



Rev: C01
Huddersfield Royal Infirmary; Emergency Department
Architectural Specification

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A01 EQUIVALENT PRODUCTS

CLAUSES

10 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS

GENERALLY

100 EQUIVALENT PRODUCTS

1. Wherever products are specified by proprietary name, the phrase 'or equivalent' is deemed to be included.
2. Where an 'equivalent' product to that specified is proposed, obtain architect's approval to substitution. Such agreement shall not be unreasonably withheld but will not be granted where, by comparison with specified product, 'equivalent' product has or is likely to offer:
 - Shorter continuing availability;
 - Shorter lifespan;
 - Inferior sustainability characteristics;
 - Greater cost;
 - Inferior relevant performance characteristics;
 - Inferior functionality;
 - Inferior operation;
 - More costly or time consuming method of removal for maintenance/ replacement;
 - Incompatibility with adjacent work;
 - Different appearance including finish/ texture/ colour/ sheen availability particularly where this would result in difficulty matching adjacent finishes/ components;
 - Adverse implications with respect to programme;
 - Adverse implications with respect to inspection, maintenance, cleaning and replacement.
3. Reasons: Submit reasons for the proposed substitution together with any cost implications.
4. Documentation: Submit technical literature and relevant information, including but not limited to:
 - Manufacturer and product reference;
 - Product history and manufacturer's statement regarding current and continuing availability;
 - BBA Certification (if available);
 - Lifespan of product;
 - Material(s);
 - Manufacturing tolerances;
 - Cost;
 - Relevant standards;
 - Performance including copies of all test results demonstrating, in comparative form, the performance characteristics of the proposed alternative against those of the specified product;
 - Function;
 - Operation;
 - Method and type(s) of fixing and, where relevant, method of removal for maintenance/ replacement;
 - Compatibility of accessories;
 - Proposed revisions to drawings and specification;
 - Compatibility with adjacent work including, where relevant, adjacent retained facilities;

- Appearance including finish/ texture/ colour/ sheen availability;
 - Programme implications;
 - Inspection, maintenance, cleaning and replacement requirements/ recommendations;
 - Copy of warranty/ guarantee including clear statement as to whether this is provided by manufacturer, supplier or single source. If substitution is accepted, submit before ordering product.
5. Alterations to adjacent work: If needed, advise scope and nature and submit evidence of equivalent functionality, durability and appearance of whole construction.

D20 EXCAVATING AND FILLING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS

GENERALLY/THE SITE

110 SITE INVESTIGATION

1. Report:

112 SITE INVESTIGATION REPORT

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.

150 EXISTING SERVICES, FEATURES AND STRUCTURES

1. Services: See section A12 for locations.
2. Site features to be retained: See section A12 for details.
3. Structures: See section A34 for details of protection.

CLEARANCE/EXCAVATING

164 TREE ROOTS

1. Protected area: Do not cut roots within precautionary protection area.
 - Size of area:
2. Excavation in protected area
 - Method:
 - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
 - Make clean smooth cuts with no ragged edges.
 - Pare cut surfaces smooth with a sharp knife.
 - Treatment of cut roots:
5. Backfill:

166 TREE ROOT BARRIERS

1. Trench: Sever all roots.
 - Depth:
2. Root barrier:
3. Cutting roots: As clause 164.
4. Root barrier installation: Full depth of excavation. Fit closely to trench wall nearest the tree.
5. Backfill material: As dug material excavated from trench.
6. Backfilling: Lay and compact thoroughly in layers not more than 300 mm thick.

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:

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 HSE/ Arboriculture and Forestry Advisory Group safety leaflets.

175 FELLING LARGE TREES

1. Definition: Girth over 600 mm.
2. Identification: Clearly mark trees to be removed.
3. Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.
4. Felling: As close to the ground as possible.
5. Stumps:
6. Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

180 CHIPPING AND SHREDDING

1. General:

220 STRIPPING TOPSOIL

1. General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
2. Depth
 - Remove to an average depth of
 - Give notice where the depth of topsoil is difficult to determine.
3. Handling: Handle topsoil for reuse or sale in accordance with clause 225.
4. Around trees: Do not remove topsoil from below the spread of trees to be retained.
5. Site storage:

221 TREATING TOPSOIL

1. Treatment: Apply a suitable translocated nonresidual herbicide.
2. Timing: Not less than two weeks before excavating topsoil.

225 HANDLING TOPSOIL

1. Standard: To BS 3882.
2. Aggressive weeds
 - Species: Included in the Weeds Act, section 2 or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
 - Give notice: Obtain instructions before moving topsoil.
3. Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.
 - Oil, fuel, cement or other substances harmful to plant growth.
 - Other classifications of topsoil.
4. Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.

240 ADJACENT EXCAVATIONS

1. Requirement: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto, must be completed before the higher excavation is made.
2. Angle of line below horizontal:
3. Backfill material:

242 EXCAVATIONS ADJACENT TO EXISTING BACKFILLED TRENCHES

1. Proximity: When width of undisturbed ground between the two excavations will be less than
2. Action: Assume that the ground between the trenches is unstable and provide side support accordingly.

244 EXCAVATIONS ADJACENT TO EXISTING FOUNDATIONS

1. Prior to commencing excavation
 - Excavate trial pits adjacent to existing foundations to determine extent and formation levels.
 - Allow for inspection of trial pits.
 - Allow time for amendment of details if required.
 - o Time period: .
2. Backfill material to new excavation:

245 EXCAVATIONS ADJACENT TO EXISTING FOUNDATIONS – CONTRACTOR’S DESIGN

1. Prior to commencing excavation: Excavate trial pits adjacent to existing foundations to determine extent and formation levels.
2. Submit proposals: For ensuring the safety of the existing foundations if the formation level for the new excavation will be
3. Backfill material to new excavation:

246 EXCAVATIONS ADJACENT TO PILE SUPPORTED STRUCTURES

1. Proximity: When the formation level of an excavation will be lower than the pile cut off level and the distance between the near faces of the pile cap/ ground beam and the excavation is less than
 - Complete all work within the excavation and backfilling before casting the pile cap/ ground beam, or
 - Delay the adjacent excavation until

248 BACKFILL TO EXCAVATIONS LOWER THAN FOUNDATION FORMATION LEVEL

1. Critical level
 - Distance between near faces of foundation and lower excavation less than 1 m:
 - Otherwise:
2. Backfill material
 - Below critical level:
 - Above critical level:

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.

255 ACCURACY – LINEAR DIMENSIONS

1. Permissible deviations from linear dimensions generally:

260 INSPECTING FORMATIONS

1. Give notice: Make advance arrangements for inspection of formations for
 - Notice (minimum):
2. Preparation: Just before inspection remove the last 150 mm of excavation.
3. Trim to required profiles and levels.
 - Loose material:
4. Seal: Within 4 hours of inspection, seal formations with

265 INSPECTING FORMATIONS IN SAND AND GRAVEL

1. Notice for inspection (minimum):
2. Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels and mechanically compact formation.
3. Seal: Within 4 hours of inspection, seal formations with

267 INSPECTION OF FORMATIONS IN SHRINKABLE SOILS

1. Inspect formation: For signs of conducting and fine moisture absorbing roots.
2. Give notice: If significant quantities of roots are visible in the formation or in the bottom 75 mm of the walls of the excavation.

270 FOUNDATIONS GENERALLY

1. Give notice if
 - A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
 - The formation contains soft or hard spots or highly variable material.

275 FOUNDATION BEARING

1. Requirement: Foundations are designed to bear on:
 - Strata:
 - Safe bearing capacity (minimum):
2. Give notice: If the material at the design depth of the foundation does not comply with this description, or contains soft or hard spots or highly variable material.

280 TRENCH FILL FOUNDATIONS

1. Excavation: Form trench down to formation in one operation.
2. Safety: Prepare formation from ground level.
3. Inspection of formations: Give notice before commencing excavation.
 - Period of notice:
4. Shoring: Where inspection of formation is required, provide localised shoring to suit ground conditions.
5. Concrete fill: Place concrete immediately after inspection and no more than four hours after exposing the formation.

283 FORMATIONS FOR PILE SUPPORTED STRUCTURES

1. Excavate: To the design formation level.

2. Compact: As necessary to ensure formation will support weight of concrete without settlement.
3. Blinding to formation:

285 STEPS IN FOUNDATION FORMATIONS

1. Depth of formation below ground level (minimum)
 - Existing ground level:
 - Finished ground level:
2. Step dimensions
 - Distance between steps (minimum):
 - Height of step (maximum):
 - Length of overlap (minimum):

290 FOUNDATIONS IN MADE UP GROUND

1. Depth: Excavate down to a natural formation of undisturbed subsoil.
2. Discrepancy: Give notice if this is greater or less than depth given.

310 UNSTABLE GROUND

1. Generally: Ensure that the excavation remains stable at all times.
2. Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
3. Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 RECORDED FEATURES

1. Recorded foundations, beds, drains, manholes, etc:
2. Contaminated earth: Remove and disinfect as required by local authority.

330 UNRECORDED FEATURES

1. Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

335 NEW FOUNDATIONS CROSSING OLD FOUNDATIONS OR WALLS

1. Break out: The old foundation/ wall where it crosses the new foundation/ wall:
 - Length of breaking out: Width of the new foundation/ wall plus
 - Depth of breaking out:
2. Disturbed/ softened soil: When the formation for the old foundation/ wall is deeper than the formation of the new foundation.
 - Excavate: Soil that has been disturbed and/ or softened on either side of the old wall/ foundation, and for
3. Step up: The formation for the new foundation as necessary on either side of the old foundation/ wall until the formation is at its design level.
 - Size of steps:
4. Backfilling beneath design formation level:

337 OLD FOUNDATIONS OR WALLS BENEATH NEW GROUND SUPPORTED SLAB

1. Break out: The old foundation/ wall to a depth below the slab formation level of at least
 - Excavate: Soil that has softened on either side of the old wall/ foundation.

2. Backfill: Obtain instructions if depth of fill will be greater than 600 mm, otherwise backfill with compacted hardcore.

350 EXISTING WATERCOURSES

1. Diverted watercourses which are to be filled: Before filling, remove vegetable growths and soft deposits.

360 EXCESS EXCAVATION

1. Excavation taken wider than required
 - Backfill:
2. Excavation taken deeper than required
 - Backfill:

370 UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

1. Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.
2. Minimum depth below finished levels
 - Grass, ground cover and perennial planting: 500 mm.
 - Shrub planting: 750 mm.
 - Within 2 m of tree planting: 1000 mm.
3. Walls and slabs remaining: In every 10 m² of wall or slab, make a drainage hole at least 600 mm diameter.

DISPOSAL OF MATERIALS

410 EXCAVATED TOPSOIL STORAGE

1. Storage: Stockpile in temporary storage heaps:

415 EXCAVATED TOPSOIL REMOVAL

1. General: Remove from site.

420 TOPSOIL STORAGE HEAPS

1. Location:
2. Standard: To BS 3882.
3. Height (maximum):
4. Protection
 - Do not place any other material on top of storage heaps.
 - Do not allow construction plant to pass over storage heaps.
 - Prevent compaction and contamination.

421 TOPSOIL STORAGE HEAP TREATMENT

1. Treatment:

441 SURPLUS SUBSOIL

1. Excavated material: Stockpile in temporary storage heaps.
2. Retained material: Spread and level surplus subsoil on site.
 - Locations:
 - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
3. Remaining material: Remove from site.

450 WATER

1. Generally: Keep all excavations free from water until:
 - Formations are covered.
 - Below ground constructions are completed.
 - 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.

457 PUMPING

1. General: Do not disturb excavated faces or stability of adjacent ground or structures.
2. Pumped water: Discharge without flooding the site or adjoining property.
3. Sumps: Construct clear of excavations. Fill on completion.
 - Locations:

460 PERMANENT DRAINAGE SYSTEM

1. Disposal of water from the excavations through system: Select from list

FILLING

500 PROPOSED FILL MATERIALS

1. Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
 - Type and source of imported fill.
 - Proposals for processing and reuse of material excavated on site.
 - Test reports as required elsewhere.
2. Timing:

510 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS

1. General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
 - Frozen or containing ice.
 - Organic.
 - Contaminated or noxious.
 - Susceptible to spontaneous combustion.
 - Likely to erode or decay and cause voids.
 - With excessive moisture content, slurry, mud or from marshes or bogs.
 - Clay of liquid limit exceeding 80 and/or plasticity index exceeding 55.
 - Unacceptable, class U2 as defined in the Highways Agency 'Specification for highway works', clause 601.

512 LIMITATION OF SULFATE CONTENT IN FILL MATERIALS

1. Test specification: To

2. Sulfate content: Expressed as
 - Water soluble sulfate (maximum):
 - Total potential sulfate (maximum):
 - Oxidizable sulfides (maximum):
3. Certificates of test result: Submit.

520 FROST SUSCEPTIBILITY

1. General: Except as allowed below, fill must be non frost-susceptible as defined in Highways Agency 'Specification for Highway Works', clause 801.8.
2. Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non frost- susceptible:
 - Fine grained soil with a plasticity index less than 20%.
 - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
 - Crushed chalk.
 - Crushed limestone fill with average saturation moisture content in excess of 3%.
 - Burnt colliery shale.
3. Frost-susceptible fill: May only be used:
 - At depths below the finished ground surface greater than:
 - Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.
 - Where frost heave will not affect structural elements.

525 TESTING OF SUITABILITY OF FILL MATERIALS BEFORE START OF FILLING

1. Laboratory:
2. Submit report to:
 - Timing:
3. Samples: Deliver to laboratory as required.
 - Additional requirements:
4. Tests:
5. Frequency:

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
 - Do not overload, destabilise or damage.
 - Submit proposals for temporary support necessary to ensure stability during filling.
 - 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:
 - Product reference:
2. Type:
3. Polymer type:
4. Recycled content:
5. Jointing:
6. Preparation of subgrade:
7. Protect from
 - Exposure to light.
 - Contaminants.
 - Materials listed as potentially deleterious by geotextile manufacturer.
 - Wind uplift.

555 GEOGRIDS

1. Manufacturer:
 - Product reference:
2. Polymer type:
3. Recycled content:
4. Directional strength:
5. Tensile strength:
6. Grid geometry:
 - Direction of grids:
7. Preparation of subgrade:
8. Fixing:
 - Centres:
9. Jointing:

560 GEONETS

1. Manufacturer:
 - Product reference:
2. Recycled content:
3. Preparation of subgrade:
4. Fixing:
 - Centres:
5. Jointing:

571 GEOCELLS

1. Manufacturer:

- Product reference:
- 2. Materials:
- 3. Recycled content:
- 4. Size of cells (length x width x thickness):
- 5. Preparation of subgrade:
- 6. Fixing/ Connecting:
 - Centres:

575 BURIED EROSION CONTROL GEOMATS

1. Manufacturer:
 - Product reference:
2. Type:
3. Recycled content:
4. Preparation of subgrade:
5. Fixing:
 - Centres:

580 BURIED EROSION CONTROL BIODEGRADABLE MESH

1. Manufacturer:
 - Product reference:
2. Type:
3. Preparation of subgrade:
4. Fixing:
5. Fill:

585 EROSION CONTROL MATTRESSES

1. Manufacturer:
 - Product reference:
2. Size (length x width x height):
3. Preparation of subgrade:
4. Fixing/ Connecting:
5. Lining:
6. Fill:

590 ROCK ROLLS

1. Manufacturer:
 - Product reference:
2. Netting:
3. Filling:
4. Diameter:
5. Fixing:

595 CONCRETE IMPREGNATED FABRIC

1. Manufacturer:
 - Product reference:
2. Thickness:

3. Installation: Apply water until the fabric is saturated. Allow fabric to cure fully before trafficking.

600 COIR

1. Description:
2. Manufacturer:
 - Product reference:
3. Diameter:
4. Fixing:
5. Planting:

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.

617 TYPE 1 UNBOUND MIXTURE

1. Fill: To Highways Agency 'Specification for highway works', clauses 801 and 803:
 - Crushed rock (other than argillaceous rock).
 - Crushed concrete.
 - Recycled aggregates.
 - Crushed non-expansive slag.
 - Well-burned non-plastic colliery shale.
2. Amendments to requirements in Highways Agency 'Specification for highway works':
3. Filling: To Highways Agency 'Specification for highway works', clause 802.

618 TYPE 2 UNBOUND MIXTURE

1. Fill: To Highways Agency 'Specification for highway works', clauses 801 and 804:
 - Crushed rock (other than argillaceous rock).
 - Crushed concrete.
 - Crushed non-expansive slag.
 - Well-burned non-plastic colliery shale.
 - Natural gravel.
 - Natural sand.
2. Amendments to requirements in Highways Agency 'Specification for highway works':
3. Filling: To Highways Agency 'Specification for highway works', clause 802.

620 SUBGRADE IMPROVEMENT LAYER (CAPPING)

1. Fill: To Highways Agency 'Specification for highway works', Table 6/1, Class 6F1 or 6F2.
2. Filling: Place and compact to Highways Agency Specification for highway works, Table 6/1, clause 612 and clause 613.3, 613.9 and 613.10.

626 COMPACTED GENERAL FILL

1. Suitable material:
2. Excavated material: Select suitable material and keep separate.

3. Filling: Spread and level material in layers. As soon as possible thoroughly compact each layer.
4. Required compaction:
5. Proposals: Well in advance of starting work submit details of proposed:
 - Materials to be used, including quantities of each type.
 - Type of plant.
 - Maximum depth of each compacted layer.
 - Minimum number of passes per layer.

640 STARTER LAYER OF COMPACTED FILLING

1. Fill: Suitable hard granular material. Compact thoroughly.
2. Thickness:

650 PROTECTION OF COMPACTED FILLING

1. Temporary protective filling: Before allowing construction traffic, raise level of compacted cohesive soil filling at least 150 mm above formation level using properly compacted temporary filling.
2. Removal: Remove temporary protective filling from site before permanent construction.

700 BACKFILLING AROUND FOUNDATIONS

1. Under oversite concrete and pavings: Hardcore as clause 710.
2. Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

710 HARDCORE FILLING

1. Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction:
 - Test requirements
 - o Minimum 10% fines value tested in a soaked condition to BS 812-111
 - o Impact value SZ tested to BS EN 1097-2
2. In any one layer only one of the following:
 - Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
 - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
 - Crushed non-expansive slag.
 - Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
 - Well-burned non-plastic colliery shale.
 - Natural gravel.
 - Natural sand.
3. Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

715 VENTING HARDCORE LAYER

1. Fill: Clean granular material, well graded, passing a 75 mm BS sieve but retained on a 20 mm BS sieve. In each layer only one of the following:
 - Crushed hard rock.
 - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
 - Gravel.

2. Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer whilst maintaining enough voids to allow efficient venting.

730 BLINDING

1. Surfaces to receive sheet overlays or concrete:
2. Blind with
 - Concrete where shown on drawings; or
 - Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
3. Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
4. Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).
5. Permissible deviations on surface level: +0 -25 mm.

750 COMPACTED CLAY LINING

1. Description:
2. Preparation of subgrade:
3. Lining:
 - Supplier:
 - o Product reference:
 - Thickness:
4. Protective layer:
 - Thickness:

755 INSTALLATION OF COMPACTED CLAY LINING

1. Bedding layer: Do not disturb.
2. Lining
 - Freezing conditions: Do not place fill on frozen surfaces.
 - o Remove material affected by frost.
 - Wetting:
 - Compaction:
 - Joints:
 - Damaged areas: Repair.
 - Surface at completion: Smooth and even.
3. Covering/ Filling:

770 GEOCOMPOSITE GAS VENTING LAYER

1. Manufacturer:
 - Product reference:
2. Jointing:

BIOREMEDIATION

810 EXCAVATED SOIL TREATMENT

1. Manufacturer:
 - Product reference:
2. Nature of contamination:
3. Treatment:

- Location of treatment heaps:
4. Temporary features:

820 IN SITU SOIL TREATMENT

1. Manufacturer:
 - Product reference:
2. Nature of contamination:
3. Treatment:
 - Location of treatment equipment:
4. Temporary features:

830 SOIL VAPOUR EXTRACTION

1. Manufacturer:
 - Product reference:
 - Location of treatment equipment:
2. Temporary features:

840 PUMP AND TREAT SYSTEM

1. Manufacturer:
 - Product reference:
2. Nature of contamination:
3. Location of treatment system:
4. Method for disposal of contaminants:
5. Temporary features:

'SPECIFICATION FOR HIGHWAY WORKS: EARTHWORKS SPECIFICATION' APPENDICES

850 COMPACTED GENERAL FILLING/ EARTHWORKS

1. Specification: Highways Agency 'Specification for highway works', Earthworks section, clauses:
 - Appendices (see clauses 900-970 in this section):
 - Amendments to requirements in Highways Agency 'Specification for highway works':
2. Definition: References to the 'Overseeing Organisation' are deemed to be to the issuer of this specification.
3. Fill material
 - Permitted classes/ source:
 - Assessment of acceptability: Tests as table 6/1 carried out by:
 - Preliminary tests:
4. Compaction: As table 6/4.

900 APPENDIX 6/1 – REQUIREMENTS FOR ACCEPTABILITY AND TESTING, ETC. OF EARTHWORKS MATERIALS

905 APPENDIX 6/2 – REQUIREMENTS FOR DEALING WITH CLASS U1B AND U2 UNACCEPTABLE MATERIAL

910 APPENDIX 6/3 – REQUIREMENTS FOR EXCAVATION, DEPOSITION, COMPACTION (OTHER THAN DYNAMIC COMPACTION)

915 APPENDIX 6/4 – REQUIREMENTS FOR CLASS 3 MATERIAL

920 APPENDIX 6/5 – GEOTEXTILES USED TO SEPARATE EARTHWORKS MATERIALS

925 APPENDIX 6/6 – FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS

930 APPENDIX 6/7 – SUB-FORMATION AND CAPPING AND PREPARATION AND SURFACE TREATMENT OF FORMATION

935 APPENDIX 6/8 – TOPSOILING

940 APPENDIX 6/9 – EARTHWORK ENVIRONMENTAL BUNDS, LANDSCAPE AREAS, STRENGTHENED EMBANKMENTS

945 APPENDIX 6/10 – GROUND ANCHORAGES, CRIB WALLING AND GABIONS

950 APPENDIX 6/11 – SWALLOW HOLES AND OTHER NATURALLY OCCURRING CAVITIES AND DISUSED MINE WORKINGS

955 APPENDIX 6/12 – INSTRUMENTATION AND MONITORING

960 APPENDIX 6/13 – GROUND IMPROVEMENT

965 APPENDIX 6/14 – LIMITING VALUES FOR POLLUTION OF CONTROLLED WATERS

970 APPENDIX 6/15 – LIMITING VALUES FOR HARM TO HUMAN HEALTH AND THE ENVIRONMENT

E05 IN SITU CONCRETE CONSTRUCTION GENERALLY

TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

310 SURFACE REGULARITY OF CONCRETE FLOORS TO BS 8204 - GENERAL

1. Standard: To BS 8204-1 or -2.
2. Measurement: From underside of a 2 m straightedge (between points of contact) placed anywhere on surface and using a slip gauge.

315 SURFACE REGULARITY OF CONCRETE FLOORS TO BS 8204 - TOLERANCE CLASS

1. Description: Sr2
2. Location: All surfaces
3. Abrupt changes: Not permitted

E20 FORMWORK FOR IN SITU CONCRETE

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERALLY/ PREPARATION

200A PROPRIETARY UNDERSLAB INSULATION

1. Manufacturer: Kingspan Insulation Ltd, Pembridge, Leominster, Herefordshire, HR6 9LA
 - Product reference: Kingspan GreenGuard GG300 rigid extruded polystyrene insulation board
2. Recycled content: Manufacturer's standard
3. Thickness:
 - Under slab: 30 mm
 - To base of foundation walls: 120 mm

CONSTRUCTION

315 SUBSTRUCTURE FORMWORK AND UNDERSLAB INSULATION

1. Cutting: Neat and accurate to edges, and around penetrations and downstands.
2. Laying: Tightly butted and fully supported on firm, even substrate.
3. Vertical faces: Stiffen as necessary to act as shutter.
4. Formwork/ insulation surfaces: Protect from indentation by spacers and other items.
5. Joints in formwork/ insulation and with edge structure and penetrations: Seal to prevent penetration of concrete.
6. Concrete placement: Restrain formwork/ insulation against movement.

STRIKING - NOT USED

FORMED FINISHES - NOT USED

E40 DESIGNED JOINTS IN IN SITU CONCRETE

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

520 EXTRUDED POLYETHYLENE (PE) FOAM JOINT FILLERS

1. Manufacturer: Fosroc International Limited
 - Contact details
 - o Address: Drayton Manor Business Park
Coleshill Road
Tamworth
Staffordshire
B78 3XN
 - o Telephone: +44 (0)1827 262222
 - o Web: www.fosroc.com
 - o Email: enquiryuk@fosroc.com
 - Product reference: Hydrocell XL
2. Standard: To Highways England, Specification for Highway Works, Series 1000.
3. Duty: Heavy duty.
4. Weathering test: To DTp Clause 1015, No disintegration.
5. Density: Medium density.
6. Recovery: To ASTM D3575, 98% after 50%.
7. Size
 - Thickness: 10 mm.
 - Width: 1000 x 2000 mm.
8. CompressiveStrength: 0.15 N/mm².
9. Water absorption: <0.05% by volume.
10. Composition: Cellular polyethylene.

530 CONSTRUCTION JOINT SEALANTS

1. Manufacturer: Fosroc International Limited
 - Contact details
 - o Address: Drayton Manor Business Park
Coleshill Road
Tamworth
Staffordshire
B78 3XN
 - o Telephone: +44 (0)1827 262222
 - o Web: www.fosroc.com
 - o Email: enquiryuk@fosroc.com
 - Product reference: Nitoseal MS600
2. Material: Hybrid silyl modified polyether.
3. Colour: Grey.
4. Primer: Fosroc Primer MS2.
5. Application temperature: 5–50°C.
6. Movement: 25% butt joints, 50% lap joints.
7. Setting time: 30 minutes.
8. Curing time: 3 mm (24 hours), 6 mm (48 hours), 8 mm (72 hours) at 20°C.

E41 WORKED FINISHES TO IN SITU CONCRETE

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

125 CONCRETE FLOOR SLABS

1. Description: Generally
2. Tolerances:
 - Surface regularity: As clause E05/ 315
 - Level: Permissible deviation of slab from datum (maximum): ± 5 mm
3. Finish: Ordinary Finish U2 to BS EN 13670
 - Additional surface treatment: Not required
4. Curing: As section E10.

150 FINISHING

1. Timing: Carry out at optimum times in relation to setting and hardening of concrete.
2. Prohibited treatments to concrete surfaces
 - Wetting to assist surface working.
 - Sprinkling cement.

240A WOOD FLOATED FINISH

1. Description: To roof slab for application of hot melt membrane
2. Surface on completion: Slightly coarse, even texture with no ridges or steps.

