete has set.
5. **Keep clean**
 - 5.1. Do not allow concrete to enter gaps or voids in formwork or to render movement joints ineffective.
 - 5.2. Do not allow concrete to impregnate or penetrate materials used as compressible joint fillers.

471 Expansion joints

1. To engineers design and specification
2. Appearance subject to Landscape Architects approval

Surface finish

510 Sample area

1. **Finish:** Imprinted pattern and brush
2. **Size:** 3 m²
3. **Location:** Submit proposals
4. **Timing:** Complete sample area and obtain approval before proceeding with remainder of work

530 Brushed finish

1. **Direction:** To be coordinated with Landscape Architect
2. **Texture depth:** Approximately 1 mm with finished surface having an overall even texture.

570 Wash and brush finish

1. **Preparation:** Float concrete to an even surface with no ridges or steps, then immediately commence curing.
2. **Finish**
 - 2.1. When concrete is sufficiently hard to hold coarse aggregate in place, remove surface mortar by brushing with a stiff bristle brush and water spray.

- 2.2. Remove cement paste from concrete surface by flooding with clean water and applying a dilute solution of hydrochloric acid. Thoroughly rinse with water after acid has ceased effervescing.
3. Completion: Resume specified curing without delay.

Curing/ protection/ finishing

610 Curing

1. General: Immediately after completion of surface treatment prevent evaporation from surface and exposed edges of slabs for a minimum period of seven days.
2. Early curing
 - 2.1. Cover with waterproof sheeting held clear of surface. Seal against draughts at edges and junctions.
 - 2.2. Do not apply sprayed compounds or sheets in direct contact until surface is in a suitable state and will not be marked.
3. Coverings for curing: Contractor's choice of:
 - 3.1. Impervious sheet material.
 - 3.2. Resin based aluminized curing compound containing a fugitive dye and with an efficiency index of 90% when tested to BS 7542.
 - 3.3. Sprayed plastics film.

630 Surface sealer

1. Manufacturer: Contractor to submit proposals for approval
 - 1.1. Product reference: Contractor to submit proposals for approval

660 Protection

1. Prevent damage to concrete
 - 1.1. From rain, indentation, physical damage, dirt, staining, rust marks and other disfiguration.
 - 1.2. From thermal shock.
 - 1.3. In cold weather, from freezing expansion of water trapped in pockets, etc.
 - 1.4. By use as a building platform or for storing, mixing or preparing materials.

Ω End of Section

Q22

Asphalt roads/ pavings

Clauses

2 To be read with preliminaries/ general conditions.

To engineers detail and specification - Not Used

Types of paving - Not Used

Preparatory work/ requirements - Not Used

Laying - Not Used

Completion - Not Used

Ω End of Section

Q23

Gravel/ hoggin/ woodchip/ resin bound roads/ paving/ overlays

Clauses

2 To be read with preliminaries/ general conditions.

Types of surfacing

161 Loose aggregate

1. Description: Pt9 loose granite aggregate
2. Subgrade improvement layer: To engineers detail and specification
3. Geotextile: Permeable Geotextile Membrane
 - 3.1. Manufacturer: TERRAM or equal and approved.
 - 3.2. Product reference: TERRAM 1000 or equal and approved
4. Granular sub-base: To engineers detail and specification
5. Gravel: Loose laid and raked to uniform thickness.
 - 5.1. Manufacturer: CED Stone
 - 5.2. Contact Info
 - 5.3. Email: sales@cedstone.co.uk
 - 5.4. Tel: 01708 867237
 - 5.5. Product Ref: Icelandic Pebbles or equal and approved
 - 5.6. Aggregate Size: 20mm
 - 5.7. Material: As supplied subject to Landscape Architects approval.
 - 5.8. Finish: As supplied subject to Landscape Architects approval.
 - 5.9. Colour: An even mix of blue, grey, black, silver, and brown tones.

Laying

315 Materials

1. Compatibility: Chippings suitable for use with respective binders/ emulsions/ resin/ epoxy.

320 Samples

1. Submit: Representative samples of all chippings.

330 Herbicide to paving Q23/

1. Description: 111 / 161 /162
2. Type: Suitable for the application, location and conditions of use.
3. Weeds and moss: Grub up.
4. Application: As section A34, before surfacing.