310 SMOOTH FLOATED FINISH

1. Surface on completion: Even with no ridges or steps.

415 POWER GROUND FINISH

1. Grinding: Remove 1-2 mm from surface.
 - Timing: When concrete is sufficiently hard for fine aggregate surface particles not to be dislodged.
2. Cleaning: Remove dust and wash down.
3. Surface on completion: Even glass-paper texture, free from blemishes and trowel marks.

E42 ACCESSORIES CAST INTO IN SITU CONCRETE

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL - NOT USED

PRODUCTS

340 CHANNELS AND SLOTS

1. Material: Stainless steel
 - Designation: Stainless steel grade 1.4301
 - Coating or treatment: None
2. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Omega 21/ 18 cast in channels
3. Anchors: Welded to back of section.
 - Type/ centres: Standard
4. Temporary fixings to shutter/ temporary supports: Contractor's choice
5. Bolts/ ties: Masonry ties as section F30/ 249
6. Other requirements: None

EXECUTION

610 HOLLOW ACCESSORIES

1. Filling/ sealing: Temporally fill or seal accessory to prevent ingress of grout during concreting. Leave filling/ seals in position until accessory is used.

620 TEMPORARY SUPPORTS

1. Location: Provide to hold accessories for casting into unshuttered surface of concrete, set at a level that will not adversely affect finish of concrete surface remote from accessory.
2. Position: Hold securely to prevent lateral movement or rotation of accessory during concreting.

640 INSTALLATION

1. Cleanliness: At time of casting, surfaces in contact with concrete to be free from contaminants which may adversely affect accessory, reinforcement, concrete, or bond between accessory and concrete.
2. Position: Hold accessory firmly in position, preventing displacement during concreting.
3. Other requirements: None

F10 BRICK/ BLOCK WALLING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF WALLING

315A CLAY COMMON BRICKWORK

1. Description: To outer leaf of external cavity wall, from foundation level up to not more than 150 mm below level of adjoining ground or external works
2. Bricks: To BS EN 771-1.
 - Type: HD
 - Size: 215 x 102 x 65 mm.
 - Mean compressive strength (minimum): 28 N/mm²
 - Durability designation: F2 S2
 - Density:
 - o Gross dry: Not applicable
 - o Net dry: Not applicable
 - Water absorption: Less than 7%
 - Configuration: Solid
 - Recycled content: Contractor's choice
 - Additional requirements: None
3. Mortar: As section Z21.
 - Standard: To BS EN 998-2
 - Mix: 1:1½:3 cement:lime:sand 12 N/mm² (class M12)
 - Additional requirements: None
4. Bond: Half lap stretcher

355B CONCRETE COMMON BLOCKWORK

1. Description: To inner leaf of external cavity walls
2. Blocks: To BS EN 771-3.
 - Configuration: Group 1
 - Compressive strength:
 - o Mean value: 7.3 N/mm²
 - o Characteristic value: Not applicable
 - o Category: II
 - Water absorption: Less than 7%
 - Freeze/ Thaw resistance: Frost resistant
 - Thermal properties: Thermal resistance: 0.09 m²K/W
 - Recycled content: Contractor's choice
 - Work sizes (length x width x height): 440 x 100 x 215 mm
 - o Tolerance category: D1
 - Special shapes: None
 - Additional requirements: None
3. Mortar: As section Z21.

- Standard: To BS EN 998-2
 - Mix: 1:0.5:4.5 cement:lime:sand 6 N/mm² (mortar class M6)
 - Additional requirements: None
4. Bond: Half lap stretcher

355C CONCRETE COMMON BLOCKWORK

1. Description: Below ground
2. Blocks: To BS EN 771-3.
 - Configuration: Group 1
 - Compressive strength:
 - o Mean value: 7.3 N/mm²
 - o Characteristic value: Not applicable
 - o Category: II
 - Water absorption: Less than 7%
 - Freeze/ Thaw resistance: Frost resistant
 - Thermal properties: Thermal resistance: 0.09 m²K/W
 - Recycled content: Contractor's choice
 - Work sizes (length x width x height): 440 x 100 x 215 mm
 - o Tolerance category: D1
 - Special shapes: None
 - Additional requirements: None
3. Mortar: As section Z21.
 - Standard: To BS EN 998-2
 - Mix: 1:0.5:4.5 cement:lime:sand 6 N/mm² (mortar class M6)
 - Additional requirements: None
4. Bond: Half lap stretcher

355D CONCRETE COMMON BLOCKWORK

1. Description: To outer leaf of external cavity walls behind feature rainscreen cladding
2. Blocks: To BS EN 771-3.
 - Configuration: Group 1
 - Compressive strength:
 - o Mean value: 7.3 N/mm²
 - o Characteristic value: Not applicable
 - o Category: II
 - Water absorption: Less than 7%
 - Freeze/ Thaw resistance: Frost resistant
 - Thermal properties: Thermal resistance: 0.09 m²K/W
 - Recycled content: Contractor's choice
 - Work sizes (length x width x height): 440 x 100 x 215 mm
 - o Tolerance category: D1
 - Special shapes: None
 - Additional requirements: None
3. Mortar: As section Z21.
 - Standard: To BS EN 998-2

- Mix: 1:0.5:4.5 cement:lime:sand 6 N/mm² (mortar class M6)
 - Additional requirements: None
4. Bond: Half lap stretcher

TESTING

410A COMPRESSIVE STRENGTH OF MORTAR FOR EACH WALLING TYPE

1. Testing authority: A UKAS Accredited laboratory
2. Test method: To BS EN 1015-11
3. Preliminary tests procedure: As follows
 - Specimens
 - o Number of specimens: 6
 - o Type: 40 x 40 x 160 mm prism
 - o Preparation: At least six weeks before walling commences
 - Specimen testing: Half of specimens at 7 days. Remainder at 28 days
 - o Retarded mixes: Extend curing periods to include retardation period
 - Response to result: If mean compressive strength at 28 days is not within the range given below repeat tests with more suitable sand or next higher mortar class.
4. Site tests procedure: As follows
 - Number of specimens: Six per 150m² of walling or per storey whichever the more frequent
 - Specimen types: As preliminary test, but prepared during construction
 - Specimen testing: Half of specimens at 7 days. Remainder at 28 days
 - o Retarded mixes: Extend curing periods to include retardation period
5. Required test mean compressive strength at 28 days (N/mm²): To be within the following range
 - Walling type: F10/315A
 - o Preliminary tests minimum (N/mm²): 12
 - o Preliminary tests maximum (N/mm²): NA
 - o Site tests minimum (N/mm²): 12
 - o Site tests maximum (N/mm²): NA
 - Walling type: F10/355B
 - o Preliminary tests minimum (N/mm²): 6
 - o Preliminary tests maximum (N/mm²): NA
 - o Site tests minimum (N/mm²): 6
 - o Site tests maximum (N/mm²): NA
 - Walling type: F10/355C
 - o Preliminary tests minimum (N/mm²): 6
 - o Preliminary tests maximum (N/mm²): NA
 - o Site tests minimum (N/mm²): 6
 - o Site tests maximum (N/mm²): NA
 - Walling type: F20/110
 - o Preliminary tests minimum (N/mm²): 4
 - o Preliminary tests maximum (N/mm²): NA
 - o Site tests minimum (N/mm²): 4
 - o Site tests maximum (N/mm²): NA

6. Results: Submit

WORKMANSHIP GENERALLY

430 CONDITIONING OF CLAY BRICKS AND BLOCKS

1. Bricks and blocks delivered warm from manufacturing process: Do not use until cold.
2. Absorbent bricks in warm weather: Wet to reduce suction. Do not soak

440 CONDITIONING OF CONCRETE BRICKS/ BLOCKS

1. Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
2. Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
3. Avoidance of suction in concrete bricks/ blocks: Do not wet.
 - Use of water retaining mortar admixture: Submit details.

460 MORTAR DESIGNATIONS

1. Mix proportions: For a specified designation select a mix from the following:
 - Designation (i) (BS EN 998-2 M12 equivalent)
 - o 1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
 - o 1:3 (Portland cement:sand and air entraining additive).
 - Designation (ii) (BS EN 998-2 class M6 equivalent)
 - o 1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
 - o 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - o 1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - o 1:3-4 (Portland cement:sand and air entraining additive).
 - Designation (iii) (BS EN 998-2 class M4 equivalent)
 - o 1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
 - o 1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - o 1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - o 1:5-6 (Portland cement:sand and air entraining additive).
 - Designation (iv) (BS EN 998-2 class M2 equivalent)
 - o 1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
 - o 1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - o 1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - o 1:7-8 (Portland cement:sand and air entraining additive).
2. Batching: Mix proportions by volume.
3. Mortar type: Continuous throughout any one type of masonry work.

500A LAYING GENERALLY

1. Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
2. AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
3. Clay block joints:
 - Thin layer mortar: Lay blocks on a full bed.

- Interlocking perpend: Butted.
4. Bond where not specified: Half lap stretcher.
 5. Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 ACCURACY

1. Courses: Level and true to line.
2. Faces, angles and features: Plumb.
3. Permissible deviations
 - Position in plan of any point in
4. relation to the specified building
5. reference line and/ or point at
6. the same level ± 10 mm.
 - Straightness in any 5 m length ± 5 mm.
 - Verticality up to 3 m height ± 10 mm.
 - Verticality up to 7 m height ± 14 mm.
 - Overall thickness of walls ± 10 mm.
 - Level of bed joints up to 5 m
 - o (brick masonry) ± 11 mm.
 - Level of bed joints up to 5 m
 - o (block masonry) ± 13 mm.
7. (brick masonry) ± 11 mm.
 - Level of bed joints up to 5 m
8. (block masonry) ± 13 mm.

535 HEIGHT OF LIFTS IN WALLING USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR

1. Quoins and advance work: Rack back.
2. Lift height (maximum): 1.2 m above any other part of work at any time.
3. Daily lift height (maximum): 1.5 m for any one leaf.

545A LEVELLING OF SEPARATE LEAVES

1. Locations for equal levelling of cavity wall leaves: As follows:
 - Every course containing vertical twist type ties or other rigid ties.
 - Every third tie course for double triangle/ butterfly ties.
 - Courses in which lintels are to be bedded.
2. Where coursing to inner and outer leaf differs or inner leaf is constructed in advance of outer leaf, use F30/ 221 channel/ slot ties in lieu of conventional wall ties.

560 COURSING BRICKWORK

1. Gauge: Four brick courses including bed joints to 300 mm.

595 LINTELS

1. Bearing: Ensure full length masonry units occur immediately under lintel ends.

635 JOINTING

1. Profile: Consistent in appearance.

645 ACCESSIBLE JOINTS NOT EXPOSED TO VIEW

1. Jointing: Struck flush as work proceeds.

671 FIRE STOPPING

1. Avoidance of fire and smoke penetration: Fit tightly between cavity barriers and masonry. Leave no gaps.

690 ADVERSE WEATHER

1. General: Do not use frozen materials or lay on frozen surfaces.
2. Air temperature requirements: Do not lay bricks/ blocks:
 - In cement gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
 - In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising, or as manufacturer's/ supplier's recommendations.
 - In thin layer mortars when outside the limits set by the mortar manufacturer.
3. Temperature of walling during curing: Above freezing until hardened.
4. Newly erected walling: Protect at all times from:
 - Rain and snow.
 - Drying out too rapidly in hot conditions and in drying winds.

ADDITIONAL REQUIREMENTS FOR FACEWORK

780 GROUND LEVEL

1. Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.

830 CLEANLINESS

1. Facework: Keep clean.
2. Mortar on facework: Allow to dry before removing with stiff bristled brush.
3. Removal of marks and stains: Rubbing not permitted.

F20 NATURAL STONE RUBBLE WALLING **REVISED**

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

STRUCTURAL REQUIREMENTS - NOT USED

TYPES OF WALLING

110 NATURAL STONE WALLING **REVISED**

1. Description: Coursed cropped and sawn
2. Stone:
 - Name (traditional): Yorkstone
 - Petrological family: Carboniferous age
 - Colour: Natural
 - Origin: Marshalls, Howley Park Quarry, Woodkirk, Dewsbury, WF12 7JJ.
 - Supplier: Myers Group Ltd, Myers House, Barr St, Leeds Road, Huddersfield, HD1 6PB. Tel: 01484 652311. Contact: gavin.david@myersgroup.co.uk
 - o Product reference: Cropped and sawn; split faced; tumbled; 140 mm course height
 - Size: 100 mm on bed x varying length 300 mm to 600 mm
 - Compressive strength (minimum): 108 N/mm²
 - o Category: I
 - Open porosity: 14.2%
 - Freeze/ thaw resistance: Required
 - Additional requirements: Reaction to fire class: A1
 - Quality: Seasoned and free from vents, cracks, fissures or other defects deleterious to strength, durability or appearance.
3. Mortar: As section Z21.
 - Standard: To BS EN 998-2
 - Mix: 1:1:6 cement:lime:sand 4 N/mm² (class M4)
 - Sand: To BS EN 13139; crushed stone graded to approval
 - Additional requirements:
 - o Testing compressive strength of mortar: As clause F10/410A
4. Joints: Flush; brushed
5. Other requirements:
 - Water absorption < 2.8% by weight
 - Density > 2300kg/m³
 - Special cut 'pistol' stones for use with masonry support angle
 - Flat ashlar coping stones with drip channels

110A NATURAL STONE CLADDING - EXTERNAL WALLS **REVISED**

1. Description: Externals walls - REF: W1
2. Stone: To BS EN 771-6.
 - Name (traditional): Yorkstone to match detail on building
 - Petrological family: Carboniferous age to match detail on building

- Colour: Natural to match detail on building
 - Origin: Marshalls, Howley Park Quarry, Woodkirk, Dewsbury, WF12 7JJ.
 - Supplier: Myers Group Ltd, Myers House, Barr St, Leeds Road, Huddersfield, HD1 6PB. Tel: 01484 652311. Contact: gavin.david@myersgroup.co.uk
 - o Product reference: External wall cladding
 - Size: 50 mm on bed x varying length 300 mm to 600 mm x 140mm course height
 - Freeze/ thaw resistance: Required
 - Additional requirements: To engineers details
 - Quality: Seasoned and free from vents, cracks, fissures or other defects deleterious to strength, durability or appearance.
3. Mortar: As section Z21.
- Standard: To BS EN 998-2
 - Mix: To engineers details
 - Sand: To engineers details
 - Additional requirements: None
4. Joints: Flush; brushed
5. Finish:: To match finish of stonework on building - NBS F20/110
6. Other requirements: Ashlar dressings as section F21

110B NATURAL STONE COPING - EXTERNAL WALLS

1. Description: Externals walls - REF: W1
2. Stone: To BS EN 771-6.
- Name (traditional): Yorkstone to match detail on building
 - Petrological family: Millstone grit series of a Carboniferous age
 - Colour: Natural to match detail on building
 - Origin: Fletcher Bank Quarry, Ramsbottom, Lancashire
 - Supplier: Myers Group Ltd, Myers House, Barr St, Leeds Road, Huddersfield, HD1 6PB. Tel: 01484 652311. Contact: gavin.david@myersgroup.co.uk
 - o Product reference: Half stone coping
 - Size: 150 mm high on bed x 300 mm wide x varying lengths [300 - 600mm]
 - Freeze/ thaw resistance: Required
 - Additional requirements: To engineers details
 - Quality: Seasoned and free from vents, cracks, fissures or other defects deleterious to strength, durability or appearance.
3. Mortar: As section Z21.
- Standard: To BS EN 998-2
 - Mix: To engineers details
 - Sand: To engineers details
 - Additional requirements: None
4. Joints: Flush; brushed
5. Finish:: To match finish of stonework on building - NBS F20/110
6. Other requirements: None

GENERAL REQUIREMENTS

240 STONE SAMPLES

1. Timing: Before placing orders.
2. Submit: Labelled samples of dressed stone or arrange for samples which represent the range of variation in appearance to be inspected.

250 SAND SAMPLES

1. Timing: Before placing orders.
2. Submit: Representative samples for approval of colour and grading.

LAYING AND JOINTING

300 REFERENCE PANELS

1. General: Complete areas of specified walling types and obtain approval of appearance before proceeding.
2. Walling type: F20/110
 - Location: External wall type E2
 - Size: Not less than 2 m in length and 1 m in height
 - Features: 90 degree return, movement joint as F30/610

315 ADVERSE WEATHER

1. General: Do not use frozen materials or lay on frozen surfaces.
2. Air temperature: Do not lay stones:
 - In cement gauged mortars: At or below 3°C and falling or below 1°C and rising.
 - In hydraulic lime:sand mortars: At or below 5°C and falling or below 3°C and rising.
3. Temperature of walling during curing: Above freezing until mortar hardened.
4. Newly erected walling: Protect at all times from:
 - Rain and snow.
 - Drying out too rapidly in hot conditions and in drying winds.

325 LAYING GENERALLY

1. Absorbent stones: Dampen in warm weather to reduce suction. Do not soak.
2. Mortar joints
 - Laying: Full bed of mortar with all joints and voids filled.
 - Appearance: Neat and consistent.
3. Orientation for natural bed of stones: Appropriate to properties of stones and positions in walling/ dressings.
4. Appearance and bonding: Consistent overall appearance and good bond.
 - Random walling: Distribute different shapes, sizes and colours evenly throughout the face of the wall. Avoid long continuous vertical joints.
5. Accuracy
 - Walling generally: Plumb, unless specified otherwise.
 - Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
6. Cleanliness: Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains, not permitted.

330 WALLING BELOW GROUND LEVEL

1. Extent of facework below finished level of adjoining ground or external works (minimum): 150 mm.

350 CAVITY WALLS

1. Regularity: Dress stones to give consistent leaf thickness and maintain full cavity width.

361 WINDOW AND DOOR JAMBS TO STONE WALLING

1. Hand finish to avoid smooth cuts formed by mechanical means

380 COURSED WORK

1. Courses: True to line and level.

390 BRUSHED FINISH TO JOINTS

1. General: After the initial set has taken place, brush joints to remove laitance/ excess fines and give a coarse texture.

F30 ACCESSORIES/ SUNDRY ITEMS FOR BRICK/ BLOCK/ STONE WALLING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

CAVITIES

110 CONCRETE FILL TO BASE OF CAVITY

1. Concrete generally: To BS EN 206 and BS 8500-2.
2. Concrete type: Designated GEN1
 - Workability: High.
3. Extent: Maintain 75 mm between top of fill and external ground level and a minimum of 225 mm between top of fill and ground level dpc.
4. Placement: Compact to eliminate voids.

120 CLEANLINESS

1. Cavity base and faces, ties, insulation and exposed dpcs: Free from mortar and debris.

132 PERPEND JOINT PLASTICS WEEP HOLES

1. Manufacturer: Rytons Building Products, Kettering Business Park, Kettering, NN15 6NL
 - Product reference: SVMIN Slim Vent Minor (Cavity Vent/ Weep) perpend cavity ventilator
2. Locations: Through outer leaf immediately above base of cavity, at cavity trays, stepped dpcs and external openings.
3. Provision: At not greater than 1000 mm centres and not less than two over each opening.

152 PARTIAL FILL CAVITY INSULATION FOR USE BELOW GROUND

1. Insulation: Fibre-free rigid extruded polystyrene insulation
 - Product certification: Not Applicable
2. Manufacturer: Kingspan Insulation Ltd, Pembridge, Leominster, Herefordshire, HR6 9LA
 - Product reference: GreenGuard GG300
3. Recycled content: Manufacturer's standard
4. Face size (nominal length x width): 1250 x 600 mm
5. Thickness (nominal): 120 mm
6. Thermal conductivity: 0.034 W/(m.K)
7. Reaction to fire class: Manufacturer's standard
8. Additional requirements: None
9. Placement:
 - Continuous and free of mortar and debris.
 - Residual cavity: Clear and unobstructed.
10. Joints between boards at closures and penetrations: No gaps and free from mortar and debris.

155 PARTIAL FILL CAVITY INSULATION

1. Insulation: Rock wool batts BS EN 13162
 - Product certification: British Board of Agreement (BBA) Certificate number 93/ 2884
2. Manufacturer: Rockwool Ltd, Pencoed, Bridgend, Mid-Glamorgan, CF35 6NY
 - Product reference: HP Partial Fill Cavity Slabs

3. Recycled content: Manufacturer's standard
4. Face size (length x width): 1200 x 455 mm
5. Thickness (nominal): 120 mm
6. Thermal conductivity: 0.034 W/(m.K)
7. Reaction to fire class: A1
8. Additional requirements: None
9. Placement: Secure against face of inner leaf.
 - Residual cavity: Clear and unobstructed.
10. Joints between boards, at closures and penetrations: No gaps and free from mortar and debris.

156 PARTIAL FILL CAVITY INSULATION

1. Insulation: Rock wool batts BS EN 13162
 - Product certification: British Board of Agreement (BBA) Certificate number 93/ 2884
2. Manufacturer: Rockwool Ltd, Pencoed, Bridgend, Mid-Glamorgan, CF35 6NY
 - Product reference: Rainscreen Duo Slab
3. Recycled content: Manufacturer's standard
4. Face size (length x width): 1200 x 600 mm
5. Thickness (nominal): 100 mm
6. Thermal conductivity: 0.035 W/(m.K)
7. Reaction to fire class: A1
8. Additional requirements: None
9. Placement: Secure against face of sheathing board fixed in accordance with manufacturer's recommendations.
 - Residual cavity: Clear and unobstructed.
10. Joints between boards, at closures and penetrations: No gaps and free from mortar and debris.

182 FIRE RESISTING CAVITY CLOSERS

1. Description: To external door & window jambs/ heads/ cills where indicated on detail drawings
2. Manufacturer: PFC Corofil Fire Stop Products, Units 3 & 4, King George's Trading Estate, Davis Road, Chessington, Surrey KT9 1TU
 - Product reference: CCFS Cavity Fire Stop (100mm)
3. Accessories: PFC Corofil Multi Purpose Brackets at max 500 mm centres and 250mm from each end of section in length to ensure minimum 25mm between end of bracket and outer face of barrier. all joints and small gaps up to 5mm filled with PFC Corofil Acoustic Intumescent Sealant
4. Other requirements: Installed under minimum 5mm compression strictly in accordance with manufacturer's guidelines

182A FIRE RESISTING CAVITY CLOSERS

1. Description: To window cills
2. Manufacturer: Rockwool Ltd, Pencoed, Bridgend, Mid-Glamorgan, CF35 6NY
 - Product reference: Rockclose Insulated Cavity Closer
3. Accessories: To include integral dpc
4. Other requirements: 20 mm thick - site check

REINFORCING/ FIXING ACCESSORIES

215 CAVITY WALL TIES USED WITH PARTIAL FILL INSULATION

1. Description:
2. Standard: To BS EN 845-1.
 - Type: 1 (Masonry heavy duty)
3. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref ST1 heavy duty wall ties
4. Material/ finish: Austenitic stainless steel - material/ coating reference 3
5. Sizes: 300 mm
6. End types: Symmetrical deformed plate for mortar bedding
7. Embedment length (minimum): 63 mm
8. Movement: Non tolerant
9. Additional requirements: None
10. Tie mounted insulation retaining clips: As recommended by the manufacturer.

220A LATERAL RESTRAINT WALL TIES TO MOVEMENT JOINTS

1. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref PPS lateral restraint wall ties with plastic debonding sleeves
2. Material/ finish: Austenitic stainless steel
3. Fixing centres: Alternate courses
4. Sizes: 250 mm

222 FRAME CRAMPS

1. Description: To insitu rc downstand walls
2. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref SDB frame cramps
3. Material/ finish: Austenitic stainless steel
4. Sizes: 250 mm
5. Tie mounted insulation retaining clips: As recommended by tie manufacturer.

222A FRAME CRAMPS

1. Description: At junctions between masonry and structural steelwork
2. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref HOS-TIE hammer-on debonded wall ties complete with hammer-on section for installation on flange of structural steelwork
3. Material/ finish: Austenitic stainless steel
4. Sizes: 110 mm

233 FIXING TIES IN MASONRY CAVITY WALLS WITH PARTIAL FILL CAVITY INSULATION

1. Embedment in mortar beds (minimum): 50 mm.
2. Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.
3. Spacing: Evenly space in non staggered horizontal and vertical rows
 - Horizontal centres: 600 mm
 - Vertical centres: 450 mm
4. Provision of additional ties: Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry

- Spacing: At not more than 300 mm centres vertically generally but in every course where masonry units are 215 mm high

241A WALL STARTERS/ CONNECTORS

1. Standard: To BS EN 845-1
2. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref 36/ 8 wall extension system with ref PP36 ties complete with debonding sleeves
3. Material/ Finish: Austenitic stainless steel - BS EN 845-1 material/ coating reference 3
4. Sizes: To suit leaf thickness(es)
5. End type: Asymmetrical deformed plate and flat plate for mortar bedding
6. Sealant to vertical joint:
 - Manufacturer: Adsheed Ratcliffe & Co Ltd, Derby Road, Belper, Derby, DE56 1WJ
 - Product reference: Arbokol 1000 polysulphide joint sealant
 - Colour: To Architect's requirements from manufacturer's full range
 - Prepare joint and apply sealant as clause Z22.

248 CHANNEL/ SLOT TIES USED WITH PARTIAL FILL INSULATION

1. Description:
2. Standard: To BS EN 845-1
3. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref 25/ 14 channel system with ref SD25 wall ties
4. Material/ finish: Austenitic stainless steel - material/ coating reference 3
5. Sizes:
 - Channel: 25 x 14 mm
 - Ties: Cavity width + 49 mm (to provide minimum 63 mm embedment)
6. Channel/ slot fixing: Surface
7. End types: Asymmetrical deformed (pierced) plate and flat plate for mortar bedding
8. Embedment length (minimum): 63 mm
9. Additional requirements: None
10. Tie mounted insulation retaining clips: As recommended by the manufacturer.