340 Laying generally

1. Channels, gullies, etc: Keep clear.
2. Finished surfaces
 - 2.1. Lines and levels: To prevent ponding.

2.2. Overall texture: Even.

2.3. State at completion: Clean.

350 Cold weather working

1. Frozen materials: Do not use.
2. Freezing conditions: Do not lay pavings.
3. Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.
4. Other dressings or overlays: As manufacturers' recommendations.

361 Drainage falls

1. Sealed surfaces:
 - 1.1. Falls and cross falls (minimum): 1:60.
 - 1.2. Camber (minimum): 1:50.
2. Unsealed surfaces (minimum): 1:30.

380 Laying granular surfaces in pedestrian areas and cycle tracks

1. Permissible deviation from required levels, falls and cambers (maximum): ± 12 mm.
2. General: Spread and level in 100 mm maximum layers. As soon as possible, compact each layer.
3. Dry weather: Lightly water layers during compaction.

390 Protection from traffic and plant

1. Paved areas: Restrict access to prevent damage.

Completion - Not Used

Ω End of Section

Q24

Interlocking brick/block roads/pavings

Clauses

2 To be read with preliminaries/ general conditions

Types of paving

111 Conventional concrete block paving

1. Description: Paving type 11: PCC block:
2. Subgrade improvement layer: To engineers detail and specification
 - 2.1. Compacted thickness: To engineers detail and specification
3. Geotextile: To engineers detail and specification
 - 3.1. Manufacturer: To engineers detail and specification
 - 3.1.1. Product reference: To engineers detail and specification
4. Granular sub-base: To engineers detail and specification
 - 4.1. Compacted thickness: To engineers detail and specification
5. Laying course:
 - 5.1. Material: In accordance with BS 7533-3.
 - 5.1.1. Category: To engineers detail and specification
 - 5.2. Method of screeding, in accordance with BS 7533-3: To engineers detail and specification
 - 5.3. Nominal thickness after compaction: To engineers detail and specification
6. Blocks: To BS EN 1338.
 - 6.1. Manufacturer: Tobermore or equal and approved
 - 6.1.1. Product reference: Fusion
 - 6.2. Sizes: L200 x W100 x D60
 - 6.3. Special blocks: None
 - 6.4. Arrises: As supplied
 - 6.5. Colour/ Finish: Silver
 - 6.6. Recycled content: As supplied
 - 6.7. Requirements: As supplied
 - 6.7.1. Freeze/ thaw resistance: As supplied
 - 6.7.2. Abrasion resistance: As supplied
 - 6.7.3. Slip/ Skid resistance: As supplied
7. Jointing:
 - 7.1. Material: In accordance with BS 7533-3.
 - 7.2. Joint width: Approx 1mm joint achieved through unit nib.
8. Sealer/ Stabilizer: In strict accordance with the manufacturers guidelines
9. Setting out:
 - 9.1. Bond: Stretcher
 - 9.2. Features: NA
10. Accessories: NA

111A Conventional concrete block paving

1. Description: Paving type 21: PCC block:
2. Subgrade improvement layer: To engineers detail and specification
 - 2.1. Compacted thickness: To engineers detail and specification
3. Geotextile: To engineers detail and specification
 - 3.1. Manufacturer: To engineers detail and specification
 - 3.1.1. Product reference: To engineers detail and specification
4. Granular sub-base: To engineers detail and specification
 - 4.1. Compacted thickness: To engineers detail and specification
5. Laying course:
 - 5.1. Material: In accordance with BS 7533-3.
 - 5.1.1. Category: To engineers detail and specification
 - 5.2. Method of screeding, in accordance with BS 7533-3: To engineers detail and specification
 - 5.3. Nominal thickness after compaction: To engineers detail and specification
6. Blocks: To BS EN 1338.
 - 6.1. Manufacturer: Tobermore or equal and approved
 - 6.1.1. Product reference: Fusion
 - 6.2. Sizes: L200 x W100 x D80
 - 6.3. Special blocks: None
 - 6.4. Arrises: As supplied
 - 6.5. Colour/ Finish: Silver
 - 6.6. Recycled content: As supplied
 - 6.7. Requirements: As supplied
 - 6.7.1. Freeze/ thaw resistance: As supplied
 - 6.7.2. Abrasion resistance: As supplied
 - 6.7.3. Slip/ Skid resistance: As supplied
7. Jointing:
 - 7.1. Material: In accordance with BS 7533-3.
 - 7.2. Joint width: Approx 1mm joint achieved through unit nib.
8. Sealer/ Stabilizer: In strict accordance with the manufacturers guidelines
9. Setting out:
 - 9.1. Bond: Stretcher
 - 9.2. Features: NA
10. Accessories: NA

Execution

200 Execution generally – concrete block and clay paver paving

1. Standard: In accordance with BS 7533-3.

220 Samples

1. General: Before ordering, submit samples of concrete blocks/ pavers/ setts that are representative of colour and appearance.

230 Control samples

1. **General:** Carry out sample area of finished work:
 - 1.1. **Location:** Contractor to submit proposals for approval prior to work commencing
 - 1.2. **Size (minimum):** 1.5 x 1.5 m
 - 1.3. **Features to be included:** To be coordinated with location to demonstrate the agreed upon level of information
2. **Give notice:** When ready for inspection.
3. **Timing:** Obtain approval of appearance before proceeding.

240 Adverse weather

1. **General:** Do not use frozen materials or lay bedding on frozen or frost covered sub-bases.

445 Laying geotextile patches over drainage holes for conventional paving

1. **General:** Lay geotextile patches on the base, centred over each hole.
 - 1.1. **Size of patches:** 1000 x 1000 mm

450 Laying geotextile sheet for conventional paving

1. **Location:** Immediately below laying course.
2. **Jointing:** Lap by 300 mm
3. **Laying:** Fit neatly at edge restraints and other features that interrupt the sand laying course, e.g. drainage fittings, channels, manholes and kerbs.
 - 3.1. **Edge detail:** Turn sheet up to form an upstand against features.
 - 3.1.1. **Height (minimum):** Thickness of sand laying course.

486 Laying blocks/ pavers/ setts

1. **Setting out:** Start from an edge restraint.
2. **Cutting:** Cleanly, accurately and vertically, without spalling. Do not mark or damage visible surfaces. No mitre cuts to be accepted, units are to be no less than 1/3 original size.
3. **Cut edges:** Turn inwards where possible; do not position against edge restraints or other features.
4. **In situ mortar or concrete infill:** To engineers detail
5. **Compaction:** Vibrate to produce thoroughly interlocked paving of even overall appearance with regular joints and accurate to line, level and profile. Do not mark or damage paving units, kerbs and adjacent work.
 - 5.1. **Concrete blocks and clay pavers:** In accordance with BS 7533-3, Annex F, to site category required for laying course material.

Completion

615 Completion of paving

1. **Final compaction of the surface course:** In accordance with BS 7533-3.
2. **Vacuum cleaning machines:** Not allowed.

Ω End of Section

Q25

Slab/brick/sett/cobble pavings

Clauses

2 To be read with preliminaries/ general conditions.

General

121 Concrete flag paving system

1. Description: Pt2 / pt11 / pt21: precast concrete units
2. Subgrade improvement layer: Refer to Engineers detail and specification
3. Granular sub-base: Refer to Engineers detail and specification
4. Base: Refer to Engineers detail and specification
5. Laying course: Refer to Engineers detail and specification
6. Paving units: Refer to Q25 / 316
7. Jointing: Sand/ fine aggregate
 - 7.1. Bond: Stack Bond
8. Accessories: Refer to Section Q10

System performance - Not Used

Products

317 Concrete flags

1. Description: Paving type 2: precast concrete flag
2. Standard: To BS EN 1339.
 - 2.1. Manufacturer: Tobermore or equal and approved
 - 2.1.1. Product reference: Fusion
3. Recycled content: As supplied
4. Colour: Silver
 - 4.1. Finish: As supplied
 - 4.2. Nominal sizes: L300mm x W300mm x D60mm
5. Arrises: As supplied subject to Landscape Architects approval.
6. Water absorption and freeze/ thaw resistance class: As supplied
7. Bending strength class: As supplied
8. Abrasion resistance class: As supplied
9. Slip/ Skid resistance: As supplied
10. Breaking load class: As supplied