255 WIND POSTS

1. Standard: To BS EN 1090-1
2. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref WP3 windposts
3. Material: Steel to European Standards indicated in BS EN 1090-2
4. Sizes: 70 x 60 x 5 mm
5. Fixings (complete with washers and shims): To structural engineer's details
6. Additional requirements: Ancon Building Products ref SDN stainless steel ties to outer leaf and ref SPN stainless steel ties to inner leaf

260 ANGLE SUPPORTS

1. Description:
2. Standard: To BS EN 1090-1
3. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: MDC bracket angle support system

4. Material: Steel to European Standards indicated in BS EN 1090-2
5. Size: To suit cavity width and unfactored masonry load
6. Fixings (complete with washers and shims): To suit supporting structure
7. Additional requirements: Ancon Building Products ref BK03 fibre reinforced thermoset plastic thermal breaks

270C MESHWORK JOINT REINFORCEMENT

1. Description: Generally
2. Standard: To BS EN 845-3
3. Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref AMR-X/ S/D3.0/ W60 masonry reinforcement
4. Type: Welded wire ladder type
5. Material: Austenitic stainless steel
6. Width: 60 mm.
7. Placement: Lay on an even bed of mortar in a continuous strip with full laps at angles. Keep back 20 mm from face of external work, 12 mm back from face of internal work and finish joint to normal thickness.
 - Lap length (minimum): 225 mm

FLEXIBLE DAMP PROOF COURSES/ CAVITY TRAYS

330A DAMP PROOF COURSES

1. Description: Co-polymer thermoplastic
2. Manufacturer: Visqueen Building Products, Heanor Gate, Heanor, Derbyshire, DE75 7RG
 - Product reference: Zedex CPT High Performance dpc

345 SITE FORMED FLEXIBLE SHEET CAVITY TRAYS – PLASTICS

1. Standard: To BS EN 14909
2. Material: Co-polymer thermoplastic
3. Manufacturer: Visqueen Building Products, Heanor Gate, Heanor, Derbyshire, DE75 7RG
 - Product reference: Zedex CPT High Performance dpc
4. Additional requirements:
 - Site formed stop ends by turning up membrane into perps at ends
 - Self adhesive detailing strip for forming complex shapes and junctions
 - Bonded to face of sheathing board using Visqueen Zedex Jointing Tape and permanently secured using Visqueen Fixing Strip and fixing suitable for the substrate

390 JUNCTION CLOAKS/ STOP ENDS FOR SITE FORMED DPCS/ CAVITY TRAY

1. Three dimensional changes in shape: Form to provide a free draining and watertight installation. Seal laps.
2. Alternative use of preformed junction cloaks/ stop ends: Submit proposals.

INSTALLATION OF DPCS/ CAVITY TRAYS

415A INSTALLATION OF HORIZONTAL DPCS

1. Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
2. Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.

3. Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
4. Overall finished joint thickness: As close to normal as practicable.

425 INSTALLATION OF GROUND LEVEL DPCS

1. Joint with damp proof membrane: Continuous and effectively sealed.

435 INSTALLATION OF STEPPED DPCS IN EXTERNAL WALLS

1. External walls on sloping ground: Install dpcs not less than 150 mm above adjoining finished ground level.

445 INSTALLATION OF SILL DPCS

1. Form and placement: In one piece and turned up at back when sill is in contact with inner leaf.

465 SEALING OF DPCS

1. Description:
2. Overlaps and junctions: Seal with Visqueen Building Products Zedex double sided butyl jointing tape .

475 INSTALLATION OF SITE FORMED CAVITY TRAYS

1. Requirements to prevent downward ingress of water
 - Profiles: To match those shown on drawings. Firmly secured.
 - Joint treatment: Use continuous length wherever possible, otherwise lap at least 100 mm and seal to produce a free draining and watertight installation.
 - Horizontal cavity trays: Support using cavity closer.
 - Sloping cavity trays: Prevent sagging.
 - Cleanliness: Free from debris and mortar droppings.

485 INSTALLATION OF CAVITY TRAYS OVER OPENINGS AND OTHER CAVITY BRIDGINGS

1. Length: To extend not less than 150 mm beyond ends of lintels/ bridgings.

515A DPC/ CAVITY TRAY LEADING EDGE IN FACEWORK - FLUSH

1. Treatment at face of masonry: Finish flush and clear of mortar in all locations.

JOINTS

610 MOVEMENT JOINTS WITH SEALANT

1. Description: To external facing brickwork
2. Joint preparation and sealant application: As section Z22.
3. Filler: Low density, low compression closed cell polyethylene
 - Thickness: To match design width of joint.
 - Manufacturer: Grace Construction Products Ltd (Servicised), Ajax Avenue, Slough, Berkshire, SL1 4BH
 - Product reference: Aerofil 1 low density, compressible, closed cell circular polyethylene joint filler
 - Placement: Build in as work proceeds with no projections into cavities and to correct depth to receive sealant system.
4. Sealant
 - Designation: ISO 11600 12.5P F
 - Manufacturer: Adshead Ratcliffe & Co Ltd, Derby Road, Belper, Derby, DE56 1WJ

- Product reference: Arbosil 1099 one part low modulus neutral cure silicone sealant
- Primer: Arbo Primer 2650
- Colour: To Architect's requirements from manufacturer's full range

670A HEAD OF NON-LOADBEARING WALLS

1. Restraints:
 - Manufacturer: Ancon Building Products, President Way, President Park, Sheffield, S4 7UR
 - Product reference: Ref IHR-V internal head restraint to suit 215 mm block and 25 - 50 mm gap
 - Fixing: Secure to soffit
2. Joint filler:
 - Manufacturer: PFC Corofil Fire Stop Products, Davis Road, Chessington, Surrey KT9 1TU
 - Product reference: Corofil C144 high density compressible mineral fibre fire stop slab
 - Placement: Full, no gaps.

PROPRIETARY SILLS/ LINTELS/ COPINGS/ DRESSINGS

755C PREFABRICATED STEEL LINTELS

1. Standard: To BS EN 845-2.
2. Manufacturer: Catnic, Pontypandy Industrial Estate, Caerphilly, CF83 3GL
 - Product reference: Catnic lintel ref ANG
3. Types: Single
4. Material/ finish: Hot dipped galvanised steel, black polyester powder coated after fabrication
5. Placement: Bed on mortar used for adjacent work.
 - Bearing length (minimum): 150 mm

780 COPING SYSTEM

1. Manufacturer: Guttercrest Ltd, Victoria Road, Oswestry, Shropshire, SY11 2HX
 - Product reference: Alifabs architectural coping system with integral lightning conductor linkages
2. Material/ finish: Aluminium with matt polyester powder coating finish to BS 6496 as section Z31 in colour(s) to CA's requirements from full RAL range

MISCELLANEOUS ITEMS

840 OPENINGS FOR FRAMES

1. Formation: Use accurate, rigid templates to required size.

F31 PRECAST CONCRETE SILLS/ LINTELS/ COPINGS/ FEATURES

TYPES OF COMPONENT

125 SUBSTITUTION OF PROPRIETARY CONCRETE FOR DESIGNATED CONCRETE

1. Concrete: Component manufacturer's 'proprietary' concrete.
2. Substitution: Submit proposals for each substitution, including:
 - Identity of concrete:
 - Performance: Limiting values for w/c ratio, cement/ combination content or, alternatively
 - o the exposure class to BS 8500, to which concrete conforms.
 - Reinforcement: Type and cover.
 - Evidence of performance: Third-party certification by body
 - o from a UKAS-accredited laboratory.

GENERAL REQUIREMENTS

210 MOULDS

1. Permissible fabrication and operating tolerances: Length 0 to +6 mm, other dimensions ± 3 mm.

220 CONCRETE GENERALLY

1. Specification: To BS 8500-2 and BS EN 206.
2. Producer: Accredited to BS 8500-2 requirements where product conformity certification is required.

250 REINFORCEMENT

1. Carbon steel reinforcement: As appropriate to BS 4449, BS 4482 and BS 4483.
 - Cutting and bending: To BS 8666.
2. Galvanized reinforcement: Galvanized to BS EN ISO 1461 after cutting. Chromate treated.
3. Stainless steel reinforcement: To BS 6744.
 - Designation 1.4301.
 - Cutting and bending: To BS 8666.
4. Non-structural reinforcement: Include to resist shrinkage and handling stresses.
5. Bimetallic corrosion and staining: Prevent by appropriate selection and use of materials.
6. Condition at time of placement: Clean, free of corrosive pitting, loose materials and substances that adversely affect reinforcement, concrete, or bond between the two.
7. Fixing: Accurate and secure.
 - Method: Wire tying, approved steel clips or tack welding if permitted.
 - Concrete cover: Maintain free of all tying wire or clips.

255 QUALITY ASSURANCE OF REINFORCEMENT

1. Reinforcement to BS 4449, BS 4483 and BS 6744: Obtain valid
2. certificates of approval for product conformity issued by the
3. UK Certification Authority for Reinforcing Steels.

260 CASTING AND CURING

1. Placing of concrete: Thoroughly compact.
2. Protection against drying out: Methods and duration to BS EN 13369.

3. Immature components: Avoid movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
4. Delivery to site: Minimum 14 days after casting.

261 CUTTING

1. Cutting of precast concrete components: Not permitted.

262 RECORDS

1. Records for each type of component: Maintain details including:
 - Unique identification number.
 - Identification of the producer.
 - Identification of the place of production.
 - Correlation with records of mixes, including batch numbers.
 - Date of each stage of manufacture.
 - Dates and results of all tests, checks and inspections, including certification where relevant.
 - Dimensions related to specified levels of accuracy.
 - Specific location in the finished work.
 - Weight of the unit.
 - Damage and making good.
 - Any other pertinent data, e.g. if unit is a production control unit.
2. Availability of records for inspection: On request.

FAIR-FACED COMPONENTS

310 CONTROL SAMPLES

1. Required samples: After finalization of design, one each of the following components:
2.
3. Approval of appearance: Obtain before manufacture of remaining units.
4. Identification and storage location: Clearly label and retain at factory for comparison with production units.

320 DETAILS OF SAMPLES

1. Submittals after approval of appearance and before manufacture of production units
 - Aggregates: Confirm type, maximum size, grading and source.
2. Conformity of designed concrete: Evidence of compliance for compressive strength class and limiting values of composition.

330 MIXES FOR VISIBLE FACED COMPONENTS

1. Constituent materials and mix design for each finish type: To remain constant.
2. Colour and appearance of each finish type: To remain constant.
3. Aggregates: To BS EN 12620.
 - Origin: Single source for each finish type, having sufficient quantity for whole contract.

341 CONDITIONS FOR SEPARATE FACING AND BACKING MIXES

1. Difference in cement content: Not greater than 80 kg/m³.
2. Thickness of facing mix: 10 mm greater than maximum aggregate size, minimum 25 mm.
3. Location of reinforcement: Minimum 20 mm away from the interface between mixes.
4. Compaction of facing and backing mix: Carry out to create monolithic construction.

350 QUALITY OF FINISHES

1. Appearance standard: As established by samples.

365 COVER ON EXPOSED AGGREGATE FACES

1. Nominal cover: Exclusive of aggregate projection.

370 COVER ON VISIBLE FACES

1. Spacers: Not permitted.
2. Proposed method statement: Submit.

380 CONSISTENCY OF PRODUCTION METHODS

1. Production methods: To remain consistent for each matching type of finish.
2. Finish appearance: To remain within the range of variation indicated by the samples
 - submitted.
3. Changes to production methods: If variations are proposed for components of the same finish, submit evidence that there will be no difference in appearance.

390 INSPECTION

1. Completed components: Give notice when ready to be inspected at factory.

INSTALLATION

420 LAYING

1. Mortar for bedding and jointing: As section Z21.
 - Type:
 - Mix:
 - Packing: If required use slate.
2. Bedding components: On full bed of mortar.
3. Removal of marks, stains and extraneous mortar on visible faces: Rubbing not permitted.

430 SUPPORT OF EXISTING WORK OVER NEW LINTELS

1. Joint above lintels: Fully fill and compact with semidry mortar.

440 ONE-PIECE SILLS/ THRESHOLDS

1. Bed joints: Leave clear of mortar except at end bearings and beneath masonry mullions.
 - On completion: Point with mortar to match adjacent work.

G10 STRUCTURAL STEEL FRAMING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

GENERAL REQUIREMENTS/ INFORMATION

140 STRUCTURAL PERFORMANCE

1. Description: G10/ 150 steel framing system
2. The steel frame TEKLA model has been analysed for the maximum deflections possible under the following load conditions:
 - Superimposed dead loads: Permanent Loads applied to structural frame after installation of G10/ 150A steel framing system to the building perimeter to support the cladding. Such loads will typically cover services (mechanical, electrical, hydraulic), suspended ceilings, architectural finishes and insulation, internal partitions, FF&E.
 - Superimposed live loads: Variable loads applied to structural frame arising from building use. For example: plantroom, staff areas, corridors, clinical accommodation.
 - Cladding loads: Permanent loads applied to structural frame after installation of G10/ 150A steel framing system associated with building external cladding.
3. Deflection head allowance: Detail G10/ 150A steel framing system to allow for maximum deflection of supporting steel structural frame of +0/ -20 mm. Note: This deflection does not allow for self-weight of the structural steel frame or concrete suspended slabs. The G10/ 150A steel framing system is assumed to be installed after completion of structural frame and floor slabs.
4. Wind Loading to BS EN 1991-1-4:
 - Basic Wind Velocity V_b (m/s): 22.5
 - Altitude above sea level (m): 189.0
 - Reference Height Z (m): 10.8
 - Structural Factor $C_s C_d$: 1.0
 - Peak Velocity Pressure (kN/m²): 0.91

FRAME SYSTEMS

150A STEEL FRAMING SYSTEM

1. Manufacturer: Voestalpine Metsec plc, Broadwell Road, Oldbury, West Midlands, B69 4HE
 - System reference: Metsec Infill Steel Framing System
2. Certification: Provide European Technical Assessment (ETA) with CE marking and a Declaration of Performance (DoP)
3. Framing:
 - Studs, head and base channels, joists, bracing, ties, angles, plates, zed bars and straps: Fabricated from galvanised mild steel sheet to BS EN 10147 grade S350 GD+Z coating G275, with a minimum yield strength of 350 N/ mm², together with all other framing components and fastenings necessary to complete fabrication and installation.
 - Framing component types, sizes, gauges and centres: Determine in accordance with BS 5950:Part 5:1988, Structural use of steelwork in building, Part 5 'Code of Practice for Design of Cold Formed Thin Gauge Sections' and to suit outer facing(s) and inner lining(s).
 - Width(s) of channels and studs shown on detail drawings take precedence where dimension(s) exceed those determined in accordance with BS EN 1993.

- Zed bars required to all structural steelwork to accommodate intumescent coating as section M61.
4. Component fastenings: ITW Buildex Ltd self-drilling, self-tapping screws. Screw size and pattern to be as determined by structural calculation and of sufficient size to achieve required strength of connection

COLD-FORMED MATERIALS - NOT USED

FABRICATION

187 DRAWINGS AND CALCULATIONS PREPARED BY CONTRACTOR

1. Requirement: Prior to fabrication of steel framing system type G10/ 150 submit:
- General arrangement drawings with individual framing members clearly identified.
 - Details of conflicts with other work.
 - Calculations for major connections.

WELDING - NOT USED

BOLT ASSEMBLIES - NOT USED

ERECTION

415 PRE-ERECTION CHECKS FOR G10/ 150 STEEL FRAMING

1. At least 7 days before proposed erection start date, check the following:
- Floor slabs and other structures to which framing system will be attached: Accuracy of setting out and provision of complete, uniform, level and securely fixed bearing supports to bottom channel runners.
 - Provision of supports to receive framing system components running perpendicular to or running parallel with, but offset from main structural supports.
2. Inaccuracies and defects: Report without delay.
3. Permission to commence erection: Obtain.

TESTING

455 FIXING G10/ 150 STEEL FRAMING

1. Erection: Components, accessories and methods as recommended by system manufacturer. Temporarily brace as necessary until completion of erection.
2. Accuracy of erection:
- Prefabricated panels: Square, with components attached in a manner as to prevent racking and minimise distortion while lifting.
 - Components: Cut squarely for attachment to perpendicular members, or as required to suit angular fit against abutting members.
 - Bottom/ head channels and perimeter studs: Set out to provide accurately aligned framework with a true vertical plane. Fix securely to supporting structure at all perimeters with abutting lengths of channel runners securely anchored to a common structural element and spliced.
 - Studs: Plumb, aligned, securely attached to flanges of bottom/ head channels and located at equal centres to suit performance requirements and: K11/ 486A linings, maintaining sequence across openings.
 - Additional studs, header and lintels: Provide at openings and junctions as necessary to ensure support to all vertical edges of boards and at jambs and masonry cladding movement joints to provide support for wall ties. Do not splice studs.
3. Insulation: Install equal to that specified elsewhere in all boxed sections inaccessible after erection.

4. Bracing and strapping: Provide as necessary to resist bending and rotation about minor axis.
5. Component fastenings:
 - Self-drilling, self-tapping screws.
 - Components: Do not distort.
 - Wire tying of components: Not permitted.
 - Screw fixings: Drawn perpendicular to surfaces to be fixed. Skew fixings not accepted.
6. Support framing for fixtures, fittings and services: Accurately positioned and securely fixed. After fixing of linings, mark positions of framing for following trades.
7. Floor/ ceiling joists: Locate directly over loadbearing studs or overload distribution members.
8. Web stiffeners: Provide at reaction points and/or point of concentrated loads.

PROTECTIVE COATINGS - NOT USED

PROTECTIVE COATING SYSTEMS - NOT USED

PREPARATION FOR PAINTING - NOT USED

PAINTING - NOT USED

G20 CARPENTRY/TIMBER FRAMING/FIRST FIXING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL

105 TIMBER PROCUREMENT

1. Timber (including timber for wood-based products): Obtained from well managed forests/ plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. Documentation: Provide either in accordance with chain of custody certification scheme requirements:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied, or
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. Chain of Custody Certification scheme: Contractor's choice in accordance with UK Government timber procurement policy (UKTPP), i.e. FSC, GiB or PEFC.
 - Other evidence: UK Government Timber Procurement Policy (UKTPP) Category B evidence.

PRODUCTS

270 UNGRADED SOFTWOOD

1. Quality of timber: Free from decay, insect attack (except pinhole borers) and with no knots wider than half the width of the section.
2. Surface finish: Regularised.
3. Treatment
 - Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C8.
 - Design service life: 40 years.
 - Flame retardant treatment: None required.

311 NON-STRUCTURAL PLYWOOD

1. Description: Generally.
2. Standard: To an approved national standard.
3. Thickness: As shown on drawings.
4. Appearance class to BS EN 635:
 - E for natural surfaces intended to remain visible.
 - I for surfaces which will remain visible.
 - II for surfaces which will be directly overlaid or painted.
 - III for surfaces which will be unseen, painted or coated.
 - IV for surfaces for which appearance is not the prime consideration
5. Use class to BS EN 335:
 - Class 1 for use in dry conditions.
 - Class 2 where there is a risk of wetting or humid conditions.

- Class 3 where moisture content may be above 20%.
 - Sub-class 3.1 where plywood will not remain wet for long periods.
 - Sub-class 3.2 where plywood will remain wet for long periods.
 - Class 4 where moisture content is permanently over 20%.
 - Class 5 for use in salt waters where moisture content is permanently over 20%.
6. Bonding quality to BS EN 314-2:
- Class 1 generally for internal applications.
 - Class 2 for high humidity internal applications and protected external applications.
 - Class 3 for exposed external applications
7. Finish: Unsanded except where visible.
8. Edges: As shown on drawings.
9. Treatment
- Preservative treatment: Organic solvent impregnation to NBS section Z12 and Wood Protection Association Commodity Specification C11.
 - o Design service life: 40 years.
 - Flame retardant treatment: None required.

WORKMANSHIP GENERALLY

402 CROSS-SECTION DIMENSIONS OF NON-STRUCTURAL SOFTWOOD

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

420 WARPING OF TIMBER

1. Bow, spring, twist and cup: Not greater than the limits set down in BS 4978 or BS EN 14081-1 for softwood, or BS 5756 for hardwood.

430 SELECTION AND USE OF TIMBER

1. Timber members damaged, crushed or split beyond the limits permitted by their grading: Do not use.

440 PROCESSING TREATED TIMBER

1. Cutting and machining: Carry out as much as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thickened, planed, ploughed, etc.
3. Surfaces exposed by minor cutting/ drilling: Treat with two flood coats of a solution recommended by main treatment solution manufacturer.

450 MOISTURE CONTENT

1. Moisture content of wood and wood based products at time of installation: Not more than:
 - Covered in generally unheated spaces: 24%.
 - Covered in generally heated spaces: 20%.
 - Internal in continuously heated spaces: 20%.

451 MOISTURE CONTENT TESTING

1. Procedure: When instructed, test timber sections with an approved electrical moisture meter.
2. Test sample: Test 5% but not less than 10 lengths of each cross-section in the centre of the length.
3. Test results: 90% of values obtained to be within the specified range. Provide records of all tests.

510A PROTECTION

1. Generally: Keep timber dry and do not overstress, distort or disfigure sections or components during transit, storage, lifting, erection or fixing.
2. Timber and components: Store under cover, clear of the ground and with good ventilation. Support on regularly spaced, level bearers on a dry, firm base. Open pile to ensure free movement of air through the stack.

JOINTING TIMBER

570 JOINTING/ FIXING GENERALLY

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

670 ANTI-CORROSION FINISHES FOR FASTENERS

1. Galvanizing: To BS 7371-6, with internal threads tapped and lightly oiled following treatment.
2. Sherardizing: To BS 7371-8, Class 1.
3. Zinc plating: To BS EN ISO 4042 and passivated.

ERECTION AND INSTALLATION

750 MODIFICATIONS/ REPAIRS

1. Defects due to detailing or fabrication errors: Report without delay.
2. Methods of rectification: Obtain approval of proposals before starting modification or remedial work.
3. Defective/damaged components: Timber members/ components may be rejected if the nature and/or number of defects would result in an excessive amount of site repair.

770 ADDITIONAL SUPPORTS

1. Provision: Position and fix additional studs, noggings and/ or battens to support edges of sheets materials, and wall/ floor/ ceiling mounted appliances, fixtures, etc. shown on drawings.
2. Material properties: Additional studs, noggings and battens to be of adequate size and have the same treatment, if any, as adjacent timber supports.

H11 CURTAIN WALLING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TENDERING

10 INFORMATION TO BE PROVIDED WITH TENDER

1. Submit the following curtain walling particulars
 - Evidence of compliance: All curtain walling to be CE marked to BS EN 13830:2003. Submit Declaration of Performance (DoP). CE marking and Declaration of Performance (DoP) requirements for structural sealant glazing to be submitted on the basis of a manufacturer's European Technical assessment (ETA) prepared in accordance with EOTA technical guide ETAG 002 (Parts 1, 2 and 3).
 - Typical plan, section and elevation drawings at suitable scales.
 - Typical detailed drawings at large scales, including interfaces between all the different system components.
 - Technical information and certification demonstrating compliance with specification of proposed incorporated products and finishes, including insulating glass units.
 - Certification, reports and calculations demonstrating compliance with specification of proposed curtain walling.
 - Proposals for connections to and support from the building structure and building components.
 - Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings.
 - Schedule of builder's work, special provisions and special attendance by others.
 - Examples of standard documentation from which project quality plan will be prepared.
 - Preliminary fabrication and installation method statements and programme.
 - Schedule of products and finishes with a design life expectancy less than that specified in clause 440, with proposals for frequencies and methods of replacement.
 - Proposals for replacing damaged or failed products.
 - Areas of non-compliance with the specification.

TYPES OF CURTAIN WALLING

110A CURTAIN WALLING

1. Description: Generally
2. Supporting structure: In situ concrete floor slab, structural steelwork at head and cavity wall construction at jambs
3. Curtain walling system:
 - Manufacturer: Technal, Albert Drive, Silkwood Park, Wakefield, WF5 9TG
 - o Product reference: Geode MX 52 Visible Grid thermally insulated curtain walling system
 - Type: Single box system
4. Internal framing member:
 - Material: Aluminium as clause 710
 - Finish: Polyester powder coated as section Z31
 - o Colour/ texture: To Architect's requirements from manufacturer's full range

- o Minimum film thickness: 40 microns
5. External cover cap:
 - Material: Aluminium as clause 710
 - Finish: Polyester powder coated as section Z31
 - o Colour/ texture: To Architect's requirements from manufacturer's full range
 - o Minimum film thickness: 40 microns
 6. Glazing: Insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A
 7. Glazing system: ST fully capped
 8. Spandrel panel type:
 - Manufacturer: Saint Gobain Glass UK, Weeland Road, Eggborough, East Riding of Yorkshire, DN14 0FD
 - Product reference: 28mm opaque look-alike insulating spandrel glass units as L40/ 650A
 9. Accessories: All accessories required to make a complete weather tight installation, including but not limited to:
 - Weather tight seal to perimeter of opening as L10/815
 - PPC aluminium cill flashings- Galvanised steel plates to support fixing spigots over cavity
 10. Incorporated components: Single action glazed aluminium door as section L20/ 481A
 11. Other requirements:
 - Performance criteria to comply with Design/Performance Requirements and Testing subsections but dimensions of mullions and transomes shown on detail drawings to take precedence where these exceed those of components determined in compliance with clause 311
 - Curtain walling to achieve RC2 when tested to BS EN 1627:2011 (NB incorporating toughened outer pane and laminated inner pane with secure retention glass specification to achieve Category P1A of BS EN 356:2000)

GENERAL REQUIREMENTS/ PREPARATORY WORK

205 APPROVED FIRMS

1. Fabrication and installation of curtain walling: To be carried out by one of the following firms approved by curtain walling manufacturer;:
 - Bretton Architectural Limited, Broughton Mills Road, Bretton, Chester, CH4 0DH
 - Dortech Architectural Systems Limited, Unit 3, Fieldhouse Business Park, Fieldhouse Lane, Huddersfield, HD2 1FA
 - LDG Contracts, Hammond Street, Preston, PR1 7NU
 - Quest Solutions (UK) Limited, Euroway Trading Estate, Unit 1 Wharfedale Road, Bradford, BD4 6QB

210 DESIGN

1. Curtain walling and associated features: Complete the detailed design. Submit before commencement of fabrication.
2. Related works: Coordinate in the detailed design.

220 SPECIFICATION

1. Compliance standards: BS EN 13830:2003 and The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
2. Reference information: For the duration of the contract, keep available at the design office, workshop and on site copies of:
 - The CWCT 'Standard for systemised building envelopes'.

- Publications invoked by the CWCT 'Standard for systemised building envelopes'.

230 INFORMATION TO BE PROVIDED DURING DETAILED DESIGN STAGE

1. Submit the following curtain walling particulars
 - A schedule of detailed drawings and dates for submission for comment.
 - A schedule of loads that will be transmitted from the curtain walling to the structure.
 - Proposed fixing anchor details relevant to structural design and construction.
 - A detailed testing programme in compliance with the main contract master programme.
 - A detailed fabrication and installation programme in compliance with the main contract master programme.
 - Proposals to support outstanding applications for Building Regulation consents or relaxations.

235 INFORMATION TO BE PROVIDED BEFORE COMMENCEMENT TESTING OR FABRICATION OF CURTAIN WALLING

1. Submit the following curtain walling particulars
 - Detailed drawings to fully describe fabrication and installation.
 - Detailed calculations to prove compliance with design/ performance requirements.
 - Project specific fabrication, handling and installation method statements.
 - Certification for incorporated components manufactured by others confirming their suitability for proposed locations in the curtain walling.
 - Recommendations for spare parts for future repairs or replacements.
 - Recommendations for safe dismantling and recycling or disposal of products.
2. Certification for incorporated components manufactured by others confirming their suitability for proposed locations in the curtain walling.
 - Recommendations for spare parts for future repairs or replacements.
3. Recommendations for safe dismantling and recycling or disposal of products.