365 Geotextile sheet

1. Description: Permeable geotextile membrane
2. Manufacturer: TERRAM or equal and approved
 - 2.1. Product reference: TERRAM 1000 or equal and approved
3. Recycled content: As supplied

390 Sand/ fine aggregate for unbound laying course and jointing of concrete flag paving

1. Description: Pt1 and pt2
2. Standard: To BS 7533-4, unbound construction laying course and jointing material.
3. Purity: Free from deleterious salts, contaminants, lime and cement.
4. Procurement: Obtain from one source and ensure consistent grading.

Execution

610 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
 - 1.1. Designated materials: All Slab, brick, sett, cobble and jointing materials stated within Section Q25

615 Control samples

1. Sample areas: Complete as part of the finished work.
 - 1.1. Types of paving: All paving stated in Section Q25
 - 1.2. Location: Contracator to submit proposals for approval prior to work commencing
 - 1.3. Size (minimum): 1.5 x 1.5 m
 - 1.4. Included features: To be coordinated with location to demonstrate the agreed upon level of information.
2. Approval of appearance and surface: Obtain before proceeding.

620 Adverse weather

1. General
 - 1.1. Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
 - 1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
2. Paving with mortar joints and/ or bedding
 - 2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand/ fine aggregate
 - 3.1. Stockpiled laying course sand/ fine aggregate: Protect from saturation.
 - 3.2. Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.
 - 3.3. Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.
 - 3.4. Laying dry sand/ fine aggregate jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

626 Laying pavings - general

1. Appearance: Smooth and even with regular joints and accurate to line, level and profile.
2. Falls: To prevent ponding.
3. Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
 - 3.1. Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.
4. Slopes: Lay paving units upwards from the bottom of slopes.

5. **Paving units:** Free of mortar and sand stains.
6. **Cutting:** Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes. Mitre cuts are not accepted.

630 Levels of paving

1. **Permissible deviation from specified levels**
 - 1.1. Generally: ± 6 mm.
2. **Height of finished paving above features**
 - 2.1. At gullies: +6 to +10 mm.
 - 2.2. At drainage channels and kerbs: +3 to +6 mm.

635 Regularity of paved surfaces

1. **Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface)**
 - 1.1. Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
 - 1.2. Precast concrete flags or natural stone slabs: 3 mm.
2. **Difference in level between adjacent paving units (maximum):** 2 mm.
3. **Sudden irregularities:** Not permitted.

645 Protection

1. **Cleanliness:** Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
2. **Materials storage:** Do not overload pavings with stacks of materials.
3. **Handling:** Do not damage paving unit corners, arrises, or previously laid paving.
4. **Mortar bedded pavings:** Keep free from traffic after laying:
 - 4.1. Pedestrian traffic (minimum): 4 days
 - 4.2. Vehicular traffic (minimum): 10 days
5. **Access:** Restrict access to paved areas to prevent damage from site traffic and plant.

656 Condition of sub-bases/ bases before spreading laying course

1. To Engineers detail and specification.

675 Laying geotextile sheet edging strips

1. **Location:** Immediately below the laying course, abutting features which interrupt the laying course, including:
 - 1.1. Perimeters/ Edge restraints/ Kerbs.
 - 1.2. Other types of paving.
 - 1.3. Drainage fittings, e.g. channels and manholes.
2. **Edge detail:** Turn sheet up to a height not less than thickness of the laying course to form an upstand fitted neatly against features.
3. **Width:** 4500
4. **Jointing:** Lap by 300 mm.

680 Laying geotextile sheet patches over drainage holes

1. **Laying:** Lay geotextile patches on the base, centred over each hole.
 - 1.1. **Size of patch:** 1000 x 1000 mm

Completion

915 Completion of paving with dry sand or fine aggregate filled joints

1. Sand dressing: Not required
2. Final compaction of the surface course: In accordance with BS 7533-3.
3. Vacuum cleaning machines: Not allowed.