270 FABRICATION SAMPLES

1. General: During detailed design, submit samples of: 600 x 600 mm mullion and transome intersection with fitted glazing units .
 - Obtain approval of appearance before proceeding.

280 MOCK-UP

1. General: Construct during detailed design work in an approved location. Obtain approval of appearance before proceeding. Retain undisturbed until completion of curtain walling installation.
2. Extent: During detailed design, submit samples of: 600 x 600 mm mullion and transome intersection with fitted glazing units
3. Purpose: Obtain approval of appearance before proceeding

DESIGN/ PERFORMANCE REQUIREMENTS

305 CWCT 'STANDARD FOR SYSTEMISED BUILDING ENVELOPES'

1. General: Unless specified or agreed otherwise comply with:
2. Part 2 - Loads, fixings and movement.
3. Part 3 - Air, water and wind resistance.
4. Part 4 - Operable components, additional elements and means of access.
5. Part 5 - Thermal, moisture and acoustic performance.

6. Part 6 - Fire performance
7. Part 7 - Robustness, durability, tolerances and workmanship.
8. Project performance requirements specified in this subsection: Read in conjunction with CWCT performance criteria.

312 INTEGRITY

1. Requirement: The curtain walling must resist wind loads, dead loads and design live loads, and accommodate deflections and movements without damage.
2. Design wind pressure: 2400 Pa

320 DEFLECTION UNDER DEAD LOADS

1. Requirement: Framing members parallel to the curtain walling plane must not:
 - Reduce glass bite to less than 75% of design dimension.
 - Reduce edge clearance to less than 3 mm between members and immediately adjacent glazing units, panel/ facing units or other fixed units.
 - Reduce clearance to less than 2 mm between members and movable components such as doors and windows.

325 DEFLECTION UNDER WIND LOAD

1. Requirement: To CWCT 'Standard for systemised building envelopes' clause 3.5 2 and the following additional requirements: Normal to plane deflection not to exceed 10 mm for framing members between 2500 mm and 3000 mm long.
2. Additional stiffness to CWCT 'Standard for systemised building envelopes' clause 3.5 4.2: Not allowed

333 APPEARANCE AND FIT

1. Requirement: Design curtain walling system:
 - To ensure position and alignment of all parts and features as shown on preliminary design drawings.
 - To accommodate deviations in the primary support structure.
2. Primary support structure: Before commencing installation of curtain walling system, carry out survey sufficient to verify that required accuracy of erection can be achieved.
 - Give notice: If the structure will not allow the required accuracy or security of erection.

340 AIR PERMEABILITY

1. Requirement: Permissible air leakage rates of 1.5m³/hr/m² for fixed lights and 2.0 m³/hr/lin.m for opening lights must not be exceeded when the curtain walling is subjected to the peak test pressure.
2. Permeability class to BS EN 12152: A4
 - Peak test pressure: 600 Pa

350 WATER PENETRATION

1. Watertightness class to BS EN 12154: R7
 - Peak test pressure: 600 Pa
2. Additional requirements: Underside of any transome not to be wetted at peak test pressure

370 THERMAL PROPERTIES

1. Method of calculating the thermal transmittance (U-value) of curtain walling/ each zone of curtain walling: Weighted U-value.
2. Average U-value of curtain walling: 1.8 W/m²k
3. Curtain wall zone interfaces: Co-ordinate to achieve required average U-value.

4. Method for assessing thermal transmittance (U-value) of assemblies: By calculation

385 THERMAL STRESS IN GLAZING

1. Glass panes/ units: Must have adequate resistance to thermal stress generated by orientation, shading, solar control and construction.

430 FIRE STOPPING

1. Locations: At junctions of curtain walling with compartment or separating walls and floors.
2. Materials and methods of fixing: To ensure fire resistance not less than that specified for compartment or separating walls and floors when tested from both sides.

450 SAFETY

1. Finished surfaces of curtain walling: Accessible internal and external areas must not:
 - Have irregularities capable of inflicting personal injury.
 - Release irritant or staining substances.

BREEAM PERFORMANCE REQUIREMENTS - NOT USED

TESTING

510 COMPARISON (TYPE) TESTING

1. Requirement: To CWCT 'Standard for systemised building envelopes', Part 8.
2. Test results and reports: Before commencement of curtain walling fabrication and installation, submit proof of compliance with this specification.

PRODUCTS

710 ALUMINIUM ALLOY FRAMING SECTIONS

1. Standard: To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.
2. Alloy, temper and thickness: Suitable for the application and specified finish.
3. Structural members: To BS EN 1999-1-1.

730 MECHANICAL FIXINGS

1. Stainless steel: To BS EN ISO 3506, grade A2 generally, grade A4 when used in severely corrosive environments.
2. Carbon steel: To BS 4190 and suitable for galvanizing or other protective coating.
3. Aluminium brackets, rivets and shear pins: To relevant parts of BS EN 755.

732 ADHESIVES

1. General: Not degradable by moisture or water vapour, or exposure to UV light.

735 FIXING ANCHORS

1. Type and use: Reviewed and approved by fixing manufacturers. Submit confirmatory information on request.
2. Dimensions: Not less than recommended by their manufacturers.
3. Adjustment capability: Sufficient in three dimensions to accommodate building structure and curtain walling fabrication/ installation tolerances.

737 GLASS GENERALLY

1. Standards: To BS 952 and relevant parts of:
 - BS EN 572 for basic soda lime silicate glass.
 - BS EN 1096 for coated glass.

- BS EN 1748 for borosilicate glass.
 - BS EN 1863-1 for heat strengthened soda lime silicate glass.
 - BS EN 12150 for thermally toughened soda lime silicate glass.
 - BS EN 13024 for thermally toughened borosilicate glass.
 - BS EN ISO 12543 for laminated glass.
2. Selection of glass type and thickness in accordance with recommendations of CIRIA publication 'Guidance on glazing at height'.
 3. Glass quality: Clean and free from obvious scratches, bubbles, cracks, rippings, dimples and other defects.
 4. Glass edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

739 DIMENSIONAL TOLERANCES ON GLASS

1. Measurement of tolerances: Before any thermal toughening/ heat strengthening.
2. Pane dimensions less than 1500 mm
 - For 3 to 6 mm thick glass: ± 1.0 mm.
 - For 8 to 12 mm thick glass: ± 1.5 mm.
 - For 15 mm thick glass: ± 2.0 mm.
 - For 19 mm and 25 mm thick glass: ± 2.5 mm.
3. Pane dimensions more than 1500 mm
 - For 3 to 6 mm thick glass: ± 1.5 mm.
 - For 8 to 12 mm thick glass: ± 2.0 mm.
 - For 15 mm thick glass: ± 2.5 mm.
 - For 19 mm and 25 mm thick glass: ± 3.0 mm.
4. Pane squareness: Not more than 4 mm difference in diagonal measurements.

742 HEAT-SOAKED THERMALLY TOUGHENED GLASS

1. Standard: To BS EN 14179.
 - Holding period: 2 hours
2. Locations of heat soaked glass: All locations

745A INSULATING GLASS UNITS

1. Insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified as section L40, clause 650A.

760 GASKETS

1. Material
 - Noncellular rubber to BS 4255-1.
 - Cellular rubber to ASTM-C509-06.
2. Continuity: Outer gaskets of single front sealed curtain walling systems and inner gaskets of drained and ventilated or pressure equalized curtain walling systems must be formed in a complete frame with sealed joints. Vulcanized rubber gaskets must have factory moulded corner joints.
3. Durability: Resistant to oxidation, ozone and UV degradation.

765 WEATHERSTRIPPING OF OPENING UNITS

1. Material
 - Noncellular rubber to BS 4255-1.

- Cellular rubber to ASTM-C509-06.
 - Polypropylene woven pile, silicone treated.
2. Attachment: Fixed in undercut grooves in framing sections using preformed corners, with any joints in the length.

770 GENERAL SEALANTS

1. Selection: In accordance with BS 6213 from:
 - Silicone.
 - One part polysulfide.
 - Two part polysulfide.
 - One or two part polyurethane.
2. Classification and requirements: To BS EN ISO 11600.
3. Reaction to contact products and finishes: Stable and compatible.

772 CURTAIN WALLING JOINT ASSEMBLY SEALANTS

1. Material: One part, low modulus silicone to BS EN ISO 11600, type F or G. Neutral curing where in contact with or close proximity to other products that may be adversely affected by acetoxy curing.
2. Manufacturer: Contractor's choice
 - Product reference: Contractor's choice

FINISHES

810 PROTECTIVE COATING OF CARBON STEEL FRAMING SECTIONS/ REINFORCEMENT

1. Treatment: One of the following to all surfaces:
 - Hot dip galvanized to BS EN ISO 1461.
 - An appropriate equivalent coating to BS EN ISO 12944-5 or BS EN ISO 14713-1, -2 and -3.

820 PROTECTIVE COATING OF CARBON STEEL MECHANICAL FIXINGS

1. Treatment: One of the following to all surfaces:
 - Hot dip galvanized to BS EN ISO 1461.
 - Sherardized to BS 7371-8, Class 30 coating thickness and passivated.
 - Zinc plated to BS EN ISO 2081, coating designation Fe//Zn//C for an iridescent (yellow passivate) chromate conversion coating or Fe//Zn//D for an opaque (olive green) chromate conversion coating.

830 POWDER-COATING

1. Requirement: As section Z31.

FABRICATION AND INSTALLATION

910 GENERALLY

1. Electrolytic corrosion: Prevent. Submit proposed methods.
2. Fixings: Concealed unless indicated on detailed drawings. Where exposed they must match material and finish of the products fixed.
3. Fabrication: Machine cut and drill products in the workshop wherever possible.
4. Identification of products: Mark or tag to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the completed installation.

912 METALWORK

1. Requirement: As section Z11, unless specified otherwise in this section.

915 GLAZING

1. Requirement: As section L40, unless specified otherwise in this section.
2. Directional patterned/ wired glass: Generally fix parallel to surround and align adjacent panes where seen together at close quarters.

917 FIXINGS/ ADHESIVES APPLICATION

1. Requirement: As section Z20, unless specified otherwise in this section.

920 SEALANT APPLICATION

1. Requirement: As section Z22, unless specified otherwise in this section.

930 ASSEMBLY

1. General: Carry out as much assembly as possible in the workshop.
2. Joints (other than movement joints): Rigidly secured, reinforced where necessary and fixed with hairline abutments.
3. Displacement of components in assembled units: Submit proposals for reassembly on site.

955 FIXING ANCHOR INSTALLATION

1. Site drilling or cutting into structure: Submit proposals for positions other than shown on detailed drawings.
2. Concrete supporting structure
 - Cast-in inserts: Provide detailed locational information. Protect cavities in inserts from entry of concrete.
 - Edge fixing distances: Not less than recommended by fixing anchor manufacturers.
3. Corrective fabrication: Minimize. Where necessary, submit proposals.

970 CURTAIN WALLING INSTALLATION

1. Securing to fixing anchors: Through holes formed during fabrication only.
2. Tightening mechanical fasteners: To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
3. Protective coverings: Remove only where necessary to facilitate installation and from surfaces that will be inaccessible on completion.

975 WELDING

1. In situ welding: Not permitted

978 INSTALLING FIRE AND SMOKE STOPS

1. Fire and smoke stops: To be located at all junctions between the curtain wall and compartment or separating walls and floors. To be installed strictly in accordance with manufacturers' guidelines and as recommended in CWCT Technical Note TN 98.
2. Installer qualification: To be a member of a UKAS accredited installer scheme.

980 INTERFACES

1. Flashings, closers, etc: Locate and form correctly to provide weathertight junctions with the curtain walling.

982 IRONMONGERY

1. Assembly and fixing: Accurately, using fasteners with matching finish supplied by ironmongery manufacturer.

2. Completion: Check, adjust and lubricate as necessary to ensure correct functioning.

985 MAINTENANCE

1. Maintenance manual: Incorporate details within the Building Manual in accordance with CWCT 'Standard for systemised building envelopes' clause 7.6.1.
 - Materials certification and test reports to be included:
 - Contact details for sub-contractor(s) and supplier(s)
 - Product information for components and materials including manufacturers' literature, COSHH data sheets and recommendations for cleaning, maintenance and repair
 - Copies of materials, components and finishes certification
 - Construction drawings, updated to include any changes made up to completion
 - Terms and conditions of guarantee(s)
 - Method statement for means of access for maintenance and use of any permanent equipment
 - Method statement covering procedures for replacement of parts with a design life less than that of the curtain walling system
 - Recommendations for routine maintenance and cleaning, including suitable cleaning agents and lubrication/ adjustments to working parts
 - Record book for listing defects, maintenance and repairs

H13 STRUCTURAL GLASS ASSEMBLIES

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF STRUCTURAL GLASS ASSEMBLY

116A FRAMELESS GLASS CANOPY ASSEMBLY

1. Description:
2. Supporting structure: Primary structural steel frame to Structural Engineer's details
3. System manufacturer: Pilkington Architectural, Alexandra Works, Borough Road, St. Helens, WA10 3WA
 - Product reference: Planar frameless exterior bolted glass assembly
 - Roofs: Point fixed single glazed roof assembly
4. Assembly supports: Tapered universal beams to Structural Engineer's details
 - Material: Carbon steel
 - Finish: Powder coating as section Z31
 - Colour/ Texture: RAL to Architect's requirements from full colour range
 - Minimum film thickness: 80 micrometres
5. Assembly fixings: Ref 902 Planar countersunk bolt and spring plate
 - Material: Stainless steel to BS 1449 Part 2
 - Finish: Brushed 2J to BS EN 10088-2
6. Glass: Laminated single pane, clear
 - Manufacturer: Pilkington Architectural, Alexandra Works, Borough Road, St. Helens, WA10 3WA
 - Product reference: 19 mm thick clear laminated glass as clause 630 comprising upper pane 12 mm Optifloat toughened and heat soak tested (8 hours) safety glass as clause 620, 1.52 mm pvb interlayer and lower pane 6 mm Optifloat heat strengthened safety glass
7. Sealant jointing: Silicone
 - Manufacturer: Dow Corning Ltd, Meridien Business Park, Copse Drive, Allesley, Coventry, CV5 9RG
 - Product reference: Dow Corning 797 Silicone Weatherproofing Sealant
 - Nominal joint width: 12 mm
8. Incorporated components: PPC aluminium box gutter and rainwater outlets at junction to external wall as clause R10/311B
9. Fittings and ironmongery: Not required
10. Accessories: Not required

GENERAL REQUIREMENTS

210A COMPLETION OF DESIGN

1. Description: For structural glass assemblies to ambulance canopy ca1-001
2. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
3. Structural requirements: Integrity as clause 311
4. Additional requirements: None

220 SPECIFICATION

1. Compliance standard: The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
2. Reference information: For the duration of the contract, keep available at the design office, workshop and on site copies of:
 - The CWCT 'Standard for systemised building envelopes'.
 - Publications invoked by the CWCT 'Standard for systemised building envelopes'.

225 INFORMATION TO BE PROVIDED BEFORE DETAILED DESIGN OF STRUCTURAL GLAZING

1. Submittals
 - Detailed reports and calculations to prove compliance with design and performance requirements. Reports and calculations must be based on approved laboratory testing or computer modelling.
 - Full details of structural sealant glazing design.

230 INFORMATION TO BE PROVIDED DURING DETAILED DESIGN OF STRUCTURAL GLAZING

1. Submittals
 - Quality plan.
 - Method statements.
2. Content: In accordance with CWCT TN53, BS EN ISO 9001 and including the following:
 - Name of the quality manager.
 - Quality assessment procedures.
 - Inspection procedures to be adopted in checking the work.
 - Stages at which checklists will be used and samples of the lists.
 - List of work procedures on the correct use of materials or components, both off site and on site.
 - List of product information with latest revisions.
 - Subcontractors involved in the work.
 - Subcontractors' quality plans.
 - Storage, handling, transport and protection procedures.
 - Procedure for registering and reporting non-compliances.
 - Maintenance procedures and calibration records.
 - Certification that completed work complies with specification.
 - Checklist register to ensure all items have been inspected and non-compliances discharged.

231 INFORMATION TO BE PROVIDED BEFORE FABRICATION OF STRUCTURAL GLAZING

1. Submittals
 - Detailed drawings to fully describe fabrication and installation.
 - Project specific fabrication, handling and installation method statements.
 - A schedule of loads that will be transmitted from the structural glass assembly to the structure.
 - Proposals for connections to and support from the building structure and building components.
 - Proposals for amendments to primary supporting structure and for secondary supporting structure additional to that shown on preliminary design drawings.

- A detailed fabrication and installation programme in compliance with the Main Contract master programme.
- Recommendations for safe dismantling and recycling or disposal of products.

251 LABELLED SAMPLES OF FIXINGS

1. Timing: Submit during detailed design.
2. Samples: Each type of assembly fixing, with details of methods of adjustment and tolerances.

DESIGN/ PERFORMANCE REQUIREMENTS

311 INTEGRITY

1. Requirement: The structural glass assembly must resist wind loads, dead loads and design live loads, and accommodate deflections and movements without damage.
2. Design wind pressure: Calculate in accordance with BS EN 1991-1-4 and National Annex
3. Impact resistance for structural glass walls
 - Hard body impact loads: In accordance with CWCT TN75:
 - o Location and exposure category: Exposure category E
 - Soft body impact loads - glass to BS EN 12600
 - o Location and classification: 1 (B) 1
4. Impact resistance for structural glass roofs
 - Safety and fragility class: In accordance with CWCT TN66:
 - o Classification: Class 1
5. Permanent imposed loads: To structural engineer's recommendation
6. Temporary imposed loads: To structural engineer's recommendation

341 WEATHER RESISTANCE

1. Air leakage through sealant joints: None.
2. Water leakage through the structural glass assembly and perimeter junctions: None.

355 WATER PENETRATION

1. Water leakage through the structural glass assembly: None.
2. Test: In accordance with Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes', Standard test methods - section 6.
 - Peak positive test pressure: 600 Pa
 - Test results: Submit.

TESTING

520 PROJECT TESTING – SITE

1. Test sample: A section of the structural glass assembly.
 - Location: To be agreed
2. Tests: Water penetration
 - Timing: Submit proposals
3. Testing authority: System manufacturer
4. Test results and reports: Submit proof of compliance with this specification.
 - Timing: Before installation of general areas of structural glass assembly.

PRODUCTS

611 GLASS GENERALLY

1. Standards: To BS 952 and BS EN 1863 for heat strengthened soda lime silicate glass.
2. Glass quality: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.
3. Glass edges: Free from vents, shelling, and severe feathering, flat ground with a small arris, suitable for sealant jointing.
 - Shells and chips: Permitted to maximum dimensions of 2 mm deep and 5 mm across surface. Grind out to edges.
 - Arrises: Slightly ground, suitable for sealant jointing.

615A DIMENSIONAL TOLERANCES ON GLASS

1. Measurement of tolerances: Before thermal toughening and/ or heat strengthening.
2. Panes:
 - Dimensions < 1 m: ± 1 mm.
 - Dimensions > 1 m: ± 2 mm.
 - Squareness:
 - o Maximum 3 mm difference in diagonal measurements when diagonal is less than 4 m.
 - o Maximum 4 mm difference in diagonal measurements when diagonal is more than 4 m.
 - Thickness:
 - 6 mm glass: ± 0.2 mm.
 - 10-12 mm glass: ± 0.3 mm.
 - 15 mm glass: ± 0.5 mm.
 - 19 mm glass: ± 1.0 mm.
3. Holes:
 - Positional tolerance: ± 1 mm from single datum point.
 - Diameter tolerance: ± 1 mm.

620 THERMALLY TOUGHENED GLASS

1. Standards: To BS EN 12150 or BS EN 13024.
2. Impact performance: To BS EN 12600.
3. Edgework and holes: Complete before toughening.
4. Toughening process: Horizontal to eliminate tong marks and minimize dimensional inaccuracies.
5. Nickel sulfide inclusions: Heat soak toughened glass to BS EN 14179.
 - Holding period: 8 h

630 LAMINATED GLASS

1. Panes: Thermally toughened glass, combined with heat strengthened glass to BS EN 1863 and BS EN ISO 12543 or annealed glass, to form panes that retain integrity in event of breakage.
2. Interlayers to glass leaves: Polyvinyl butyral (pvb) or cast in place resin. Sealed at the perimeter to prevent deterioration due to water or glass joint sealant.

650 STAINLESS STEEL ASSEMBLY FIXINGS AND/ OR SUPPORTS

1. Castings and machined fittings: To BS EN 10088-1, grade 1.4401.
2. Plate and strip: To BS EN 10088-2, grade 1.4401.

3. Bars, rods and sections: To BS EN 10088-3, grade 1.4401.
4. Fasteners: Austenitic stainless steel, to BS EN ISO 3506-1 and 2, grade A4.

660 ALUMINIUM ALLOY ASSEMBLY FIXINGS AND/ OR SUPPORTS

1. Extrusions: To BS EN 573-3, alloy designation EN AW-6063.
2. Plate and strip: To BS EN 485, BS EN 515 and BS EN 573.

FABRICATION AND INSTALLATION

710 WORKMANSHIP GENERALLY

1. Fabrication: Machine cut and drill glass, assembly fixings and assembly supports in the workshop

720 SUITABILITY OF SUPPORTING STRUCTURE

1. Pre-installation survey: Submit report.

730 STRUCTURAL GLAZING

1. Setting out of glass panes and units: Orientate to ensure uniformity of appearance.
2. Assembly fixings and assembly support fixings
 - Isolate metal surfaces to prevent direct contact with glass.
 - Isolate dissimilar metal surfaces to prevent electrolytic corrosion.
 - Tighten to manufacturer's recommended torque figures.

745 SEALANT JOINTS

1. Sealant: To BS EN ISO 11600, type G silicone, neutral curing where in contact or close proximity to other products and finishes that may be adversely affected by acetoxy curing.
2. Colour: To CA's requirements from manufacturer's full range
3. Application: As section Z22

H31 METAL PROFILED/ FLAT SHEET CLADDING/ COVERING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF CLADDING/ COVERING SYSTEM

110A PERFORATED METAL CLADDING

1. Description: To external stair enclosure
2. Support structure: Galvanised mild steel mullion and bracket system at vertical panel joints fixed back to hot rolled steel frame
3. Cladding/ covering system type: Perforated metal tray panels
4. External sheets:
 - Material: Galvanised mild steel
 - Thickness (nominal): 3mm
 - Perforation Pattern: As drawing HG0052-IBI-ED-XX-DT-A-230002 [2]
 - Cover width: As drawing HG0052-IBI-ED-XX-DT-A-230001 [6] [7]
 - Finish side 1 (outer): Polyester powder coated to 60 microns
 - o Colour: To architect's requirement from full colour range
 - Finish side 2 (inner): Polyester powder coated to 60 microns
 - o Colour: To architect's requirement from full colour range
 - Panel joint: Nominal 20mm between panel edges, recessed to match colour of panel
5. Additional requirements: Unspecified fittings and accessories as required to complete installation as recommended for the purpose by the contractor.

120A METAL STANDING SEAM

1. Description: Cladding
2. Support structure: K11/ 415A plywood on vertical carrier rail system as H92/130A to walls and and horizontal carrier rail system as H92/130B to soffits
3. External sheets: Aluminium to BS EN 508-2
 - Manufacturer: Euroclad Group Ltd, Wentloog Corporate Park, Wentloog Road, Cardiff, CF3 2ER
 - o Product reference: Vieo 25_454 Profile fixed at 45 degrees to the vertical
 - Material: Aluminium 3105 to BS EN 485-2 and BS EN 1396: 2015
 - Thickness (nominal): 0.9 mm
 - Finish side 1 (outer): PVDF
 - o Colour: To Architect's requirements from manufacturer's full colour range
 - Finish side 2 (inner): Not applicable
 - o Colour: Not applicable
 - Additional requirements: None
4. Accessories:
 - Aluminium Vieo Closures (multiple use closure as per drawings)
 - Coloured Vieo Closure Covers (to match sheet finish if required)
 - Profile Fillers to suit Vieo profile
5. Primary cladding/ covering sheet fasteners: Sheet overlap mechanically seamed over head of Clip using Euroclad Vieo seaming tool

6. Spacers:
 - Manufacturer: Euroclad Group Ltd, Wentloog Corporate Park, Wentloog Road, Cardiff, CF3 2ER
 - o Standing Seam Clips: Vieo-SC-Sliding Seam Clip, stainless steel
 - o Rocbar: Not applicable
 - o Fixing: Fit Vieo Sliding Seam Clips over breather membrane on to plywood at 454 mm centres
 - o Tophat: Not applicable
 - o Fasteners:
 - Vieo 25mm Clip to plywood: Stainless steel self drilling screws to manufacturer's recommendations
 - Closures: Stainless steel screws
7. Breather membrane: As clause 281
8. Thermal insulation: As clause H92/ 776
9. Vapour control layer: As clause P10/ 310B
10. Profile fillers: As clause 300
11. Flashings: As clauses 480A & 482A
12. Additional requirements:
 - Install system as detailed in this Specification and manufacturer's documentation
 - Flashings, fabricated details and trims to be supplied by system manufacturer

GENERAL REQUIREMENTS

167A COMPLETION OF DESIGN

1. Description:
2. Description: Detailed design
3. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work
4. Structural requirements: As Structural Engineer's requirements
5. Additional requirements: Responsibility for coordination at design interfaces
6. Design and production information: Preparation of detail drawings
7. Timing of submissions: Within two weeks of request but not less than 8 weeks before programmed commencement of work on site

172 THERMAL PERFORMANCE/ BRIDGING TO CLAUSE 120

1. Requirement: Complete the thermal design of the cladding/ covering system to avoid excessive thermal bridging
 - Standard: MCRMA Technical Paper 14, MCRMA Technical Paper 17 with MCRMA Technical Bulletin 14 and BRE Information Paper 1/06

175 PRODUCT SAMPLES

1. General: Before commencing detailed design, submit labelled samples of the following: Clause 110A perforated sheet in specified finish/ colour
Clause 120 External sheet in specified finish/ colour

176 FASTENER SAMPLES

1. General: During detailed design, submit labelled samples of each type of fastener

DESIGN/ PERFORMANCE REQUIREMENTS

185 PERFORMANCE COMPLIANCE TO CLAUSE 120

1. Verification: Before commencing fabrication, submit evidence based on laboratory testing or computer modelling
 - Verifying authority: Euroclad Group Ltd, Wentloog Corporate Park, Wentloog Road, Cardiff, CF3 2ER

187 DEFLECTION OF METAL CLADDING TO CLAUSE 110A

1. Wall cladding: Maximum permitted deflection under distributed loads as a multiple of span and due to:
 - Dead and wind loads: L/90

196 INTEGRITY OF METAL CLADDING/ COVERING

1. Requirement: Design sheet , coverings/ flashings and methods of attachment to prevent loss of weathertightness and permanent deformation due to wind pressure or suction
2. Wind loads: Calculate wind loads to BS 6399-2
3. Standard fixing arrangement load capacities: Positive load: limited by supporting structure performance (sheet must be fully supported)

198 WATER PENETRATION TO CLAUSE 120

1. Requirement: Under site exposure conditions, moisture must not penetrate onto internal surfaces, or into cavities not designed to be wetted

202 AVOIDANCE OF SURFACE CONDENSATION TO CLAUSE 120

1. Requirement: Determine surface condensation risk of cladding/ covering system using the method described in BS EN ISO 13788. If necessary, revise thermal insulation to provide satisfactory temperature factor (f_{min}). Ensure that damage and nuisance from surface condensation does not occur

FIXING CLADDING/ ROOF COVERING

219 FASTENERS

1. Unspecified fasteners: Recommended for the purpose by the cladding/ covering manufacturer

221 FITTINGS AND ACCESSORIES

1. Unspecified fittings and accessories: Recommended for the purpose by the cladding/ covering manufacturer

223 PREVENTION OF ELECTROLYTIC ACTION

1. Electrolytic corrosion: Take necessary steps to avoid.
 - Location: To contact surfaces of supports and sheets of dissimilar metals.

281 BREATHER MEMBRANE TO CLAUSE 120

1. Manufacturer: DuPont (UK) Ltd, Bristol and Bath Science Park, Dirac Crescent, Emersons Green, Bristol, BS16 7FR
 - Product reference: Tyvek FireCurb Housewrap non-woven high density polyethylene breather membrane
2. Installation requirements:
 - Setting out: Joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate

- Method of fixing: Galvanized, sherardized or stainless steel large head nails or austenitic stainless steel staples
 - o Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically and sealed using tape recommended by breather membrane manufacturer
 - o Openings: Membrane fixed to reveals.
 - o Bottom edges: Membrane lapped over flashings, sills, etc. to allow free drainage to the exterior
3. Penetrations: Sealed

300 PROFILE FILLERS GENERALLY TO CLAUSE 120

1. Material: MP
2. Manufacturer: Euroclad Group Ltd, Wentloog Corporate Park, Wentloog Road, Cardiff, CF3 2ER
 - Product references: Vieo Ridge Filler
3. Colour: Black
4. Thickness: 25 mm
5. Fixing method: Secure by Ridge Zed Section
 - Requirement: To close cavities/ regulate air paths within the external envelope. Tight fit with no unintended gaps

410 FIXING SHEETS GENERALLY TO CLAUSE 110A

1. Cut edges: Clean true lines.
2. Penetrations: No penetrations allowed unless specified by the design intent.
 - Edge reinforcement: Achieved by the geometry of the panel or galvanised steel edge extrusions where required.
3. Fasteners: Pre drilled holes. Position at regular intervals in straight lines, centred on support bearings.
 - Position of fasteners in oversized drilled holes: Central.
 - Fasteners torque: Sufficient to correctly compress washers.
4. Debris: Remove dust and other foreign matter before finally fixing sheets.
5. Completion: Check fixings to ensure watertightness and that sheets are secure.
6. Cut edges: Paint to match face finish.

411 FIXING SHEETS GENERALLY TO CLAUSE 120

1. Fasteners torque: Set to cladding panel manufacturer's recommendations. Do not overdrive
2. Debris: Remove dust and other foreign matter before finally fixing sheets
3. Fixing: To provide a secure, free draining and weathertight installation
4. Operatives: Trained in the application of H31/ 120A metal cladding
5. Folding (where required): With mechanical or manual presses to give straight, regular and tight bends, leaving panels free from ripples, kinks, buckling and cracks
6. Details: Pressed prior to delivery
7. Sealants: Do not use in joints to achieve waterproofing
8. Cut edges: Clean true lines with no burrs
9. Penetrations: Openings to minimum size necessary
 - Edge reinforcement: Angles
10. Completion: Check fixings to ensure watertightness and that sheets are secure
11. Cut edges: Paint to match face finish

12. Finished cladding: Fully supported, adequately fixed to resist wind uplift and able to accommodate thermal movement without
13. distortion or stress.
14. Protection: Prevent staining, discolouration and damage by subsequent works

460 ACCOMMODATION OF THERMAL MOVEMENT

1. Sheet type/ location: Metal wall cladding
2. Method: Sliding Clips and fixed points

470 STRUCTURAL MOVEMENT JOINTS

1. Type: Cover flashing fixed on one side over gap between sheets
2. Location: Coincident with structural movement joint
3. Width of gap: To match structural movement joint requirements
4. Requirement: Weathertight

480A FLASHINGS/ TRIMS GENERALLY

1. Lap joint treatment
 - Vertical and sloping flashings/ trims: End laps to be same as for adjacent sheeting
 - Horizontal flashings/ trims: End laps to be 150 mm, sealed and where possible arranged with laps away from prevailing wind
2. Method of fixing: To structure in conjunction with adjacent sheeting. Otherwise to sheeting

482A BUTT JOINTED FLASHINGS/ TRIMS TO CLAUSE 120

1. Generally: As MCRMA Technical Paper no 11
2. Manufacturer: Euroclad Group Ltd, Wentloog Corporate Park, Wentloog Road, Cardiff, CF3 2ER
3. Material: Aluminium
 - Thickness: : Generally: 0.9mm to match wall finish for appropriate details only (eg ridge cappings and small scale flashings)
 - Typically 2 or 3 mm for large face, aesthetically sensitive details, verge flashings, fascias etc
 - Finish: Polyester powder coated as Section Z31
4. Butt straps: 300 mm wide and made from sheet of same material and finish
5. Butt joints: Seal

540 ABUTMENTS TO CLAUSE 120

1. Junctions with flashings: Weathertight and neatly dressed down

H34 PROPRIETARY METAL CLADDING

CLAUSES

10 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF CLADDING SYSTEM

120 METAL STANDING SEAM ROOF

1. Description: Roof type ref: RT3. Mechanically seamed secret fix standing seam roofing system
2. Support structure: Galvanised steel purlins at max 1200 mm centres as shown on Structural Engineer's drawings. Support structure tolerances to be as per cladding manufacturer's recommendations
 - Bearing width (minimum): 65mm Minimum
 - Pitch: 1.5°
3. External sheets:
 - Manufacturer: BEMO Project Engineering UK Ltd
The Yard, Church Street
Heage
Belper
Derbyshire
DE56 2BW
 - o Product reference: BEMO N65/400 standing seam
 - Material: Aluminium Alloy EN AW 3004 H244 to BS EN 573-3:2013 & BS EN 485-2:2016
Ultimate tensile strength (Rm) - min 150 MPa to BS EN 508-2:2008 clause 4.2.1
Yield strength (Rp0.2) - min 160 MPa
Elongation (A50) - min 4 %
 - Thickness (nominal): 0.9 mm, thickness tolerance to to BS EN 485-4:1994 table 1
 - Finish side 1 (outer): SEMF Stucco embossed mill finish
 - o Colour: To Architect's requirements from manufacturer's full range
 - Additional requirements: None
4. Accessories: Glass Reinforced Polymer GFK Thermal Halters: 245mm high
Spacer Pads (Propylene PPC 7712) 20mm thick
Fabricated Galvanised Structural Steel (S320GD+Z275 minimum) Top Hats 70mm high
Extruded Aluminium Alloy (EN AW 6063 T6) Verge Channel
Extruded Aluminium Alloy (EN AW 6063 T6) Gable Hooks
Extruded Aluminium Alloy (EN AW 6063 T6) Zed Spacer
Fabricated Aluminium Alloy (EN AW 3004 H244) Ridge Filler Plates
Profiled Ridge Filler Blocks (LDPE) to suit N65/400 top sheet as clause 300
Profiled Eaves Filler Blocks (LDPE) to suit N65/400 top sheet as clause 300
Self-Adhesive (PUR Flexible Foam) Eaves Tape
Extruded Aluminium Alloy (EN AW 6063 T6) Drip Angle
Fabricated Aluminium Alloy (EN AW 1050A) Tolerance Flashing
Fabricated Aluminium alloy flashings and soaker units, Material and finish as per project requirements
5. Primary cladding/ covering sheet fasteners: Closure of roll formed profile by means of mechanical seaming around the head of supporting halters.
6. Sealing side laps: Mechanically seamed in line with BEMO technical documents 04 & 09
7. Spacers: GFK thermal halters 245mm high complete with 20mm propylene spacer pad. Fixed to 70mm high galvanised top hat channel. Crown fixed to liner.
 - Fasteners: Refer to BEMO Calculations for fixing type & frequency

8. Thermal insulation: As clause 271
9. Vapour control layer: As clause 261
10. Lining sheets: As clause 241
11. Aluminium Site Welding (TIG):
 - Standards: By BEMO approved welding subcontractor Sureweld & Roof Ltd Aluminium site welding (TIG 141) will be in accordance with BEMO Ltd standard details. Welding operatives shall be approved to BS EN ISO 9606-2:2013 as a minimum qualification. Site welding must meet with procedure qualification SW/07/12 and WPS1 and complying with BS EN ISO 15614-2 2005. Site welding must be carried out fully in compliance with Specification Reference SRLSW/TIG/017 A.

GENERAL REQUIREMENTS

170 DESIGN

1. Cladding/ covering system: Complete detailed design and submit before commencement of fabrication.
 - Standard: To BS 5427:2016
2. Related works: Coordinate in detailed design.
3. General: Requirements specific to this section apply to the whole cladding system including incorporated flashings and abutments. Full allowance must be made for all deflections and other forms of movement so as to comply with the tolerances required for the system.

172 THERMAL PERFORMANCE/BRIDGING

1. Requirement: Complete the thermal design of cladding/ covering system to avoid excessive thermal bridging.
 - Standards: MCRMA Technical Paper 14 and BRE Information Paper 1/06.

175 PRODUCT SAMPLES

1. General: Before commencing detailed design, submit labelled samples of the following: Representative samples of 'finished' external roof sheeting and all types of flashings/trims. Obtain written approval prior to commencing/proceeding.

176 FASTENER SAMPLES

1. General: During detailed design, submit labelled samples of each type of fastener.

180 MOCK UP

1. General: Construct during fabrication drawing work, a full scale sample of the junction detail of the lower roof slope meeting the eaves and verge at the north-west corner and it's relationship with the underlying roof covering, in an agreed location on site. Satisfy purpose and obtain approval of appearance and function before proceeding and retain undisturbed until completion of exterior weathering. The mock up is to serve as an installation reference panel. Extent: Approximately 2 metres in each direction adjacent to the junction of the main roof slope meeting the eaves and verge. Purpose: To serve as an installation reference panel.

DESIGN/ PERFORMANCE REQUIREMENTS

185 VERIFICATION OF PERFORMANCE

1. Requirement:: Submit evidence / calculations demonstrating compliance of design with that of performance requirements before commencing fabrication of any part of the cladding system. Reports, certificates and calculations must be based on approved laboratory testing or computer modelling.

187 DEFLECTION OF METAL CLADDING/ COVERING

1. Roof covering: Maximum permitted deflection under distributed loads as a multiple of span and due to:
 - Dead and wind loads: $L/120$

196A INTEGRITY OF CLADDING/ COVERING

1. Requirement: Determine size and thicknesses of sheets, the sizes, number and spacing of fixings, configuration and location of spacer systems and incorporation of other accessories and fittings to ensure cladding / covering system will resist factored dead, imposed and design live loads, and accommodate deflections and thermal movements with damage to the following standards:
BS EN 1991-1-3:2003 and NA to BS EN 1991-1-3:2003
BS EN 1991-1-4:2005+A1:2010 and NA to BS EN 1991-1-4:2005+A1:2010
Calculations can be undertaken by BEMO project engineering UK Ltd upon request and receipt of all relevant information.

198 WATER PENETRATION

1. Requirement: Under site exposure conditions, moisture must not penetrate on to internal surfaces, or into cavities not designed to be wetted.

200 AVOIDANCE OF INTERSTITIAL CONDENSATION

1. Requirement: Determine interstitial condensation risk of cladding/ covering system using the method described in BS 5250:2011+A1:2016. If necessary, provide a vapour control layer to ensure that damage and nuisance from interstitial condensation does not occur. Outdoor psychrometric conditions (notional): To BS 6229:2003

202 AVOIDANCE OF SURFACE CONDENSATION

1. Requirement: Determine surface condensation risk of cladding/ covering system using the method described in BS EN ISO 13788:2012. If necessary, revise thermal insulation to provide satisfactory temperature factor (f_{min}). Ensure that damage and nuisance from surface condensation does not occur.

FIXING CLADDING/ COVERING

210 STRUCTURE - CONDITION

1. Requirement: Check that the structure is in a suitable state to receive the BEMO Standing Seam System prior to commencing any installation. The roofing subcontractor must confirm acceptance to the main contractor and CA.

211 STRUCTURE - TOLERANCES

1. Requirement: Support structure tolerances must be to suit the BEMO system tolerances and recommendations.

214 APPROVED FIRMS

1. General: Only BEMO system specialist installers should be employed to install BEMO roofing. BEMO system specialist installers are to provide fully trained personnel at a minimum ratio of 1:3 for site works. All fully trained personnel must have successfully completed the BEMO UK installer course and subsequently been issued with a BEMO ID Card. All roof works to be independently inspected. A minimum of two inspections should be undertaken with one inspection during works and a final inspection upon completion.

215 STRUCTURE - SURFACE FINISH

1. Sequence: Do not install cladding system until all final coats of paint have been applied to the outer surfaces of the substructure to which it is being connected.

217 PROTECTION

1. Storage: Store metal sheets in accordance with manufacturer's recommendations under cover. Keep dry and prevent staining.

219 FASTENERS

1. Unspecified fasteners: Recommended for the purpose by the cladding/ covering manufacturer.

221 FITTINGS AND ACCESSORIES

1. Unspecified fittings and accessories: Recommended for the purpose by the cladding/ covering manufacturer.

223 PREVENTION OF ELECTROLYTIC ACTION

1. Isolating tape: Type recommended by cladding/ covering manufacturer.
 - Location: To contact surfaces of supports and sheets of dissimilar metals.

241 STEEL LINING

1. Manufacturer: BEMO Project Engineering UK Ltd
The Yard, Church Street
Heage
Belper
Derbyshire
DE56 2BW
 - Product reference: TP 32-200-1000 TS
 - Thickness (nominal): 0.7 mm
 - Material: Hot dipped zinc coated steel for construction S280+Z150 to BS EN 10346:2015
Proof strength (Rp0.2) - min 280 MPa
Tensile strength (Rm) - min 360 MPa
Elongation (A80) - min 18%
 - Finish/ Colour: White polyester coated finish to side B (soffit face), 15µ nominal thickness.
2. Primary sheet fasteners: Refer to BEMO Calculations for fixing type & frequency.
3. End laps size (minimum): Minimum 100mm to coincide with purlin / support position. Subject to project engineering requirements.
4. Side lap stitching: Side laps of sheets to be stitched together with rivets. NOTE: Side laps must be stitched as each adjacent sheet is laid.
5. Other requirements: None

261 VAPOUR CONTROL MEMBRANE

1. Manufacturer: BEMO Project Engineering UK Ltd
The Yard, Church Street
Heage
Belper
Derbyshire
DE56 2BW
 - Product reference: BEMO DS CLEAR, reinforced polyolefin film
 - Vapour resistance (minimum): >500 MNs/g
2. Continuity: No breaks and with the minimum of joints.
 - Penetrations and abutments: Seal to vapour control membrane with tape. Achieve full bond.
 - Laps: Not less than 150 mm, seal with 2 rows tape. Achieve full bond.
3. Tape: BEMO DS butyl tape (60.77MNs/g).

4. Repairs and punctures: Seal with lapped patch of vapour control membrane and 2 continuous rows of sealant tape along edges as per lap joints

271 MINERAL WOOL THERMAL INSULATION

1. Standard: To BS EN 13162.
2. Manufacturer: BEMO Project Engineering UK Ltd
The Yard, Church Street
Heage
Belper
Derbyshire
DE56 2BW
 - Product reference: BEMO-THERM 40 glass mineral wool manufactured with ECOSE Technology to comply with Lambda 90/90 $\lambda = 0.040$ W/mK
3. Thickness (minimum): 300 mm compressed to 270 mm for 0.16 W/m²k U value. Comprising 2 layer(s), 160mm thick & 140mm thick.
4. Placement: Install and secure as the work proceeds ensuring continuity all edges being closed off and leaving no gaps. Ensure that the insulation is compressed lightly between outer and liner sheets to required depths. Keep insulation dry at all times. Insulation should be laid over-lapping chequerboard pattern when installed in double or triple layer application for high specification requirements

300 PROFILE FILLERS GENERALLY

1. Material: Closed cell, cross-linked low density polyethylene foam with a minimum density of 30 kg/ m³
2. Manufacturer: BEMO Project Engineering UK Ltd
The Yard, Church Street
Heage
Belper
Derbyshire
DE56 2BW
 - Product references: Profile fillers
3. Colour: Black
4. Thickness: 25 mm
5. Location: Where shown on drawings at eaves & ridge to close off the standing seam at the eaves and sheet pan at the ridge. Ensure a tight fit, leaving no gaps.

310 PURPOSE MADE COLD FORMED METAL ACCESSORIES

1. Material:
 - Aluminium alloy BS EN AW 3004 (AlMn1Mg1)
 - Ultimate tensile strength - minimum 220 N/ mm²
 - 0.2% proof stress - minimum 185 N/ mm²
 - Thickness/gauge: 0.9 mm
 - Finish/Colour: To match cladding
2. Fasteners:
 - Type: SFS Stadler Ltd Bulb-tite rivets with neoprene washers and colour caps
 - Location: Rivets discreetly positioned so as to provide a high aesthetic finish and excellent water resistance
 - Fixing centres: 450 mm centres for vertical flashings and 300 mm centres for horizontal flashings

410 FIXING SHEETS GENERALLY

1. Cut edges: Clean true lines with no distortion. Remove burrs and any lubricant.

2. Penetrations: Openings to minimum size necessary and as per cladding manufacturer's recommendations.
3. Sheet orientation: Exposed joints of side laps away from prevailing wind unless shown otherwise on drawings.
4. Sheet ends, laps and raking cut edges: Fully supported and with fixings at top of lap.
5. Installation: Install fasteners to correct tightness using any special tools recommended by the fastener manufacturer. When used, screw guns must be fitted with depth sensitive devices and used at the correct speed.
Standing seam sheets to be installed by mechanically seaming sheets to support halts with BEMO seaming machine in accordance with BEMO technical documents 04 & 09.
Protect sheets adequately during fixing and up to Practical Completion against mechanical damage, corrosion and disfigurement. Rectify any defects as quickly as practicable to minimise damage and nuisance.
6. Debris: Remove all drilling swarf, dust, debris and any other foreign matter before finally fixing sheets into position.
7. Cut edges: Paint to match face finish.

480 FLASHINGS/TRIMS GENERALLY

1. Lap joint treatment:
 - Vertical and sloping flashings/trims: End laps to be same as for adjacent sheeting.
 - Horizontal flashings/trims: End laps to be 150 mm, sealed and where possible arranged with laps away from prevailing wind.
2. Method of fixing: To structure in conjunction with adjacent sheeting. Otherwise to sheeting.
 - Fasteners: Blind head rivets

485 FLASHINGS/TRIMS

1. Joints: Form in flashings/trims to fully accommodate thermal movement and in accordance with cladding manufacturer's recommendations and those contained in NFRC publication "Profiled Sheet Metal Roofing and Cladding - A Guide to Good Practice", 2nd Edition or as otherwise specified.

490 GABLE FLASHINGS

1. Location(s): Perimeter detail and flashings
2. Profile: Fully welded construction and matching roof pitch
3. Material: Mill finish aluminium alloy AA3004 - AlMn1Mg1 flat sheet
4. Finish: Polyester powder coated as section Z31 in colour to CA's requirements from manufacturer's full range. All fabricated items to be post coated
5. Standards: Manufactured generally to MCRMA guidelines.

540 ABUTMENTS

1. Junctions with flashings: Weathertight and neatly dressed down.

560A SAFETY SIGNS

1. Fixing locations of signs: As indicated on drawings
2. Material: Aluminium with polyester powder coated base, screen printed graphics
3. Signs description:
4. Warning signs as BS EN ISO 7010:2012+A6:2016 type W036 with supplementary text sign, lettering "Warning; Fragile Roof".
5. Mandatory sign as BS EN ISO 7010:2012+A6:2016 type M001 with supplementary text sign, lettering "Use Crawling Boards"

H71 LEAD SHEET COVERINGS/ FLASHINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF LEADWORK

420 COVER FLASHINGS

1. Description: To single ply roof
2. Lead
 - Thickness: 1.75-2.00 mm (code 4)
3. Dimensions
 - Lengths: Not more than 1500 mm.
 - End to end joints: Laps of not less than 100 mm.
 - Cover: Overlap to upstand of not less than 75 mm.
4. Fixing: Lead wedges into bed joint, clips to lead upstand at laps and 500 mm centres

GENERAL REQUIREMENTS/ PREPARATORY WORK

510 WORKMANSHIP GENERALLY

1. Standard: In accordance with BS EN 14783 and BS EN 12588 and to BS 6915 and latest edition of 'Rolled lead sheet. The complete manual' published by the Lead Sheet Training Academy.
2. Fabrication and fixing: To provide a secure, free draining and completely weathertight installation.
3. Operatives: Trained in the application of lead coverings/ flashings. Submit records of experience on request.
4. Preforming: Measure, mark, cut and form lead prior to assembly wherever possible.
5. Marking out: With pencil, chalk or crayon. Do not use scribes or other sharp instruments without approval.
6. Bossing and forming: Straight and regular bends, leaving sheets free from ripples, kinks, buckling and cracks.
7. Solder: Use only where specified.
8. Sharp metal edges: Fold under or remove as work proceeds.
9. Finished work: Fully supported, adequately fixed to resist wind uplift but also able to accommodate thermal movement without distortion or stress.
10. Protection: Prevent staining, discolouration and damage by subsequent works.

520 LEAD SHEET

1. Production method
 - Rolled, to BS EN 12588, or
 - Machine cast and BBA certified, or
 - Sand cast, from lead free from bitumen, solder, other impurities, inclusions, laminations, cracks, air, pinholes and blowholes; to code thicknesses but with a tolerance (by weight) of $\pm 10\%$.
2. Identification: Labelled to show compliance with the harmonized standard (hEN) BS EN 14783, where appropriate, and detail of the thickness/ code, weight and type.

FIXING LEAD

715 CLIPS

1. Manufacturer: Contractor's choice
2. Material
 - Lead clips: Cut from sheets of same thickness/ code as sheet being secured.
 - Copper clips
 - o Thickness: 0.70 mm
 - o Temper: BS EN 1172, designation R220 in welts, seams and rolls, R240 elsewhere; dipped in solder if exposed to view.
 - Stainless steel clips
 - o Thickness: 0.46 mm
 - o Grade: BS EN 10088-1, 1.4301(304) terne-coated if exposed to view.
3. Dimensions
 - Width: 50 mm where not continuous.
 - Length: To suit detail.
4. Fixing clips: Secure each to substrate with either two screw or three nail fixings not more than 50 mm from edge of lead sheet. Use additional fixings where lead downstands exceed 75 mm.
5. Fixing lead sheet: Welt clips around edges and turn over 25 mm.

770 WEDGE FIXING INTO JOINTS/ CHASES

1. Joint/ chase: Rake out to a depth of not less than 25 mm.
2. Lead: Dress into joint/chase.
 - Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.
3. Sealant:
 - Manufacturer: Adshead Ratcliffe & Co Ltd, Derby Road, Belper, Derbyshire, DE56 1WJ
 - Product reference: ARBO Lead Seal
 - Application: As section Z22.

780 WEDGE FIXING INTO DAMP-PROOF COURSE JOINTS

1. Joint: Rake/ cut out under damp proof course to a depth of not less than 25 mm.
2. Lead: Dress lead into joint.
 - Fixing: Lead wedges at not more than 450 mm centres, at every change of direction and with at least two for each piece of lead.
3. Sealant:
 - Manufacturer: Adshead Ratcliffe & Co Ltd, Derby Road, Belper, Derbyshire, DE56 1WJ
 - Product reference: ARBO Lead Seal
 - Application: As section Z22.

JOINTING LEAD

970 PATINATION OIL

1. Manufacturer: Contractor's choice
 - Product reference: Submit proposals
2. Location: All leadwork

3. Application: As soon as practical, apply a smear coating to lead, evenly in one direction and in dry conditions.

H74

ZINC STRIP/ SHEET COVERINGS/ FLASHINGS

CLAUSES - NOT USED

TYPES OF ZINC WORK - NOT USED

GENERAL REQUIREMENTS/ PREPARATORY WORK - NOT USED

FIXING ZINC - NOT USED

JOINTING ZINC - NOT USED

H92 RAINSCREEN CLADDING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

TENDERING - NOT USED

TYPE(S) OF RAINSCREEN CLADDING

120A RAINSCREEN CLADDING SUPPORT SYSTEM

1. Description: To PPC aluminium standing seam rainscreen cladding as H31/ 120A
2. Primary support structure: K11/ 486A calcium silicate sheathing board on G10/ 150A cold rolled steel framing system
3. Rainscreen cladding system:
 - Type: Drained and back-ventilated
4. Air gap: As shown on drawings but minimum 50 mm
5. Secondary support/ framing system: Vertical carrier rails
 - Manufacturer: NVELOPE Rainscreen Systems Ltd, Unit A, City Park, Watchmead, Welwyn Garden City, Hertfordshire, AL7 1LT
 - o Product reference: Nvelope ref NV1
 - Material: Aluminium
 - Fasteners: As recommended by manufacturer
 - o Number and location: To Structural Engineer's requirements
6. Backing wall:
 - G10/ 150A cold rolled steel framing system faced with K11/ 486A calcium silicate sheathing board
 - Blockwork as F10/ 355C
7. Accessories:
 - Nvelope thermal isolators
 - As required to complete installation

120B RAINSCREEN CLADDING SUPPORT SYSTEM TO SOFFITS

1. Description: To PPC aluminium standing seam rainscreen cladding to entrance canopy soffit as H31/ 120A
2. Primary support structure: Horizontal cold rolled galvanised steel purlins
3. Air gap: As shown on drawings but minimum 50 mm
4. Secondary support/ framing system: Horizontal carrier rails
 - Manufacturer: NVELOPE Rainscreen Systems Ltd, Unit A, City Park, Watchmead, Welwyn Garden City, Hertfordshire, AL7 1LT
 - o Product reference: Nvelope ref NS1
 - Material: Aluminium
 - Fasteners: As recommended by manufacturer
 - o Number and location: To Structural Engineer's requirements
5. Accessories: As required to complete installation

GENERAL REQUIREMENTS/PREPARATORY WORK

210 DESIGN

1. Rainscreen cladding system and associated features: Complete detailed design in accordance with this specification and the preliminary design drawings and submit before commencement of fabrication.
2. Related works: Coordinate in detailed design.