Ω End of Section

Q55

External decks, boardwalks and bridges

Clauses

2 To be read with preliminaries/ general conditions.

Tendering

11 Information to be provided with tender

1. General structural requirements in accordance with structural engineers information.

General

111 Deck

1. Description: Paving type 8: composite decking
2. Supplier: Ecoscape or equal and approved
3. Product: Clarity Composite Decking
4. Colour: Graphite
5. Base preparation: Remove projections and debris and lay 1000 gauge polyethylene sheet weed barrier with slits for drainage; cover with 75mm depth of 10mm single size gravel and treat with suitable residual herbicide.
6. Structure, other than surfacing: In strict accordance with suppliers guidelines..
 - 6.1. Fasteners: In strict accordance with suppliers guidelines.
7. Post setting: In strict accordance with suppliers guidelines.
8. Surfacing: Deck boards as clause Q55 / 380A
 - 8.1. Method of attachment: Concealed fixings to be used in strict accordance with suppliers guidelines.
9. Guarding: Not required
10. Edge protection: Not required
11. Accessories: Fascia boards, concealed fixings in strict accordance with suppliers guidelines.
 - 11.1. Removable access panels required to some plots to access below ground drainage and manhole covers- refer to details.

System performance

215 Contractor's design

1. Design responsibility: Design and detail decking, supports, posts and footings using standard system components.
 - 1.1. Including: Fabric and structure, fixings between elements, anchorage to supporting structure and functionality.
2. Requirements
 - 2.1. Generally: As section: B50.
 - 2.2. Modifications: None
 - 2.3. Design: Complete the design in accordance with the designated code of practice to satisfy specified performance criteria.
3. Functional requirements: Satisfy specified criteria for 15 year service life.
4. Additional requirements: None

5. **Design and production information:** Full and complete fabrication drawings for approval by Landscape Architect prior to construction.
6. **Timing of submissions:** Min 2 weeks prior to commencement of fabrication

Products

370 Composite sections

1. **Description:** For decking structure and sub structure
2. **Manufacturer:** EnviroBuild Materials Ltd or equal and approved
 - 2.1. **Product reference:** Submit proposals
3. **Colour:** Granite

380A Composite decking

1. **Description:** Paving type 8: composite decking
2. **Manufacturer:** UK EcoScape or equal and approved.- Web: www.ecoscapeuk.co.uk- Email: sales@ecoscapeuk.co.uk
 - 2.1. **Product reference:** CLARITY® COMPOSITE DECKING, 150 x 25mm, grooved finish.
3. **Length:** As per detail drawing
4. **Colour:** Graphite
5. **Spacing:** Open joints between deck boards to the manufacturer's recommended details.
6. **Overall deck width** to suit full board dimensions - no cut boards permitted
7. **Fixings:** No visible fixings to manufacturer's details

Fabrication

510 Fabrication generally

1. **Design:** Complete the detailed design and obtain approval prior to commencing fabrication.
2. **Shop drawings:** Submit.
3. **Structural calculations:** Submit.
4. **Frameworks:** Assemble and brace, including temporary members required for installation.
5. **Contact between dissimilar metals:** Avoid.
6. **Fixings:** Fully bolt together. Tighten bolts.
7. **Temporary support:** Do not subject members to non-design loadings.

Execution

610 Loading

1. **Site activities:** Restrict, to ensure that design loads are not exceeded, or submit proposals for temporary supports.

620 Concrete foundations generally

1. **Standard:** To BS 8500-2.
2. **Mix:** Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
3. **Admixtures:** Do not use.
4. **Foundation holes:** Neat vertical sides.
5. **Depth of foundations, bedding, haunching:** Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

630 Setting components in concrete

1. Holes: As required
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Compact as filling proceeds.
4. Concrete foundations exposed to view: Finished to weathering profile to shed water and trowel smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

655 Erection of prefabricated timber structures on prepared bases

1. Survey: Five days (minimum) before proposed erection date. Check foundations, holding down bolts, etc.
2. Inaccuracies or defects in prepared bases or supplied structures: Report immediately. Obtain instructions before proceeding.

660 Preservative treated timber

1. Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
2. Heavily worked sections: Re-treat.

665 Installation generally

1. Fasteners and methods of fixing: As section Z20.
2. Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
3. Temporary support: Do not use stairs, walkways or balustrades as temporary support or strutting for other work.

670 Installation of surfacing

1. Heading joints: Kept to a minimum, and formed only as butt joints situated over joists.
2. Length: Each board must span not less than two bays between joists with joints in adjacent boards staggered.
3. Gaps between boards: In strict accordance with manufacturers guidelines

Completion

950 Documentation

1. Contents
 - 1.1. General product information.
 - 1.2. Installation information.
 - 1.3. Inspection and maintenance reports.
2. Number of copies: 2
3. Submission: Two weeks prior to date when principal contractor expects work to be practically complete

Ω End of Section

Z10

Purpose made joinery

To be read with preliminaries/ general conditions.

110 Fabrication

1. Standard: To BS 1186-2.
2. Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
 - 2.1. Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
3. Joints: Tight and close fitting.
4. Assembled components: Rigid. Free from distortion.
5. Screws: Provide pilot holes.
 - 5.1. Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
 - 5.2. Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
 - 5.3. Adhesives: Compatible with wood preservatives applied and end uses of timber.
6. Adhesives:

120 Cross section dimensions of timber

1. General: Dimensions on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes
 - 2.1. Softwood sections: To BS EN 1313-1:-
 - 2.1.1. Clause 6 for sawn sections.
 - 2.2. Hardwood sections: To BS EN 1313-2:-
 - 2.2.1. Clause 6 for sawn sections.
 - 2.2.2. Clause NA.3 for further processed sections.

130 Preservative treated wood

1. Cutting and machining: Completed as far as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
3. Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 Moisture content

1. Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

250 Finishing

1. Surfaces: Smooth, even and suitable to receive finishes.
 - 1.1. Arrises: Eased unless shown otherwise on drawings.
2. End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Ω End of Section

Z11

Purpose made metalwork

Clauses

2 To be read with preliminaries/ general conditions.

To be read with preliminaries/ general conditions.

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.
2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
 - 2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

527 Welding

1. Description: Generally
2. Welding procedures
 - 2.1. Method and standard: Metal arc welding to BS EN 1011-1 and -2.
 - 2.2. Welding Procedure Specification (WPS): Submit copies before commencement of welding
3. Preparation
 - 3.1. Joint preparation: Clean thoroughly.
 - 3.2. Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
4. Jointing
 - 4.1. Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
 - 4.2. Dissimilar metals: Not applicable
 - 4.3. Strength requirements: Welds to achieve design loads.
 - 4.4. Heat straightening: Submit proposals
 - 4.5. Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
 - 4.6. Tack welds: Use only for temporary attachment.
 - 4.7. Jigs: Provide to support and restrain members during welding.
 - 4.8. Filler plates: Not permitted

- 4.9. Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
- 4.10. Weld terminations: Clean and sound.

Finishing

710 Finishing welded and brazed joints visible in complete work

- 1. Standard: To BS EN ISO 8501-3.
 - 1.1. Preparation grade: P3
- 2. Butt joints: Smooth, and flush with adjacent surfaces.
- 3. Fillet joints: Neat.
- 4. Grinding: Grind smooth where indicated on drawings.

745 Preparation for application of coatings

- 1. General: Complete fabrication, and drill fixing holes before applying coatings.
- 2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

780 Galvanizing

- 1. Standard: To BS EN ISO 1461.
- 2. Preparation
 - 2.1. Vent and drain holes: Provide in accordance with BS EN 14713-1 and -2. Seal after sections have been drained and cooled.
 - 2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
 - 2.3. Welding slag: Remove.
 - 2.4. Component cleaning: To BS EN ISO 8501-3.
 - 2.5. Grade: St 2½

Products - Not Used

Ω End of Section

Z12

Preservative/ fire retardant treatment

To be read with preliminaries/ general conditions.

110 Treatment application

1. **Timing:** After cutting and machining timber, and before assembling components.
2. **Processor:** Licensed by manufacturer of specified treatment solution.
3. **Operatives:** WPA certified
4. **Certification:** For each batch of timber provide a certificate of assurance that treatment has been carried out as specified.

120 Commodity specifications

1. **Standard:** In accordance with the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

130 Preservative treatment solution strengths/ treatment cycles

1. **General:** Select to achieve specified service life and to suit treatability of specified wood species.