215 DESIGN PROPOSALS

1. Submission of alternative proposals: Preliminary design drawings indicate intent. Other reasonable proposals will be considered.

220 SPECIFICATION

1. Compliance standards: The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
2. Reference information: For the duration of the contract, keep available at the design office, workshop and on site copies of:
 - The Centre for Window and Cladding Technology (CWCT) 'Standard for systemised building envelopes'.
 - Publications invoked by the CWCT 'Standard for systemised building envelopes'.

230 INFORMATION TO BE PROVIDED DURING DETAILED DESIGN

1. Submit the following cladding particulars
 - A schedule of detailed drawings and dates for submission for comment.
 - A schedule of loads that will be transmitted from the rainscreen cladding to the structure.
 - Proposed fixing details and systems relevant to the structural design and construction with methods of adjustment and tolerances.
 - A schedule of fabrication tolerances/ size tolerances.
 - A detailed testing programme in compliance with the Main Contract master programme.
 - A detailed fabrication and installation programme in compliance with the Main Contract master programme.
 - Proposals to support outstanding applications for Building Regulation consents or relaxations.

235 INFORMATION TO BE PROVIDED BEFORE COMMENCEMENT OF TESTING OR MANUFACTURE OF RAINSCREEN CLADDING SYSTEM

1. Submit the following cladding particulars
 - Detailed drawings to fully describe fabrication and installation.
 - Detailed calculations to prove compliance with design/ performance requirements.
 - Project specific fabrication, handling and installation method statements.
 - Certification for incorporated components manufactured by others confirming their suitability for proposed locations in the rainscreen cladding.
 - Recommendations for spare parts for future repairs or replacements.
 - Recommendations for safe dismantling and recycling or disposal of products.

250 SAMPLES OF FIXINGS

1. General: During detailed design, submit labelled samples of each type of fixing, together with manufacturers' recommended torque figures.

DESIGN/PERFORMANCE REQUIREMENTS

310 CWCT 'STANDARD FOR SYSTEMISED BUILDING ENVELOPES'

1. General: Unless specified or agreed otherwise comply with:
 - Part 2 - Loads, fixings and movement.
 - Part 3 - Air, water and wind resistance.
 - Part 4 - Operable components, additional elements and means of access.
 - Part 5 - Thermal, moisture and acoustic performance.
 - Part 6 - Fire performance.
 - Part 7 - Robustness, durability, tolerances and workmanship.
2. Project performance requirements specified in this subsection: Read in conjunction with CWCT performance requirements.

340A INTEGRITY

1. Requirement: Confirm sizes and thickness of sheathing/carrier board, sizes, number and spacing of fixings, configuration and location of secondary support systems and incorporation of other accessories and fittings to ensure the cladding systems, primary support structure and other elements forming the rainscreen wall will resist wind loads, dead loads and design live loads, and accommodate deflections and movements without damage.
2. Design wind pressure: Calculate in accordance with BS EN 1991-1-4 and National Annex.
3. Impact performance: Generally
 - Safety impact requirements: To CWCT TN 75, negligible risk
 - Serviceability impact requirements: To CWCT TN 75, serviceability class 1
 - External impact exposure: In accordance with CWCT TN 75: Below 1.5 m category B, above 1.5 m category E.
 - Hard and soft body impact loads: To BS EN 14019: Class E5.
4. Other design parameters: None

380A GENERAL MOVEMENT

1. Requirement: Rainscreen cladding must accommodate anticipated building movements.

390 AIR PERMEABILITY EXFILTRATION

1. Requirement: The maximum permissible air exfiltration rate through the building envelope system must not exceed: 4 m³/hr/m² at a test pressure of 50 Pa.

422 WEATHER RESISTANCE

1. Design, fabricate and install rainscreen cladding to ensure that damp penetration into interior of building or into cavities not designed to be wetted does not occur under any conditions with full allowance made for deflections and other movements. Show designed wet plane of system on working drawings.

450 AIR AND VAPOUR CONTROL LAYER

1. Condensation risk within rainscreen wall: Determine using the method described in BS 5250, Annex D. Where required, provide a suitable air and vapour control layer to ensure that damage and nuisance from condensation is reduced.

TESTING

672A SITE TESTING OF FIXINGS

1. Requirement: To CWCT 'Standard for systemised building envelope', 'Standard test methods for building envelopes' Section 19.
2. Type of test: Ultimate load

- Peak load: Not applicable
 - o Load directions: Pull out
3. Number and location of test fixings: 5% of installed fixings with a minimum of 10

PRODUCTS

710 ALUMINIUM ALLOY FRAMING SECTIONS

1. Standards: To BS EN 755 alloy EN AW-6063 and suitable for the specified finish.
2. Structural members: To comply with BS EN 1999-1-1, -3 and -4.

712 ALUMINIUM ALLOY SHEET

1. Standards: To BS EN 485, BS EN 515 and BS EN 573.
2. Alloy, temper and thickness: Suitable for the application and specified finish.

715 CARBON STEEL FRAMING SECTIONS/ REINFORCEMENT

1. Standards: To the relevant parts of BS 7668, BS EN 10029, BS EN 10025 or BS EN 10210.
2. Thickness: Suitable for the application, and for galvanizing or other protective coating.

717 CARBON STEEL SHEET

1. Standards: To the relevant parts of BS 1449-1, BS EN 10048, BS EN 10051, BS EN 10111, BS EN 10131, BS EN 10132, BS EN 10139, BS EN 10140, BS EN 10149-1, -2, -3, BS EN 10209, or BS EN 10268.
2. Grade and thickness: Suitable for the application, and for galvanizing or other protective coating.

720 STAINLESS STEEL SHEET

1. Standards: To the relevant parts of BS EN 10029, BS EN 10048, BS EN 10051, BS EN 10095 or BS EN ISO 9445-1 and -2.
2. Grade: To BS EN 10088-2, -4, -5, austenitic 1.4301 (304) generally, 1.4301 (316) when used externally or in severely corrosive environments.
3. Thickness: Suitable for the application.

730 MECHANICAL FIXINGS – MATERIAL REQUIREMENTS

1. Stainless steel: To BS EN ISO 3506 grade A2 generally, grade A4 when used in severely corrosive environments.
2. Carbon steel: To BS 4190 and suitable for galvanizing or other protective coating.
3. Aluminium: To BS EN 755.

735 FIXINGS AND FASTENERS

1. Type and use: Reviewed and approved by manufacturers. Submit confirmatory information on request.
2. Dimensions: Not less than recommended by their manufacturers.
3. Adjustment capability: Sufficient in three dimensions to accommodate primary support structure and rainscreen cladding fabrication/ installation tolerances.

770 GENERAL SEALANTS

1. Selection: In accordance with BS 6213 from:
 - Silicone.
 - One part polysulfide.
 - Two part polysulfide.
 - One or two part polyurethane.

2. Classification and requirements: To BS EN ISO 11600.
3. Reaction to contact products and finishes: Stable and compatible.

776 THERMAL INSULATION

1. Material: Mineral wool to BS EN 13162
 - Manufacturer: Rockwool Ltd, Pencoed, Bridgend, Mid-Glamorgan, CF35 6NY
 - o Product reference: Rainscreen Duo Slab .
2. Thickness: Not less than - 100 mm generally- 50 mm to internal face of parapet wall type E9.
3. Recycled content: Manufacturer's standard
4. Fixing: Attached to the outer face or supported within the backing wall so as not to bulge, sag, delaminate or detach during installation or in situ during the life of the rainscreen cladding.

780A AIR AND VAPOUR CONTROL LAYER

1. As clause P10/ 310B

785A BREATHER MEMBRANE

1. As clause P10/ 320A

FINISHES

810 PROTECTIVE COATING OF CARBON STEEL FRAMING SECTIONS/ REINFORCEMENT

1. Treatment: All surfaces to one of the following:
 - Hot dip galvanized to BS EN ISO 1461.
 - An appropriate equivalent coating to BS EN ISO 12944 and BS EN ISO 14713-1 and -2.

820 PROTECTIVE COATING OF CARBON STEEL MECHANICAL FIXINGS

1. Treatment: All surfaces to one of the following:
 - Hot dip galvanized to BS EN ISO 1461.
 - Sherardized to BS EN ISO 17668, Class 30 coating thickness and passivated.
 - Zinc plated to BS EN ISO 2081, coating designation of FE//Zn//C for an iridescent (yellow passivate) chromate conversion coating or FE//Zn//D for an opaque (olive green) chromate conversion coating.

FABRICATION AND INSTALLATION

910 GENERALLY

1. Electrolytic corrosion: Take necessary measures to prevent.
2. Identification of products: Mark or tag to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in the complete installation.

911 GENERALLY

1. Fabricate and install rainscreen cladding in accordance with this specification and final detailed drawings.
2. Fabricators and installers must employ competent rainscreen cladding operatives. Provide records of operatives' experience upon request.
3. Select and align all products to ensure uniformity of appearance.
4. Ensure joints occur only at positions indicated on final detailed drawings.
5. Isolate dissimilar metals to prevent electrolytic corrosion.
6. Machine cut and drill all products in workshop wherever possible.
7. Mark or tag all products to facilitate identification during assembly, handling, storage and installation. Do not mark surfaces visible in completed installation.

912 METALWORK

1. Requirement: As section Z11, unless specified otherwise in this section.

922 FIXINGS/ ADHESIVES APPLICATION

1. Requirement: As section Z20, unless specified otherwise in this section.

925 SEALANT APPLICATION

1. Requirement: As section Z22, unless specified otherwise in this section.

930 ASSEMBLY

1. Location: Carry out as much assembly as possible in the workshop.
2. Joints: Other than movement joints and designed open joints, must be rigidly secured, reinforced where necessary and fixed with hairline abutments.
3. Displacement of components in assembled units: Submit proposals for reassembly on site.

970 RAINSCREEN CLADDING INSTALLATION

1. Tightening mechanical fasteners: To manufacturer's recommended torque figures. Do not overtighten fasteners intended to permit differential movement.
2. Protective coverings: Remove only where necessary to facilitate installation and from surfaces which will be inaccessible on completion.

975 WELDING

1. In situ welding: Not permitted

980 INTERFACES

1. Installation: Locate flashings, closers etc. correctly and neatly overlap cladding to form a weathertight junction.

985 DAMAGE

1. Repairs: Do not repair cladding without approval.
 - Approval: Will not be given where the proposed repair will impair performance or appearance.
2. Record of repairs: Prepare schedule or record on drawings for inclusion in the maintenance manual.

995 MAINTENANCE

1. Maintenance manual: Incorporate details within the Building Manual in accordance with CWCT 'Standard for systemised building envelopes', clause 7.6.1.
 - Materials certification and test reports to be included: Design calculations

J30

LIQUID APPLIED TANKING/DAMP PROOFING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS

TYPES OF TANKING/ DAMP PROOFING

110A COLD APPLIED TANKING

1. Description: To top of downstand walls/ ground beams/ slab edge
2. Substrate: Concrete
3. Primer: Not required
4. Coating: Cementitious
 - Manufacturer: Fosroc International Limited, Drayton Manor Business Park, Coleshill Road, Tamworth, Staffordshire, B78 3XN
 - o Product reference: Nitocote CM210
 - Application: Two coats 1 mm thick (coverage per coat is 1.8kg/m² or 1 litre/m²). One white coat and one grey coat in full accordance with manufacturer's written instructions
5. Reinforcement: Not required

EXECUTION

205 SUITABILITY OF SUBSTRATE

1. Substrates generally
 - Smooth, even textured, clean, dry and frost free.
 - Within tolerances for level and surface regularity.
 - Vertical and horizontal surfaces: Correctly prepared and free from irregularities.
2. Curing period for concrete substrates (minimum): 7 days.
3. Moisture content and stability of substrate: Must not impair integrity of finished tanking/ damp proofing.
4. Preliminary work: Complete including:
 - Chases.
 - External angles.
 - Formation of upstands and kerbs.
 - Movement joints.
 - Penetrations/ Outlets.

210A COATING APPLICATION

1. Adjacent surfaces exposed to view in finished work: Protect.
2. Coatings
 - Apply in dry atmospheric conditions when substrate is damp.
 - Uniform, continuous coverage. Do not allow to pool in hollows.
 - Firmly adhered to substrate and free from imperfections.
 - Prevent damage to finished coatings.
 - Minimum application temperature 5 degrees centigrade.
3. Penetrations: Impervious.
4. Final covering: Apply as soon as possible after coating has hardened.

220A COLD APPLIED COATINGS

1. Thinning: Not permitted unless recommended by manufacturer.
2. Successive coats
 - Allow to dry before applying next.
 - Apply at right angles to previous.
 - See manufacturer's application instructions for overcoat times.

260A JUNCTIONS BETWEEN J30/110A AND DPM

1. Fosroc Proofex Total DPM: Clean, all edges fully exposed.
2. Junction: Overlap Proofex Total DPM onto horizontal surface coated with J30/110A by 50 mm and seal with Fosroc Proofex Total Tape.

COMPLETION

310 INSPECTION

1. Interim and final inspections: Submit reports.

340 BACKFILLING TO EXTERNAL COATINGS

1. Timing: Carry out as soon as possible after tanking and protection are complete.

J31

LIQUID APPLIED WATERPROOF ROOF COATINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

TYPES OF COATING

130 INVERTED ROOF COATING

1. Description: To roof type rt1 and rt2
2. Substrate: Reinforced concrete roof deck
 - Preparation:
 - Ensure substrate is level and even without depressions, deflections or backfalls and with a wood float finish as clause E41/240A, not power floated, steel floated or tamped. Finished slab be subject to a site level survey and any areas of negative falls be remedied locally using a suitable levelling screed
 - Surfaces to receive roof coating: Dry, frost free, free of voids, cracks, holes or other damage, and free of all contaminants including dust, grease, dampness and laitance. Brush or blow dry all loose dirt or debris using dry air or industrial vacuum machine
 - Advance bond tests: Carry out to all areas to receive roof coating and record for reference in accordance with method statement contained within manufacturer's pre-installation control procedures document
3. Waterproof coating: Icopal Parabit Duo hot melt roof coating
 - System manufacturer: Icopal Ltd, BMI House, 2 Pitfield, Kiln Farm, Milton Keynes, MK11 3LW
 - o Primer reference: Icopal Siplast Primer
 - o Coating reference: Parabit Hot-Melt Compound as clause 353
 - Application: In accordance with manufacturer's instructions/ project specific specification (Project Number: 10078172), including all necessary bond and depth checks
 - Reinforcement: Parabit Duo Reinforcing Fabric
 - Minimum dry film thickness: 6 mm in 2 no 3 mm coats each at a rate of 3kg/m² plus access or protection sheet as specified
 - Colour: Black
4. Surface protection: Power Elastomeric 250 Sand generally with Power Elastomeric 250 Mineral Capsheet to exposed upstands
5. Insulation: Extruded polystyrene board as clause 340A
6. Water control/ filter layer: Water flow reducing layer as clause 390A
7. Insulation protection/ Securement: Paving slabs to main roof area with perimeter stone ballast as indicated on Architect's roof plan
8. Accessories:
 - Parabit Duo Angle Reinforcing Strip as clause 750
 - Rainwater outlets as clause R10/ 365A

PERFORMANCE

205A COMPLETION OF ROOFING DESIGN

1. Description: Detailed design
2. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
3. Additional requirements: Responsibility for coordination at design interfaces

4. Design and production information: Detail drawings showing fixings, joint details, design interfaces etc
5. Timing of submissions: Within two weeks of request but not less than 8 weeks before programmed commencement of work on site

210A ROOF PERFORMANCE

1. General: Firmly adhered, free draining and weathertight.

PRODUCTS

315 TIMBER TRIMS

1. Quality: Planed, free from wane, pitch pockets, decay and insect attack (except ambrosia beetle damage).
2. Moisture content at time of covering (maximum): 22%.
3. Preservative treatment: As recommended for purpose by waterproof coating manufacturer

340A INVERTED ROOF INSULATION

1. Description: Horizontally laid:
2. Type: Expanded polystyrene board
3. Manufacturer: Icopal Ltd, Barton Dock Road, Stretford, Manchester, M32 0YL
 - Product reference: Thermazone Hydroshield IVR Board
4. Standard: To BS EN 13163
 - Reaction to fire: Manufacturer's standard
 - Thermal conductivity (minimum): 0.033 W/mK
 - Thickness: 205 mm
 - Compressive strength (minimum): 200 kPa
5. Edges: Rebated
6. Facing: Not required
7. Application: Staggered break-bond pattern ensuring all boards are laid flat and close butted

340B INVERTED ROOF INSULATION

1. Description: Vertically laid to upstands:
2. Type: Non-combustible Inverted Roof Upstand Insulation Board consisting of stone wool insulation factory laminated to a 6mm thick weather resistant high impact cement particle board facing
3. Manufacturer: Radmat Building Products Limited, Holland House, Valley Way, Rockingham Road, Market Harborough LE16 7PS
 - Product reference: Radmat RockFace A2
4. Standard:
 - Reaction to fire: Euroclass A2, s1-d0 to BS EN 13501-1
 - Thermal conductivity (minimum): 0.038 W/mK
 - Thickness: 50 mm excluding facing board
 - Compressive strength (minimum): 30 kPa
 - Other characteristics: None
5. Edges: Square, butt joint
6. Facing: 6 mm thick cement particle board
7. Installation: As clause 831

353 WATERPROOF COATING

1. Type: Elastomeric bitumen
2. Manufacturer: Icopal Ltd, BMI House, 2 Pitfield, Kiln Farm, Milton Keynes, MK11 3LW
 - Product reference: Parabit Hot-Melt Compound
3. Primer: Icopal Siplast Primer, high penetration solvent based quick drying elastomeric bitumen priming solution, coverage typically 4 m²/litre as clause 725
4. Application: Fully in accordance with manufacturer's instructions, as clause 765
5. Reinforcement: Parabit Duo Reinforcing Fabric
6. Colour: Black
7. Minimum dry film thickness: 6 mm in 2 no 3 mm coats each at a rate of 3kg/m² plus access or protection sheet as required
8. Surface protection: Power Elastomeric 250 Sand generally with Power Elastomeric 250 Mineral Capsheet to exposed upstands

357 PIPE COLLARS

1. Manufacturer: Contractor's choice
 - Product reference: Contractor's choice
2. Size: As required to suit application

365 STONE BALLAST

1. Type: Washed, round aggregate
2. Supplier: Contractor's choice
3. Size: Graded 20-40 mm, free from fines and sharps. Minimum 80 kg/m²
4. Colour: Natural

370 PRECAST CONCRETE PAVING SLABS

1. Manufacturer: Marshalls, Landscape House, Premier Way, Lowfields Business Park, Elland, West Yorkshire, HX5 9HT
 - Product reference: Standard Paving
2. Standard: To BS EN 1339, hydraulically pressed.
 - Size: 600 x 600 x 50 mm
 - Water absorption: Manufacturer's standard
 - Resistance to freeze thaw: Manufacturer's standard
 - Breaking load (minimum): Manufacturer's standard
 - Colour: Natural
 - Finish: Pimple surface
 - Other BS EN 1339 characteristics: None
3. Recycled content: Manufacturer's standard
4. Support system: As clause 377

377 SUPPORT SYSTEM FOR PAVING SLABS OR TILES

1. Manufacturer: Icopal Ltd, BMI House, 2 Pitfield, Kiln Farm, Milton Keynes, MK11 3LW
 - Product reference: Roofgard Paving Support System
2. Size: 40 mm - 65 mm
3. Accessories: Roofgard Support Plate

390A WATER FLOW REDUCING LAYER

1. Type: Non-woven polyethylene

2. Manufacturer: Icopal Ltd, BMI House, 2 Pitfield, Kiln Farm, Milton Keynes, MK11 3LW
 - Product reference: Monaperm Breathe All Zonest
3. Installation: Lay so that water runs over and not into laps, with minimum 150 mm laps. Immediately seal laps and any penetrations through membrane using Monobond LT double sided tape.

EXECUTION GENERALLY

410 ADVERSE WEATHER

1. Do not apply coatings
 - In wet conditions or at temperatures below 5°C, unless otherwise permitted by coating manufacturer.
 - In high winds (speeds > 7 m/s), unless adequate temporary windbreaks are erected adjacent to working area.
2. Unfinished areas of roof: Keep dry.

420 SUITABILITY OF SUBSTRATES

1. Substrates generally
 - Secure, clean, dry, smooth, free from frost, contaminants, loose material, voids, protrusions and organic growths.
 - Compatible with coating system.
2. Preliminary work: Complete, including:
 - Formation of upstands, kerbs, box gutters, sumps, grooves, chases and expansion joints.
 - Fixing of battens, fillets and anchoring plugs/ strips.
3. Moisture content and stability: Must not impair integrity of roof.

430 APPLICATION

1. Transitions between dissimilar substrate material (eg concrete slab to masonry upstands, minor movement etc) and sheathing board joints: Apply Parabit Polyester Reinforced Angle Flashing, 300 mm wide, lapped min 100 mm and bond continuously over whole surface, smooth and with no air pockets.
2. Upstands: Install waterproofing system so that continuity is maintained for minimum 150 mm above finished roof level or to level indicated on detail drawings.
3. Timing: Apply full waterproofing system to minimise foot traffic over membrane or provide temporary protection.
4. Application of roof coating:
 - General: Carry out application in accordance with system manufacturer's current recommendations. Where any uncertainty of detailing or application arises, seek advice and approval for fabrication proposals from system manufacturer before proceeding.
 - Apply Parabit DUO system to upstand details.
 - Roll out reinforcing layer into base coating whilst still hot, ensuring full embedment without wrinkles and air pockets and with minimum 75 mm laps.
 - Finished membrane: Firmly adhered to substrate and free of pinholes, blisters, foreign matter or other defects liable to permit passage of water.
 - Pipework and other penetrations: Install metal framework around groups of pipes/ or other penetrations and fill with monolithic waterproofing membrane to form permanent waterproof pitch pocket. Apply protection sheet to pitch pocket upon completion.
 - Reinforced elastomeric bitumen protection sheet: Apply into hotmelt compound/ membrane whilst still hot. Bond fully over whole surface, with no air pockets or wrinkles. Use wide head brush when rolling to aid application. Lap minimum 75 mm and seal with hotmelt compound. Spread out excess compound at laps with scraper to ensure seal.

- Exposed details and upstands: Torch apply mineral faced bitumen membrane to hot melt system. Fully bond without wrinkles or air pockets ensuring thermofusible film to underside is completely removed, with minimum 150 mm end laps and side laps following mineral-free seldge. Ensure continuous 5 mm bead of bitumen extruded at all overlaps.
- Waterproofing to upstand: Secure using Fixing Restraint Bar mechanically fixed at 150 mm centres through membrane or, where independent cover flashing is omitted, with Termination Bar mechanically fixed at 150 mm centres and pointed with suitable mastic sealant.

EXISTING SUBSTRATES - NOT USED

NEW SUBSTRATES/ VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION - NOT USED

ROOF COATING SYSTEM - NOT USED

NEW SUBSTRATES

710 ADHESION TESTS

1. Requirement: Carry out a trial coating to determine priming requirements and/ or system suitability.
2. Nature of test:
 - 2 m x 2 m application of coating system to concrete deck
 - 2 m x 2 m application of coating system to parapet plywood upstand
 - 2 m x 2 m application of coating to concrete deck levelling screed
3. Test results: Submit and arrange for inspection.

725 APPLYING PRIMERS/ BONDERS

1. Surface coverage: Apply well in to ensure local or full coverage according to type.
2. Coats: Allow to dry before overcoating.
3. Conditions:
 - Apply when temperature is >5°C and rising, provided this is above dew point.
 - Ensure each coat is through cured before proceeding.

750A PRELIMINARY LOCAL REINFORCEMENT

1. Reinforcement strip: Apply Parabit Polyester Reinforced Angle Flashing to junctions at upstands, penetrations and outlets, joints and fixings in discontinuous unit substrates.
 - Bedding: Preliminary coating application.
 - Joints: Lap in length min 100 mm.
 - Bond: Continuous over whole surface, with no air pockets.
 - Condition at completion: Smooth.

765 APPLICATION OF COATINGS

1. Conditions:
 - Apply when temperature is >5°C and rising, provided this is above dew point.
 - Ensure each coat is through cured before proceeding.
2. Thickness: Monitor by taking wet/ dry film thickness readings.
3. Continuity: Maintain full thickness of coatings around angles, junctions and features.
4. Rainwater outlets: Form with watertight joints.
5. Drainage systems: Do not allow liquid coatings to enter piped rainwater or foul systems.

775 SKIRTINGS AND UPSTANDS

1. Reinforcement: As clause 750
2. Termination:
 - Use termination bar to fix waterproofing and protection sheet terminating on vertical face.
 - Fix termination bar at maximum 300 mm centres.
 - Sealant: Apply mastic sealant in a neat bead behind and along top edge of termination bar.

SURFACING

830 LAYING INVERTED ROOF INSULATION

1. Condition of substrate: Clean.
2. Separating layer: Lay polyethylene sheet under insulation where required by coating manufacturer.
3. Setting out: Loose lay with staggered joints. Minimize cutting and avoid small pieces at perimeters and penetrations.
 - Joints: Butt together.
4. Projections, upstands, rainwater outlets, etc: Cut insulation cleanly and fit closely around.
5. Completion
 - Boards in good condition, well fitting and stable.
 - Cover to prevent wind uplift and flotation as soon as practicable.

831 INSTALLING INVERTED ROOF INSULATION

1. Vertically to upstands
2. Condition of substrate: Clean.
3. Setting out:
 - Where the Radmat RockFace A2 is more than 3 times the height of the horizontal insulation board, and less than 750mm in height, trap at the base with horizontal insulation board and continuously retain across the top face of the board.
 - o Where Radmat RockFace A2 Boards exceed 750mm above the roof finishes trap at the base with the horizontal insulation board and mechanically fix directly to the upstand wall at 600mm centres using Speedline DDS fixings (or equal approved).
 - Joints: Butt together
 - External corner joints: Mitre together
 - Minimise cutting and avoid small pieces at perimeters and penetrations. Where it is necessary to cut Radmat RockFace A2 upstand board to size use a TCT saw (suitable PPE must be used including a face mask to guard against dust).
4. Completion
 - Boards in good condition, well fitting and stable.
 - Paint finish as clause M60/170A

835 WATER FLOW REDUCING MEMBRANES

1. Rolled out loose over inverted roof insulation, lapped minimum 150 mm and tape sealed in direction that helps shed water from water flow reducing membrane.
2. Dress water flow reducing membrane up all upstands and details to height of surfacing and down into outlets.