610 Making good to preservative treatment on site

1. **Preservative solution:** Compatible with off-site treatment.
2. **Application:** In accordance with preservative manufacturer's recommendations.

Ω End of Section

Z20

Fixings and adhesives

Clauses

2 To be read with preliminaries/ general conditions.

Products

310 Fasteners generally

1. Materials: To have:
 - 1.1. Bimetallic corrosion resistance appropriate to items being fixed.
 - 1.2. Atmospheric corrosion resistance appropriate to fixing location.
2. Appearance: Submit samples on request.

320 Packings

1. Materials: Noncompressible, corrosion proof.
2. Area of packings: Sufficient to transfer loads.

340 Masonry fixings

1. Light duty: Plugs and screws.
2. Heavy duty: Expansion anchors or chemical anchors.

350 Plugs

1. Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

390 Adhesives

1. Standards
 - 1.1. Hot-setting phenolic and aminoplastic: To BS 1203.
 - 1.2. Thermosetting wood adhesives: To BS EN 12765.
 - 1.3. Thermoplastic adhesives: To BS EN 204.

410 Powder actuated fixing systems

1. Types of fastener, accessories and consumables: As recommended by tool manufacturer.

Execution

610 Fixing generally

1. Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
2. Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
3. Appearance: Fixings to be in straight lines at regular centres.

620 Fixing through finishes

1. Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

630 Fixing packings

1. **Function:** To take up tolerances and prevent distortion of materials and components.
2. **Limits:** Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
3. **Locations:** Not within zones to be filled with sealant.

640 Fixing cramps

1. **Cramp positions:** Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
2. **Fasteners:** Fix cramps to frames with screws of same material as cramps.
3. **Fixings in masonry work:** Fully bed in mortar.

670 Pelleted countersunk screw fixing

1. **Finished level of countersunk screw heads:** Minimum 6 mm below timber surface.
2. **Pellets:** Cut from matching timber, match grain and glue in to full depth of hole.
3. **Finished level of pellets:** Flush with surface.

690 Using powder actuated fixing systems

1. **Powder actuated fixing tools:** To BS 4078-2 and Kitemark certified.
2. **Operatives:** Trained and certified as competent by tool manufacturer.

700 Applying adhesives

1. **Surfaces:** Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
2. **Support and clamping during setting:** Provide as necessary. Do not mark surfaces of or distort components being fixed.
3. **Finished adhesive joints:** Fully bonded. Free of surplus adhesive.

Ω End of Section

Z22 Sealants

Clauses

2 To be read with preliminaries/general conditions.

Products - Not Used

Execution

620 Preparing joints

1. Surfaces to which sealant must adhere
 - 1.1. Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
 - 1.2. Clean using materials and methods recommended by sealant manufacturer.
2. Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
3. Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
4. Protection: Keep joints clean and protect from damage until sealant is applied.

630 Applying sealants

1. Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
2. Environmental conditions: Do not dry or raise temperature of joints by heating.
3. Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
4. Sealant profiles
 - 4.1. Butt and lap joints: Slightly concave.
 - 4.2. Fillet joints: Flat or slightly convex.
5. Protection: Protect finished joints from contamination or damage until sealant has cured.

Ω End of Section

Z31 Powder coatings

To be read with preliminaries/ general conditions.

120 Powder coating materials

1. Manufacturer: Obtain from one only of the following: Contractor to submit proposals.
2. **Selected manufacturer:** Submit details before commencement of powder coating including:
 - 2.1. Name and contact details.
 - 2.2. Details of accreditation schemes.
 - 2.3. Technical data of product including current Agrément certificates.

210 Working procedures

1. Comply with the follow following standards.
 - 1.1. Aluminium components: To BS 6496 or BS EN 12206-1.
 - 1.2. Steel components: To BS EN 13438.
 - 1.3. Safety standards: Powder coating. Application of coating powders by electrostatic spraying'.
 - 1.4. Health and safety guidance: Health and Safety Executive 'Reducing risk associated with using coating powders - employers' web page.