840 LAYING STONE BALLAST

1. Condition of substrate: Clean.

2. Gravel guards: Fit to outlets.
3. Laying: Spread evenly. Do not pile to excessive heights.
 - Depth (minimum): 75 mm or to achieve 80kg/m²

850 LAYING PRECAST CONCRETE PAVING SLABS

1. Condition of substrate: Clean.
2. Setting out: Minimize cutting.
3. Joints: Open.
 - Width: Determined by support system
4. Perimeter upstands: Stone filled ballast
5. Completion: Slabs must be level and stable.

COMPLETION

910 INSPECTION

1. Coating surfaces: Check when cured for discontinuities.
 - Defective areas: Apply another coating.

920 ELECTRONIC ROOF INTEGRITY TEST

1. Testing authority: UKAS approved laboratory
2. Timing of test: Prior to, and on completion of access by other trades
3. Condition of roof prior to testing
 - Coating: Complete to a stage where integrity can be tested.
 - Surface: Clean.
4. Test results: Submit.
5. Waterproof integrity certificate: On completion of testing, submit.

940 COMPLETION

1. Roof areas: Clean.
 - Outlets: Clear.
 - Flashings: Dressed into place.
2. Work necessary to provide a weathertight finish: Complete.
3. Storage of materials on finished surface: Not permitted.
4. Completed coatings: Protect against damage.

J40 FLEXIBLE SHEET TANKING/ DAMP PROOFING

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

110 SOFT BLINDING TO HARDCORE BEDS

1. Material: Soft sand
 - Thickness (minimum): 50 mm
2. Finish on completion: Smooth, consolidated bed free of sharp projections.

TYPES OF TANKING/ DAMP PROOFING

120A LOOSE LAID POLYMERIC SHEET DAMP PROOF MEMBRANE

1. Substrate: Soft blinded hardcore
2. Standard: To BS EN 13967.
 - Designation: Type A
3. Manufacturer: Fosroc Limited, Drayton Manor Business Park, Coleshill Road, Tamworth, Staffordshire, B78 3XN
 - Product reference: Proofex Total
4. Thickness/ Gauge: 0.45 mm
5. Recycled content: Manufacturer's standard
6. Joints
 - Surfaces to be joined: Clean and dry beyond full width of joint.
 - Laps (minimum): 150 mm
 - Sealing:
 - Seal laps using Proofex Total Tape
 - Seal the edge of the upper sheet with Proofex Detail Strip
7. Installation in full accordance with manufacturer's written instructions.

190A SELF-ADHESIVE BITUMEN DAMP PROOFING/ TANKING

1. Substrate: Concrete and sheathing board as K11/486A
2. Primer: As clause 335D
3. Standard: To BS EN 13969
4. Manufacturer: Fosroc Limited, Drayton Manor Business Park, Coleshill Road, Tamworth, Staffordshire, B78 3XN
 - Product reference: Proofex 3000
5. Number of layers: One.
6. Thickness/ Gauge: 1.5 mm
7. Bonding: Full. Smooth out to exclude air.
 - For applications to vertical surfaces, mechanically fix leading edge using fixing strips and pins recommended by manufacturer.
8. Joints:
 - Surfaces to be joined: Clean and dry beyond full width of joint.
 - Laps (minimum):
 - Side: 75 mm
 - End: 150 mm
 - Sealing: Roll to fully adhere.
9. Accessories: As required including:

- Renderoc plug 20
- Proofex primer
- Proofex internal and external corner pieces
- Proofex Engage detail strip Proofex top hats
- Proofex Total tape
- Proofex LM
- Nitoseal MS60
- Nitoseal MB175.

10. Installation in full accordance with manufacturer's written instructions.

295 GEOCOMPOSITE STUDED CAVITY DRAINAGE/ VENTING MEMBRANE

1. Manufacturer: Fosroc International Limited
 - Contact details
 - o Address: Drayton Manor Business Park
Coleshill Road
Tamworth
Staffordshire
B78 3XN
 - o Telephone: +44 (0)1827 262222
 - o Web: www.fosroc.com
 - o Email: enquiryuk@fosroc.com
 - Product reference: Proofex Sheetdrain 80
2. Material: High-density polyethylene (PE-HD) and polypropylene.
3. Purpose: Drainage layer.
4. Standard: To EN 13252 + A1.
5. Performance characteristics
 - Tensile strength (minimum): To EN 13252, 10 kN/m.
 - Elongation to break: To EN 13252, Elongation, ϵ_{max} , MD: 50%; Elongation, ϵ_{max} , CMD: 55%.
6. Third-party certification: British Board of Agrément (BBA) Certificate.
7. Form: HDPE cusped drainage sheet.
8. Physical properties
 - Weight (minimum): 32 kg.
 - Dimensions
 - o Thickness (minimum):
 - o Width (minimum): 2.4 m.
 - o Roll length (minimum): 20 m.
9. Compression strength: 150 kN/m².
10. Joint: 100 mm integral lap.
11. Fixing: Proofex Engage Detail Strip applied to membrane

WORKMANSHIP

310 WORKMANSHIP GENERALLY

1. Condition of substrate
 - Clean and even textured, free from voids and sharp protrusions.
 - Moisture content: Compatible with damp proofing/ tanking.

2. Air and surface temperature: Do not apply sheets if below minimum recommended by membrane manufacturer.
3. Condition of membrane at completion
 - Neat, smooth and fully supported, dressed well into abutments and around intrusions.
 - Completely impervious and continuous.
 - Undamaged. Prevent puncturing during following work.
4. Permanent overlying construction: Cover membrane as soon as possible.

320 INSPECTION

1. Give notice: Before covering any part of membrane with overlying construction.

335D PRIMER

1. Description: For use with J40/ 190A self adhesive bitumen damp proof membrane
2. Manufacturer: Fosroc Limited, Drayton Manor Business Park, Coleshill Road, Tamworth, Staffordshire, B78 3XN
 - Product reference: Proofex Primer
3. Coverage per coat (minimum): 6-8m² per litre
4. Curing:
 - Prime only sufficient areas which can be covered in less than 4 hours.
 - Allow to dry thoroughly before covering and apply Proofex 3000 same day. Reprime if necessary.

350A ANGLES IN BONDED DAMP PROOFING/ TANKING

1. Site formed cement mortar fillet tinternal angle: Renderoc Plug 20
 - Size: 40 x 40 mm.
2. Chamfer of external angles:
 - Size: 20 x 20 mm
3. Reinforcing strip angles:
 - Proofex 3000MR or Proofex Engage Detail Strip.
 - Width; Minimum 200 mm
4. Internal and external corners; Proofex Internal and External Corners.
 - Size; 125 x 125 x 125 mm
 - Bedding: Fosroc Nitoseal MB175 rubber, bitumen sealant.
 - Timing: Before and during application of main tanking.
5. Dressing of main sheeting on to adjacent surfaces: (Minimum) 100 mm

360A JUNCTIONS WITH CEMENTITIOUS DPM COATING J30/110A

1. Adjoining surfaces: Clean and dry.
2. Junction: Lap and fully bond/ seal.
 - Laps (minimum): 50 mm
 - Bonding/ Sealing: Proofex Total Tape

370A PREFORMED COLLARS FOR PIPES, DUCTS, CABLES, ETC.

1. Manufacturer: Fosroc Limited, Drayton Manor Business Park, Coleshill Road, Tamworth, Staffordshire, B78 3XN
 - Product reference: Proofex Top Hats
 - Sealing: Fully bond to penetrations and sheeting with Proofex Total Tape seal with Nitoseal MS60

2. Sealing:
3. Completed junctions: Impervious.

J42 SINGLE LAYER POLYMERIC SHEET ROOF COVERINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF ROOF COVERING

110A WARM DECK ROOF COVERING

1. Description: Mechanically attached
2. Substrate: T&G board decking as section K11/ 585
 - Preparation: Not required
3. Roof covering system:
 - Manufacturer: Sika-Trocac, Sika Ltd, Watchmead, Welwyn Garden City, Herts, AL7 1BQ
 - Lower protection layer (loose laid): Not required
 - Vapour control layer: Polyethylene sheet as clause 395A
 - Insulation: RUF roofboard as clause 420A or 420B
 - Separating layer (loose laid): Not required
 - Waterproof membrane: Sika-Trocac S vapour permeable homogenised plasticised PVC roofing membrane
 - o Width: 2000 mm
 - o Thickness: 2.0 mm
 - o Colour: Slate grey
 - o Attachment: Mechanically attached as clauses 355A and 710A
 - Upper protection layer (loose laid):
 - As clause 380A, where small plant bases, feet or individual paving slabs supporting equipment are located on exposed waterproof membrane
 - Size: 50 mm larger all round than item located on waterproof membrane
 - Laying: Lay PVC face down and weld by minimum 30mm. Seal all edges with even bead of liquid PVC
4. Surface protection: Membrane walkway(s) as clause 485A
5. Accessories:
 - Rainwater outlets as clause R10/365B
 - Pre-formed edge trims, angles, flashings and upstands as clause 770A
 - Fixings as clause 355A
 - Roof penetration upstands as section P31/ 315
 - Roof penetration boxes as section P31/ 317

130A COLD DECK ROOF COVERING

1. Description: Mechanically attached
2. Substrate: Plywood roof decking as section K11/515A
 - Preparation: Not required
3. Roof covering system:
 - Manufacturer: Sika-Trocac, Sika Ltd, Watchmead, Welwyn Garden City, Herts, AL7 1BQ
 - Lower protection layer (loose laid): Sika-Trocac Type P polyester fleece
 - Waterproof membrane: Sika-Trocac S vapour permeable homogenised plasticised PVC roofing membrane

- o Width: 2000 mm
- o Thickness: 2.0 mm
- o Colour: Slate grey upper surface
- o Attachment: Mechanically attached as clauses 355A and 710A
- Separating/ Upper protection layer (loose laid):
 - As clause 380A, where small plant bases, feet or individual paving slabs supporting equipment are located on exposed waterproof membrane
 - Size: 50 mm larger all round than item located on waterproof membrane
 - Laying: Lay PVC face down and weld by minimum 30mm. Seal all edges with even bead of liquid PVC
- 4. Surface protection: Not required
- 5. Accessories:
 - Pre-formed edge trims, angles, flashings and upstands as clause 770A
 - Fixings as clause 355A
 - Rainwater outlets as clause R10/365B

PERFORMANCE

205A COMPLETION OF DESIGN OF ROOF COVERINGS

1. Description: Detailed design
2. Requirement:
 - Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
 - Determine sizes, spacings and locations of fixings.
3. Additional requirements: Responsibility for co-ordination at design interfaces
4. Design and production information: Detail drawings showing fixings, joint details, design interfaces etc
5. Timing of submissions: Within two weeks of request but not less than 8 weeks before programmed commencement of work on site

210 ROOF PERFORMANCE

1. Roof covering: Secure, free draining and weathertight.

225 AVOIDANCE OF INTERSTITIAL CONDENSATION: WARM AND INVERTED ROOFS

1. Interstitial condensation within roof construction: Determine risk as recommended in BS 5250 and BS EN ISO 13788.
2. Air and vapour control layer: If necessary, provide a suitable membrane so that damage and nuisance from interstitial condensation do not occur.

240 FIRE PERFORMANCE

1. Classification: Roof(t4) in accordance with BS EN 13501-5

GENERAL REQUIREMENTS

260A APPROVED FIRMS

1. Requirement: The work specified in this section: together with any associated steel profiled sheet decking specified in section G30 is to be carried out by one of the following roofing contractors holding a current licence issued by waterproof membrane manufacturer:
 - Robertson Roofing Ltd, Smith Lane Farm, Smith Lane, Mobberley, Cheshire, WA16 7QE
 - Roofclad Systems, Penshaw Way, Portobello Industrial Estate, Birtley, Tyne & Wear, DH3 2SA

- SIAC Construction Ltd, Bond's Mill, The Counting House, Stonehouse, Gloucestershire, GL10 3RP
2. Operatives: Operatives involved in laying membrane to demonstrate evidence of training by possession of a photo-identocard issued by waterproof membrane manufacturer confirming attendance at manufacturer's training course held at the Construction Industry Training Board, Welwyn Garden City (accreditation number ZZRF/ 18198).

270 WORKING DRAWINGS

1. Working drawings: Submit for appraisal by CA not less than 4 weeks before commencing work on site.

PRODUCTS

330A TIMBER TRIMS, ETC

1. Quality: Planed. Free from wane, pitch pockets, decay and insect attack except ambrosia beetle damage.
2. Moisture content at time of covering (maximum): 22%.
3. Preservative treatment: To BWPDA Commodity Specification C8. If treated timber is in direct contact with membrane use aqueous, salt based preservative.

340A PREFORMED SLEEVES

1. Type: 0.8 mm thick factory bonded Sika-Trocal S roofing membrane/ 0.6 mm galvanised steel sheet laminate
2. Manufacturer: As waterproof membrane
 - Product reference: Laminated metal cut and formed to required profile using press brake machinery
3. Colour: Slate grey upper surface

345A PERIMETER TRIMS

1. Type: 0.8 mm thick factory bonded Sika-Trocal S roofing membrane/ 0.6 mm galvanised steel sheet laminate
2. Manufacturer: As waterproof membrane
 - Product reference: Laminated metal cut and formed to the required profile using press brake machinery
3. Colour: Slate grey upper surface
4. Size: As shown on drawing(s)

355A MECHANICAL FASTENERS, WASHERS, PRESSURE PLATES, ETC

1. Type: Complying with the current edition of the British Board of Agreement MOAT 55, "UEAtc Supplementary guide for the assessment of mechanically fastened roof waterproofing for Class 2 point fasteners"
 - Material: Case hardened carbon steel
2. Manufacturer: As waterproof membrane
 - Product reference: Sika Trocal Fastening System comprising S3 disc, SF-TLP Tube and SF-RS-5.8 fastener

360 PLYWOOD OVERLAY TO METAL DECK

1. Standard: To BS EN 636, section 9 (plywood for use in exterior conditions)
 - Quality: Naturally durable timber, free from preservatives.
2. Thickness: 18 mm

380A PROTECTION LAYER

1. Type: Polyester fleece/ PVC protection layer
2. Manufacturer: As waterproof membrane
 - Product reference: Sika-Trocac SBv PVC skinned polyester fleece
3. Thickness: 1.7 mm
4. Laying: 50 mm side and end laps sealed with even bead of liquid PVC with free edges turned up at perimeters and terminating at, or slightly below ballast and secured by two rows of liquid PVC.

395A AIR AND VAPOUR CONTROL LAYER

1. Description: Loose laid
2. Type: Polyethylene sheet
3. Manufacturer: As roof membrane
 - Product reference: Sika-Trocac Sarnavap 500E
4. Thickness: 0.15 mm
5. Vapour resistance: 450 MN s/ g

420A RIGID URETHANE FOAM WARM DECK ROOF INSULATION

1. Manufacturer: Kingspan Insulation Ltd, Pembridge, Leominster, Herefordshire, HR6 9LA
 - Product reference: Therमारoof TR26 CFC-free rigid urethane insulation board with foil facings both sides
2. Standard: Rigid polyisocyanurate foam (PIR) roofboard to BS 4841-3
3. Grade: 32 kg/ m³
4. Edges: Square
5. Thickness: 140 mm generally but reduced by 40 mm at gutters
6. Facing: Foil

420B RIGID URETHANE FOAM WARM DECK ROOF INSULATION

1. Manufacturer: Kingspan Insulation Ltd, Pembridge, Leominster, Herefordshire, HR6 9LA
 - Product reference: Thermataper TT46 CFC-free rigid urethane insulation board with foil facings both sides
2. Standard: Rigid polyisocyanurate foam (PIR) roofboard to BS 4841-3
3. Grade: 32 kg/ m³
4. Edges: Square
5. Thickness: Minimum 125 mm generally but reduced to 40 mm at gutters
6. Facing: Foil

485A MEMBRANE WALKWAY

1. Manufacturer/ Supplier: As roof membrane.
 - Product reference: Sika-Trocac WBP20 overlay
2. Width: 1000 mm
3. Thickness: 2.0 mm
4. Colour: Slate grey
5. Finish: Pyramidically embossed
6. Reinforcement: Mechanically fixed 0.9 mm thick galvanised steel plate sandwiched between insulation and waterproof membrane, set back from edges of the walkway material by 50 mm and wrapped in Sika-Trocac Type P polyester fleece turned under edges of plate by 150 mm

EXECUTION GENERALLY

505 QUALITY OF WORK

1. General: Handle, store and neatly lay the waterproof membrane, ancillary products and accessories in accordance with membrane manufacturer's Application Manual and the recommendations of the respective manufacturer(s), to make the whole sound and watertight at the earliest opportunity.

510 ADVERSE WEATHER

1. General: Do not lay membrane at temperatures below 5°C or in wet or damp conditions unless effective temporary cover is provided over working area.
2. Unfinished areas of roof: Keep dry and protect edges of laid membrane from wind action.

520 INCOMPLETE WORK

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

SUBSTRATES/ AIR AND VAPOUR CONTROL LAYERS/ WARM DECK ROOF INSULATION

610 SUITABILITY OF SUBSTRATES

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

640 FIXING TIMBER TRIMS

1. Fasteners: Sherardised steel screws
2. Fixing centres (maximum): 600 mm

650 LAYING METAL DECK OVERLAY

1. Setting out: Lay boards with staggered joints and long edges at right angles to troughs in deck.
 - Joints: 1 mm per metre panel size
 - End joints: Centre over crown of deck.
2. Fasteners
 - Type: As fastener manufacturer's recommendations
 - Fixing: One fastener per crown along each long edge and longitudinal centre line of board, and at 600 mm centres along each end edge
 - Fastener heads: Flush with, or below board surface.

660 JOINTS IN RIGID BOARD SUBSTRATES

1. Cover strip: Lay centrally over substrate joints before laying air and vapour control layers or coverings. Adhere to substrate with bonding compound along edges only.

670A LAYING AIR AND VAPOUR CONTROL LAYER

1. Laying: Loose laid, flat and smooth

2. Side and head laps: 50 mm and 75 mm respectively. Seal using materials and method as membrane manufacturer's/ supplier's recommendations
3. Upstands, kerbs and other penetrations: Enclose edges of insulation. Fully seal at abutment by bonding or taping.

680A LAYING WARM DECK ROOF INSULATION

1. Setting out:
 - Long edges: Fully supported and running at right angles to: longitudinal direction of ply roof decking
 - End edges: Adequately supported.
 - Joints: Butted together.
 - End joints: Staggered.
2. Attachment: Mechanically fastened in accordance with the manufacturer's instructions and local wind uplift requirements
3. Mechanical fixing: Secured with appropriate thermally broken screws and suitable pressure plates. Fastener layout as per manufacturer's guidelines and local wind uplift requirements
4. Completion: Boards must be in good condition, well fitting and secure.

WATERPROOF MEMBRANES/ ACCESSORIES

710A MECHANICAL FIXING OF WATERPROOF MEMBRANE

1. Setting out:
 - Perpendicular to deck direction
 - As required by disc pattern and mechanically fixed to structural deck in accordance with BS 6399-2
2. Laying: Loose, do not wrinkle or stretch.
3. Installing fasteners:
 - Use manufacturer's/ supplier's recommended methods and equipment.
 - Insertion: Correct and consistent.
4. Discs:
 - Sika-Trocal membrane laminated steel anchoring discs specially fabricated to match selected fastener and mechanically fixed as recommended by fastener manufacturer.
 - Distance from fixed edge (minimum): 10 mm.
 - Fixing: Flush with membrane.
5. Sheet overlaps: Extend beyond washers/ pressure plates by minimum: 50 mm and seal with even bead of liquid PVC
6. Surface condition at completion: Fully sealed, smooth, weatherproof and free draining.

730A WELDED JOINTING OF WATERPROOF MEMBRANE

1. Side and end joints:
 - Laps (minimum): 50 mm
 - Preparation: Clean and dry surfaces beyond full width of joint.
 - Sealing: Weld together.
2. Seam sealant: Even bead of liquid PVC
3. Condition at completion: Fully sealed, smooth, weatherproof and free draining.

760A PERIMETER OF MEMBRANE

1. General: Secure membrane at roof edge conditions, changes of plane, kerb flashings, upstands to rooflights, etc. with mechanical fasteners.

770A PERIMETER DETAILS FOR THERMOPLASTIC MEMBRANES

1. Upstands, edge trims, drips, kerbs, etc:
 - Form from Sika-Trocal membrane laminated metal flashings to all perimeters and changes of direction or plane secured to roof structure with mechanical fasteners.
 - Form exposed vertical upstands 150-900 mm high using Sika-Trocal membrane laminated metal or, at Contractor's choice, Sika-Trocal SG glass fibre reinforced PVC membrane welded to base metal flashing, top edge trim and Sika-Trocal membrane laminated steel anchoring discs.
 - Form curved exposed vertical upstands using Sika-Trocal SG glass fibre reinforced PVC membrane welded to base metal flashing, top edge trim and Sika-Trocal membrane laminated steel anchoring discs.
2. Roof membrane:
 - Join lengths of flashings incorporating 20 mm expansion gap using 'butt' strap of waterproof membrane with minimum 50 mm overlap and welded to each side with at least a 30mm overlap past any fixing.
 - Terminate in horizontal plane immediately adjacent to change in direction.
 - Sealing: Weld together and seal joint with Sika-Trocal PVC.

780A ROOF PENETRATIONS THROUGH THERMOPLASTIC MEMBRANES

1. Roof membrane: Cut around penetrations and secure to deck.
2. Flanged sleeve:
 - Type: Form with base flange from membrane laminated metal or rigid PVC
 - Installation: Dress over and around penetration and securely fasten to deck.
 - Roof membrane overlap to flange (minimum): 50 mm and 30 mm beyond fasteners.
 - Sealing: Weld membrane to base flange and seal with even bead of liquid PVC.
 - Protection to top edge of sleeve: Flashing or weathering cravat fixed to penetration.

787 PRE-FORMED CORNERS

1. Type: Pre-formed corner pieces.
2. Manufacturer: As waterproof membrane
 - Product reference: Sika-Trocal pre-formed internal and external corner pieces manufactured in type to suit membrane type and colours used

SURFACING

850A LAYING MEMBRANE WALKWAYS

1. Attachment: All edges continuously welded, minimum width 30 mm, with cross welds every 500 mm and sealed with even bead of liquid PVC

COMPLETION

910 INSPECTION

1. Interim and final roof inspections: Submit reports.

920A ELECTRONIC ROOF INTEGRITY TEST

1. Testing authority: Roofing contractor
2. Timing of test: Prior to, and on completion of access by other trades
3. Condition of roof prior to testing:
 - Waterproof membrane complete to a stage where integrity can be tested.
 - Surface: Clean.

4. Test results and warranty: Submit on completion of testing.

940 COMPLETION

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

950A GUARANTEE

1. Obtain, on behalf of building owner, product guarantee of 20 years duration from date of Completion of Contract from waterproof membrane manufacturer and furthermore, obtain installer's warranty that installation has been carried out such that the roofing shall remain watertight, if maintained in accordance with waterproof membrane manufacturer's maintenance recommendations, for minimum 20 years from date of Completion of Contract.