220 Powder coating applicators

1. **Applicator requirements**
 - 1.1. Approved by powder coating manufacturer.
 - 1.2. Currently certified to BS EN ISO 9001.
 - 1.3. Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
 - 1.4. **Selected applicator:** Submit details before commencement of powder coating including:
 - 1.4.1. Name and contact details.
 - 1.4.2. Details of accreditation schemes.

225 Guarantees

1. **Powder coating manufacturer and applicator guarantees**
 - 1.1. Submit sample copies before commencement of powder coating.
 - 1.2. Submit signed project specific copies on completion of work.

230 Control samples

1. **Sequence:** Prior to ordering materials for the works, obtain approval of appearance for:
 - 1.1. **Powder coated samples:** Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
 - 1.2. **Fabrication samples:** Showing joint assembly, how powder coating is affected and how any cut metal edges are finished and protected.
 - 1.3. Where manual application is required, controlled samples should be coated and inspected for colour and gloss stability.
2. **Samples to include the following information**
 - 2.1. Product reference.
 - 2.2. Colour.

- 2.3. Reference number.
- 2.4. Name.
- 2.5. Gloss level.

250 Component design

- 1. Condition of components to be powder coated
 - 1.1. To comply with relevant recommendations of BS 4479-1, -3, and -4.
 - 1.2. Of suitable size to fit plant capacity.
 - 1.3. Of suitable thickness to withstand oven curing.

320 Pretreatment of steel components

- 1. Condition of components to be pretreated
 - 1.1. Free from corrosion and damage.
 - 1.2. All welding and jointing completed and finish off as specified.
 - 1.3. Free from impurities including soil, grease and oil.
 - 1.4. Suitable for and compatible with the pretreatment process.
- 2. Conversion coating requirements: To BS EN 13438.
- 3. Rinsing requirements: Use demineralized water. Drain and dry.

330 Pretreatment for protection in aggressive environments

- 1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
- 2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
- 3. All cut edges, drilled holes and mitres to be fully sealed.
- 4. Cleaning and maintenance: Carried out once every three to twelve months (dependent on proximity to pollutant).

430 Extent of powder coatings

- 1. Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS 6496 or BS EN 13438 performance requirements.

435 Application of powder coatings

- 1. Surfaces to receive powder coatings: Free from dust or powder deposits.
- 2. Powder colours: Obtain from one batch of one manufacturer.
- 3. Commencement of powder coating: To be continuous from pretreatment.
- 4. Components to be installed on site in order of application.
- 5. Jig points: Not visible on coated components.
- 6. Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
- 7. Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
- 8. Overcoating of components: Not acceptable.

440 Performance and appearance of powder coatings

- 1. For aluminium components

- 1.1. Standard: To BS 6496 or BS EN 12206-1.
2. For steel components
 - 2.1. Standard: To BS EN 13438.
3. Visual inspection after powder coating: Significant surface viewing distances to be as specified in the relevant Standard, unless specified otherwise.
4. Colour and gloss levels: To conform with approved samples.

460 Steel fabrications

1. Unit assembly: Wherever practical, before powder coating.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

470 Fixings

1. Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer's recommendations.

480 Damaged components – repair or replacement

1. Before delivery to site: Check all components for damage to powder coatings. Replace damaged components.
2. Site damage: Submit proposals for repair or replacement.

510 Protection

1. Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
2. Protective coverings must be
 - 2.1. Resistant to weather conditions.
 - 2.2. Partially removable to suit building in and access to fixing points.
3. Protective tapes in contact with powder coatings must be
 - 3.1. Low tack, self adhesive and light in colour.
 - 3.2. Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
4. Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

520 Protection in hazardous locations

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. Cleaning: Carried out once every three to twelve months (dependent on proximity to pollutant).

535 Documentation

1. Submit the following information for each batch of powder coated components
 - 1.1. Supplier.
 - 1.2. Trade name.
 - 1.3. Colour.
 - 1.4. Type of powder.

- 1.5. Method of application.
- 1.6. Batch and reference number.
- 1.7. Statutory requirements.
- 1.8. Test certificates.
- 1.9. Maintenance instructions.

540 Completion

- 1. **Protection:** Remove any protective coverings.
- 2. **Cleaning and maintenance of powder coatings:** Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.

Ω End of Section



Specification created using NBS Chorus