K10 PLASTERBOARD DRY LININGS/ PARTITIONS/ CEILINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF DRY LINING

127 METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall Single Frame Enhanced metal stud partition (manufacturer's system ref Q606049 (EN) for partitions up to 4200 mm high)
4. Nominal thickness (including linings): 102 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS EN 1364-1:1999:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
6. Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: R_w42dB (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70I50 I studs at max 600 mm centres with 70 mm Gypframe ref 70S50 C studs at abutments, openings and junctions, to partitions up to 4200 mm high
8. Floor channel: Gypframe ref 72DC50 deep flange channel to partitions up to 4700 mm high.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head.
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing 'T': Gypframe ref GFT1 fixing 'T' to support horizontal joint in single layer board linings where lining height exceeds maximum manufactured board length.
11. Insulation: Not required
 - Recycled content: Manufacturer's standard
 - Thickness: Not applicable
12. Resilient layer: Not required
13. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, each side of framing full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws (25 mm British Gypsum Jack-Point screws where fixing to metal components 0.9 mm thick or greater)
14. Acoustic sealant: As clause 515.
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
16. Other requirements:

- 18 mm plywood pattresses as clause K11/ 815A both sides of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates
- Firestopping/ acoustic sealing around services as section P12

128A MEDIUM GRADE ACOUSTICALLY IMPROVED METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall Single Frame Enhanced metal stud partition (manufacturer's system ref Q606049 (EN) for partitions up to 4200 mm high)
4. Nominal thickness (including linings): 102 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS EN 1364-1:1999:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
6. Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: R_w48dB (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70AS50 AcouStud C studs at max 600 mm centres with 70 mm Gypframe ref 70S50 C studs at abutments, openings and junctions, to partitions up to 4000 mm high
8. Floor channel: Gypframe ref 72DC50 deep flange channel to partitions up to 4700 mm high.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head.
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing 'T': Gypframe ref GFT1 fixing 'T' to support horizontal joint in single layer board linings where lining height exceeds maximum manufactured board length.
11. Insulation: Glass mineral wool to BS EN 13162
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Isover Acoustic Partition Roll (APR 1200)
 - Recycled content: Up to 86%
 - Thickness: 25 mm
12. Resilient layer: Not required
13. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, each side of framing full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws (25 mm British Gypsum Jack-Point screws where fixing to metal components 0.9 mm thick or greater)
14. Acoustic sealant: As clause 515.
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
16. Other requirements:
 - 18 mm plywood pattresses as clause K11/ 815A both sides of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates

- Firestopping/ acoustic sealing around services as section P12

129C HIGH GRADE ACOUSTICALLY IMPROVED METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition
4. Nominal thickness (including linings): 132 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS EN 1364-1:1999:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
6. Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: $R_w58\text{dB}$ (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70AS50 AcouStud C studs at max 600 mm centres (max 400 mm centres to partitions to receive ceramic wall tiling) with 70 mm Gypframe ref 70S50 C studs at abutments, openings and junctions, to partitions up to 5000 mm high.
8. Floor channel: Gypframe ref 72DC50 deep flange channel to partitions up to 5500 mm high.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head.
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing strap: Gypframe ref GFS1 fixing strap to support horizontal joint in face layer of double layer board linings where lining height exceeds maximum manufactured board length.
11. Insulation: Glass mineral wool to BS EN 13162
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Isover Acoustic Partition Roll (APR 1200)
 - Recycled content: Up to 86%
 - Thickness: 25 mm
12. Resilient layer: Not required
13. Linings: Inner layer 15 mm thick tapered edge gypsum board as clause 409A, sheet width 1200 mm, and outer layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, each side of framing full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 40 mm British Gypsum Drywall screws for fixing outer layer of board (25 and 41 mm British Gypsum Jack-Point screws respectively where fixing to metal components 0.9 mm thick or greater)
14. Acoustic sealant: As clause 515.
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
16. Other requirements:
 - 18 mm plywood pattresses as clause K11/ 815A both sides of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates

- Firestopping/ acoustic sealing around services as section P12

129E EXTRA HIGH GRADE ACOUSTICALLY IMPROVED METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall QUIET SF metal stud partition
4. Nominal thickness (including linings): 147 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS EN 1364-1:1999:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
6. Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: R_w62dB (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70S50 C studs at max 600 mm centres and at abutments, openings and junctions, to partitions up to 4200 mm high.
8. Floor channel: Gypframe ref 72FEC50 channel.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head.
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing strap: Gypframe ref GFS1 fixing strap to support horizontal joint in face layer of double layer board linings where lining height exceeds maximum manufactured board length.
11. Insulation: Glass mineral wool to BS EN 13162
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Isover Acoustic Partition Roll (APR 1200)
 - Recycled content: Up to 86%
 - Thickness: 50 mm
12. Resilient layer: Gypframe ref RB1 resilient bars fixed horizontally across metal studs at 600 mm centres on one side of framing (max 400 mm centres to partitions to receive ceramic wall tiling)
13. Linings: Two layers 15 mm thick tapered edge gypsum board as clause 409A, sheet width 1200 mm, each side of framing full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 40 mm British Gypsum Drywall screws for fixing outer layer of board (25 and 41 mm British Gypsum Jack-Point screws respectively where fixing to metal components 0.9 mm thick or greater)
14. Acoustic sealant: As clause 515.
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories:
 - Gypframe ref GA4 steel angle bedded on continuous bead of Gyproc sealant and fixed to soffit at 600 mm centres each side of partition against linings
 - Metal beads/ stops recommended by board manufacturer

16. Other requirements:

- 18 mm plywood pattresses as clause K11/ 815A to one side of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates/ 12 mm plywood pattresses to one side of partition to 2400 mm affl secured to resilient bars
- Firestopping/ acoustic sealing around services as section P12

131 RADIATION SHIELDING METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition
4. Nominal thickness (including linings): 117 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS 476-20 and -22:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
6. Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Estimated R_w 48dB (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70S50 C studs at max 600 mm centres and at abutments, openings and junctions, to partitions 4000 mm high
8. Floor channel:
 - Gypframe ref 72DC50 deep flange channel to partitions up to 4700 mm high.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing strap: Gypframe ref GFS1 fixing strap to support horizontal joint in face layer of double layer board linings where lining height exceeds maximum manufactured board length
11. Insulation: Not required
 - Thickness: Not applicable
12. Resilient layer: Not required
13. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, to non-X-ray side of framing and inner layer 12.5 mm thick square edge plasterboard with 1.8 mm thick (Code 4) lead sheet backing as clause 413, sheet width 600 mm, and outer layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200mm, to X-ray side of framing, full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 40 mm British Gypsum Drywall screws for fixing outer layer of board (25 and 41 mm British Gypsum Jack-Point screws respectively where fixing to metal components 0.9 mm thick or greater)
14. Acoustic sealant: As clause 515
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
16. Other requirements:

- X-ray resisting face of metal studs to be faced with 1.8 mm thick (Code 4) lead tape (50 mm wide generally but 150 mm wide to internal/external corners) in order to provide continuity of X-ray resistance between adjacent sheets of X-ray resisting plasterboard
- 18 mm plywood pattresses as clause K11/ 815A both sides of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates
- Firestopping/ acoustic sealing around services as section P12

132 MEDIUM GRADE ACOUSTICALLY IMPROVED RADIATION SHIELDING METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition
4. Nominal thickness (including linings): 117 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS 476-20 and -22:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
6. Airborne sound insulation
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Estimated R_w 52dB (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70S50 C studs at max 600 mm centres and at abutments, openings and junctions, to partitions 4000 mm high
8. Floor channel:
 - Gypframe ref 72DC50 deep flange channel to partitions up to 4700 mm high.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing strap: Gypframe ref GFS1 fixing strap to support horizontal joint in face layer of double layer board linings where lining height exceeds maximum manufactured board length
11. Insulation: Glass mineral wool to BS EN 13162
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Isover Acoustic Partition Roll (APR 1200)
 - Recycled content: Up to 86%
 - Thickness: 50 mm
12. Resilient layer: Not required
13. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, to non-X-ray side of framing and inner layer 12.5 mm thick square edge plasterboard with 1.8 mm thick (Code 4) lead sheet backing as clause 413, sheet width 600 mm, and outer layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200mm, to X-ray side of framing, full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 40 mm British Gypsum Drywall screws for fixing outer layer of board (25 and 41 mm British Gypsum Jack-Point screws respectively where fixing to metal components 0.9 mm thick or greater)

14. Acoustic sealant: As clause 515.
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
16. Other requirements:
 - X-ray resisting face of metal studs to be faced with 1.8 mm thick (Code 4) lead tape (50 mm wide generally but 150 mm wide to internal/external corners) in order to provide continuity of X-ray resistance between adjacent sheets of X-ray resisting plasterboard
 - 18 mm plywood pattresses as clause K11/ 815A both sides of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates
 - Firestopping/ acoustic sealing around services as section P12

133 HIGH GRADE ACOUSTICALLY IMPROVED RADIATION SHIELDING METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition
4. Nominal thickness (including linings): 132 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Fire resistance of complete partition assembly to BS 476-20 and -22:
 - Integrity/ insulation: As shown on F32abric/ Finishes layout drawing(s)
6. Airborne sound insulation:
 - Laboratory measurement of complete partition assembly:
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Estimated R_w 58dB (100 - 3150 Hz)
7. Studs: 70 mm Gypframe ref 70S60 C studs at max 600 mm centres and at abutments, openings and junctions, to partitions 4000 mm high
8. Floor channel:
 - Gypframe ref 72DC50 deep flange channel to partitions up to 4700 mm high.
9. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head.
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
10. Fixing strap: Gypframe ref GFS1 fixing strap to support horizontal joint in face layer of double layer board linings where lining height exceeds maximum manufactured board length.
11. Insulation: Glass mineral wool to BS EN 13162
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Isover Acoustic Partition Roll (APR 1200)
 - Recycled content: Up to 86%
 - Thickness: 50 mm
12. Resilient layer: Not required
13. Linings: Inner layer 15 mm thick tapered edge gypsum board as clause 409A, sheet width 1200 mm, and outer layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, to non-X-ray side of framing and inner layer 12.5 mm thick square edge plasterboard with 1.8 mm thick (Code 4) lead sheet backing as clause 413, sheet width 600 mm, and outer layer 15 mm thick tapered edge glass fibre reinforced gypsum

board as clause 408A, sheet width 1200mm, to X-ray side of framing, full height to structural soffit level (allowing for deflection where specified)

- Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 40 mm British Gypsum Drywall screws for fixing outer layer of board (25 and 41 mm British Gypsum Jack-Point screws respectively where fixing to metal components 0.9 mm thick or greater)
14. Acoustic sealant: As clause 515.
15. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
- Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
16. Other requirements:
- X-ray resisting face of metal studs to be faced with 1.8 mm thick (Code 4) lead tape (50 mm wide generally but 150 mm wide to internal/external corners) in order to provide continuity of X-ray resistance between adjacent sheets of X-ray resisting plasterboard
 - 18 mm plywood pattresses as clause K11/ 815A both sides of partition to 2400 mm affl secured to metal studs using Gyproc Service Support Plates
 - Firestopping/ acoustic sealing around services as section P12

138 CROSS-CORRIDOR METAL STUD PARTITION SYSTEM BOARDED FULL HEIGHT ALLOWING UNINTERRUPTED PENETRATION OF M&E SERVICES

1. Locations: Where shown on Fabric/ Finishes layout drawing(s)
2. Manufacturer: voestalpine Metsec plc, Broadwell Road, Oldbury, West Midlands, B69 4HE
 - Product reference: Metsec Steel Framing System
3. Nominal thickness (including linings): 124 mm
4. Fire resistance of complete partition assembly to BS EN 1364-1:1999:
 - Integrity/ insulation: As shown on Fabric/ Finishes layout drawing(s)
5. Airborne sound insulation
 - Weighted sound reduction index R_w (minimum) to BS EN ISO 717-1: Estimated R_w 42dB (100 - 3150 Hz)
6. Studs:
 - Primary framing: 94 mm Metsec ref 090M20-75 C studs
 - Secondary framing: 90 mm Metsec ref 090M12-50 C studs
7. Floor channel: Metsec ref 094M12-40 channel
8. Head channel: Metsec ref 094M16-70 slotted head channel
9. Intermediate primary channels: Metsec ref 094M20-70 channels
10. Head condition
 - Composite slab
 - Deflection allowance: Up to 20 mm as shown on detail drawing
11. Fixing 'T': Gypframe ref GFT1 fixing 'T' to support horizontal joint in single layer board linings where lining height exceeds maximum manufactured board length
12. Insulation: Not required
 - Manufacturer: Not applicable
 - Product reference: Not applicable
 - Recycled content: Not applicable
 - Thickness: Not applicable

13. Resilient layer: Not required
14. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, each side of framing full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590A
 - Screws: 25 mm British Gypsum Jack-Point screws
15. Acoustic sealant: As clause 515
16. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
17. Other requirements:
 - 40 x 2 mm Metsec ref 40vB11 bracing straps mid-height each side of partition framing between primary studs and secondary studs at abutments with corridor side partitions
 - Firestopping/ acoustic sealing around services as section P12

146 SINGLE SIDED METAL STUD PARTITION SYSTEM

1. Description: Part boarded
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition
4. Nominal thickness (including linings): As shown on Fabric/ Finishes layout drawing(s)
5. Studs: 70 mm Gypframe ref 70S50 C studs (87 mm and 164 mm + deep box-outs)/ 92 mm Gypframe ref 92S50 studs (109 mm deep box-outs)/ 146 mm Gypframe ref 146S50 C studs (163 mm deep box-outs) at max 600 mm centres and at abutments, openings and junctions, formed on face of primary masonry wall/ plasterboard/ metal stud partition with metal framing plugged and screwed to masonry/ screw fixed through plasterboard to metal framing within plasterboard/ metal stud partition, to partitions 4000-4400 mm high.
6. Floor channel: Gypframe ref 72DC50/ 94DC50/ 146DC50 deep flange channel to suit studs, to partitions up to 4700 mm high.
7. Head channel: As floor channel except where otherwise specified on detail drawing(s) to partitions incorporating a deflection head.
 - Head condition: Composite slab
 - Deflection allowance: Up to 25 mm as shown on detail drawing
8. Nogging to support top edges of boarding: Gypframe ref 99FC50 fixing channel.
9. Insulation: Not required
 - Recycled content: Manufacturer's standard
 - Thickness: Not applicable
10. Resilient layer: Not required
11. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, to 100 mm above suspended ceiling level one side of partition
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws (25 mm British Gypsum Jack-Point screws where fixing to metal components 0.9 mm thick or greater)
12. Acoustic sealant: As clause 515.
13. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled

- Primer/ Sealer: Not required
- Accessories: Metal beads/ stops recommended by board manufacturer

14. Other requirements:

- Restrain each stud to substrate at max 1200 mm centres in accordance with system manufacturer's recommendations
- Firestopping/ acoustic sealing around services as section P12

147 METAL STUD PARTITION SYSTEM

1. Description: Suspended from structural soffit as cavity barrier within suspended ceiling void
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition
4. Nominal thickness (including linings): 102 mm
5. Fire resistance of complete partition assembly to BS 476-20 and -22:
 - Integrity/ insulation: 30/ 15
6. Studs: 70 mm Gypframe ref 70S50 C studs at max 600 mm centres and at abutments, openings and junctions.
7. Bottom channel: Gypframe ref 72DC50 deep flange channel.
8. Head channel: As bottom channel.
 - Head condition: Composite slab
9. Insulation: Not required
 - Recycled content: Manufacturer's standard
 - Thickness: Not applicable
10. Resilient layer: Not required
11. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, each side of framing
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws
12. Acoustic sealant: As clause 515.
13. Finishing: Joints taped and filled
 - Primer/ Sealer: Not required
 - Accessories: None
14. Other requirements:
 - Terminate cavity barrier partition(s) within ceiling void(s) 150 mm above suspended ceiling level and infill gap with 50 mm galvanised wire mesh faced Rockwool Fire Barrier clamped between Rockwool support angle and Rockwool clamping plate with support angle tangs pushed through barrier at 450 mm centres and folded back on to face of slotted clamping plate. Fix support angle to underside of partition using ITW Buildex Ltd HT fixings. Lap Fire Barrier on to the top of suspended ceiling and wire to ceiling suspension system
 - Firestopping/ acoustic sealing around services as section P12

148 METAL STUD PARTITION SYSTEM

1. Description: Suspended from structural soffit as bulkhead at change of ceiling level
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall ROBUST metal stud partition

4. Nominal thickness (including linings): 102 mm generally but as shown on Fabric/ Finishes layout drawing(s) for twin frame partitions
5. Studs: 70 mm Gypframe ref 70S50 C studs at max 600 mm centres (max 400 mm centres to partitions to receive ceramic wall tiling) and at abutments, openings and junctions.
6. Bottom channel: Gypframe ref 72DC50 deep flange channel.
7. Head channel: As bottom channel.
 - Head condition: Composite slab
8. Insulation: Not required
 - Recycled content: Manufacturer's standard
 - Thickness: Not applicable
9. Resilient layer: Not required
10. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, each side of and to soffit of framing to 100 mm above highest adjacent suspended ceiling level
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws
11. Acoustic sealant: As clause 515.
12. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
13. Other requirements: None

150 METAL STUD PARTITION SYSTEM

1. Description: Suspended from structural soffit as lining to circular opening beneath rooflight
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypWall metal stud partition
4. Nominal thickness (including linings): 96 mm
5. Studs: 70 mm Gypframe ref 70S50 C studs at max 300 mm radial centres fixed to top and bottom ply members using Gypframe ref MF12 soffit cleats.
6. Bottom member: 70 mm wide x 25 mm thick circular exterior grade ply former cut to diameter of opening.
7. Head member: 70 mm wide x 25 mm thick circular exterior grade ply former cut to diameter of opening.
 - Head condition: Metal deck
8. Insulation: Not required
 - Recycled content: Manufacturer's standard
 - Thickness: Not applicable
9. Resilient layer: Not required
10. Linings: Two layers 6 mm thick square edge glass reinforced gypsum board as clause 411 full height to inner side of framing and to 100 mm above suspended ceiling level to outer side of framing, applied horizontally
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws
11. Finishing: Jointing as clause 675
 - Primer/ Sealer: 1 coat Gyproc Drywall Primer

- Accessories: None

12. Other requirements: None

151 60 MINS FIRE RESISTING SHAFTWALL METAL STUD PARTITION SYSTEM

1. Description: Boarded full height
2. Locations: Where shown on Fabric/ Finishes layout drawing(s)
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum ShaftWall system
4. Nominal thickness (including linings): 97 mm
5. Fire resistance of complete partition assembly to BS 476-20 and -22:
 - Integrity/ insulation: 60/ 60
6. Studs: 70 mm Gypframe ref 70I70 I studs at max 600 mm centres (max 300 mm centres to partitions to receive ceramic wall tiling) with 70 mm Gypframe ref 70SC70 starter channels at abutments, openings and junctions to partitions up to 4400 mm high
7. Floor channel: Gypframe ref 72FEC50 channel to ShaftWalls up to 4200 mm high
8. Head channel: Gypframe ref 72EDC80 extra deep flange channel
 - Head condition: 60 mins fire resisting plasterboard ceiling
 - Head deflection allowance: Up to 15 mm as shown on detail drawing
9. ShaftWall retaining channels: Gypframe ref G110 ShaftWall retaining channels
10. Angle: Gypframe ref GA3 angle to support top edge of lower core board at horizontal joint between core boards.
11. Fixing strap: Gypframe ref GFS1 fixing strap to support horizontal joint in face layer of double layer board linings where lining height exceeds maximum manufactured board length.
12. Core: Single layer 19 mm thick square edge gypsum board as clause 410A
 - Horizontal joints: Gypframe ref GA3 angle and 122 x 598 mm Gyproc Fire Stops.
13. Resilient layer: Not required
14. Linings: Two layers 12.5 mm thick tapered edge glass fibre reinforced gypsum board as clause 404A, sheet width 1200 mm, full height to structural soffit level (allowing for deflection where specified)
 - Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 35 mm British Gypsum Drywall screws for fixing outer layer of board (25 and 35 mm British Gypsum Jack-Point screws respectively where fixing to metal components 0.9 mm thick or greater)
15. Acoustic sealant: As clause 515.
16. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
17. Other requirements: Firestopping/ acoustic sealing around services as section P12

156 WALL LINING SYSTEM (METAL STUDS)

1. Locations: Where shown on Fabric/ Finishes layout drawing(s)
2. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypLyner IWL independent wall lining system
3. Studs: 70 mm Gypframe ref 70I70 I studs at max 600 mm centres (max 400 mm centres to linings to receive ceramic wall tiling) with 70 mm Gypframe ref 70S50 C studs at abutments, openings and junctions, to linings 3300-3900 mm high

4. Cavity between wall and studs: 10 mm
5. Unbraced height (maximum): 3900 mm
6. Floor channel: Gypframe ref 72FEC50 channel
7. Head channel: As floor channel except where otherwise specified on detail drawing(s) to linings incorporating a deflection head
 - Head condition: Underside of steel beam encasement
 - Deflection allowance: Up to 25 mm as shown on detail drawing
8. Fixing 'T': Gypframe ref GFT1 fixing 'T' to support horizontal joint in single layer board linings where lining height exceeds maximum manufactured board length.
9. Insulation: Glass mineral wool to BS EN 13162
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Isover Steel Frame Infill Batts (SF2)
 - Recycled content: Up to 86%
 - Thickness: 50 mm
10. Vapour control layer: As clause P10/310B
11. Resilient layer: Not required
12. Linings: Two layers 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, full height to structural soffit level
13. Fixing: As clause 590.
 - Screws: 25 mm British Gypsum Drywall screws (25 mm British Gypsum Jack-Point screws where fixing to metal components 0.9 mm thick or greater)
14. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by board manufacturer
15. Other requirements: Firestopping/ acoustic sealing around services as section P12

160 WALL LINING ON STEEL FRAMING SYSTEM

1. Framing: G10/ 150 steel framing system
2. Linings: Two layers 408A, sheet width 1200 mm, full height to structural soffit level
 - Fixing: as clause 590.
 - Screws: 25 mm British Gypsum Jack-Point screws for fixing single/ inner layer board and 41 mm British Gypsum Jack-Point screws for fixing second layer boarding to steel components up to 1.5 mm thick, 5.5 x 25 mm ITW Buildex Ltd ref CFC26 Bugle Head, Teks 3 screws to steel components up to 2.5 mm thick and 5.5 x 42 mm ITW Buildex Ltd ref TFL42, Teks 5 csk head screws to steel components 2.6-12.5 mm thick
3. Insulation: P10/ 190A semi-rigid unfaced mineral fibre slabs
4. Acoustic sealant: As clause 515.
5. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/sealer: Not required
6. Other requirements: Metal beads/ stops recommended by board manufacturer

186 WALL LINING SYSTEM (ADHESIVE)

1. Locations: Where shown on Fabric/ Finishes layout drawing(s)
2. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum DriLyner BASIC lining system
3. Wall: Concrete blockwork

4. Adhesive method: Dabs as clause 621
5. Linings: Single layer 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 408A, sheet width 1200 mm, full height to structural soffit level
6. Finishing: Skim coat plaster as clause 685 to nom 100 mm above suspended ceiling level with joints above taped and filled
 - Primer/ Sealer: Not required
 - Accessories: Metal beads/ stops recommended by the board manufacturer
7. Other requirements:
 - Drywall metal edge beads as clause 692 to stop ends at visible abutments with door and window frames
 - Where applicable, continuous fillet of adhesive to provide fixing for suspended ceiling shadow battens/ perimeter trims

221 PROPRIETARY NON-FIRE RESISTING SUSPENDED CEILING SYSTEM

1. Standard: To BS EN 13964.
2. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypCeiling MF concealed grid suspended ceiling system
4. Lining board: Single layer 12.5 mm thick tapered edge plasterboard as clause 401A, sheet size 1800 x 900 mm
 - Fixing: As clause 590A
 - Screws: 25 mm British Gypsum Drywall screws
 - Finishing: Skim coat plaster as clause 685
 - Accessories: Drywall metal edge beads as clause 692 to visible edges of linings where system incorporates shadow battens
5. Suspension system:
 - Grid centres:
 - o Primary grid centres: 1200 mm
 - o Secondary grid centres: 450 mm
 - Hangers: Gypframe ref MF8 strap hangers fixed to soffit with Gypframe ref MF12 soffit cleats
 - o Centres: 1200 mm
 - o Top fixing: To suit structural soffit of: composite slab
6. Insulation: Not required
 - Manufacturer: Not applicable
 - Product reference: Not applicable
 - Recycled content: Not applicable
 - Thickness: Not applicable
7. Access units: As clause 431
8. Integrated services fittings: Luminaires, air grilles, diffusers and other services terminals as shown on M & E Services Consultant's drawing(s)
9. Electrical continuity and earth bonding: Not required
10. Accessories/ Other requirements: Plasterboard lining to ceiling to room 0-066 to be overlaid with 18mm plywood

223 PROPRIETARY 60 MINS SUSPENDED CEILING SYSTEM

1. Standard: To BS EN 13964.
2. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
3. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum GypCeiling MF concealed grid suspended ceiling system (manufacturer's system ref G106040 (EN))
4. Fire performance:
 - Fire resistance of complete ceiling system: 60 mins fire resisting
5. Lining board: Two layers 15 mm thick tapered edge glass fibre reinforced gypsum board as clause 411, sheet size 2400 x 1200 mm, with board joints in second layer staggered relative to first layer
 - Fixing: As clause 590A
 - Screws: 25 mm British Gypsum Drywall screws for fixing inner layer of board and 40 mm British Gypsum Drywall screws for fixing outer layer of board
 - Finishing: Skim coat plaster as clause 685
 - Accessories: None
6. Suspension system:
 - Grid centres:
 - o Primary grid centres: 1200 mm
 - o Secondary grid centres: 600 mm
 - Hangers: Gypframe ref MF8 strap hangers fixed to soffit with Gypframe ref MF12 soffit cleats
 - o Centres: 1200 mm
 - o Top fixing: To suit structural soffit of: composite slab or timber joists as shown on detail drawings
7. Insulation: Rock mineral wool to BS EN 13162; density (minimum) 100 kg/m³
 - Manufacturer: Rockwool Ltd, Pencoed, Bridgend, CF35 6NY
 - Product reference: RW5 semi-rigid mineral wool slab
 - Recycled content: Manufacturer's standard
 - Thickness: 25 mm
8. Access units: As clause 431A
9. Integrated services fittings: Luminaires, air grilles, diffusers and other services terminals as shown on M & E Services Consultant's drawing(s)
10. Electrical continuity and earth bonding: Not required
11. Accessories/ Other requirements: None

265A ENCASMENT SYSTEM (FRAMELESS)

1. Description: To beams and columns
2. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: British Gypsum FireCase frameless structural steel encasement system
 - Fire protection of complete assembly to BS 476: Part 20 (550°C): 60 mins
 - A/V (HP/A)m-1 section factor: Up to 260
3. Support system: Sizes and spacings of intermediate backing strips/ noggings/ metal angles and fixings as recommended by board manufacturer.
4. Linings: Single layer 15 mm thick glass reinforced gypsum board as clause 412

- Fixing: As clauses 495, 496 and 499.
 - Screws: 40 mm British Gypsum Glasroc F FireCase screws
5. Finishing: Jointing to visible areas as clause 676
6. Other requirements:
- Insulation:
 - o Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - o Product reference: Isover Acoustic Partition Roll (APR 1200)
 - o Recycled content: Up to 86%
 - o Thickness:
 - Where weighted sound reduction index R_w (minimum) to BS EN ISO 717-1 of all abutting partitions is R_w42dB (100 - 3150 Hz) or less: Not required
 - Where weighted sound reduction index R_w (minimum) to BS EN ISO 717-1 of any abutting partition is $R_w43-50dB$ (100 - 3150 Hz): Fully fill space between flanges on both sides of structural steelwork
 - Where weighted sound reduction index R_w (minimum) to BS EN ISO 717-1 of any abutting partition is $R_w51-58dB$ (100 - 3150 Hz): Fully fill space between flanges on both sides of structural steelwork and over-board encasement with 1 layer 15 mm tapered edge gypsum board as clause 409A, sheet width 1200 mm

GENERAL/ PREPARATION

335A ADDITIONAL SUPPORTS

1. Framing: Accurately position and securely fix to give full support to:
 - Partition heads running parallel with, but offset from main structural supports.
 - Fixtures, fittings and service outlets. Where fixtures and fittings are located on reverse partition face to openings for pre-plumbed sanitary assemblies, avoid obstructing openings through use of Gypframe ref 99FC50 fixing channel(s). Mark framing positions clearly and accurately on linings.
 - Board edges and lining perimeters, as recommended by board manufacturer to suit type and performance of lining.

385 SERVICE PENETRATIONS

1. General: Ensure that fire resistance and other specified performance requirements are not impaired by service penetrations.
2. Services penetrations:
 - Form framed openings accurately for grouped services, ducts, etc allowing for associated fire barriers.
 - Provide firestop putty pads as clause P12/ 351 to recessed services outlets and switches to maintain fire and/ or acoustic rating of partitions.

395 CONTROL SAMPLES

1. General: Complete areas of finished work and obtain approval of appearance before proceeding.
2. Type of dry lining: Partition type K10/ 129C including structural opening for doorset and deflection head
 - Location/ Size: Submit proposals

COMPONENTS

400 RESPONSIBLE SOURCING OF CONSTRUCTION PRODUCTS

1. Required rating to BRE standard BES 6001: Framework Standard for Responsible Sourcing of Construction Products:
 - Plasterboards, glass reinforced specialist boards, plasters and metal products: Very good.

400A GYPSUM BOARDS GENERALLY

1. Standard:
 - Gypsum plasterboard to BS EN 520.
 - Gypsum fibre board to BS EN 15283-2.
 - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

401A GYPSUM PLASTERBOARD

1. Type: To BS EN 520, type A
2. Core density (minimum): 650 kg/m³.
3. Recycled content: Manufacturer's standard
4. Exposed surface and edge profiles: Suitable to receive specified finish
5. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Gyproc WallBoard

404A GYPSUM PLASTERBOARD (IMPROVED FIRE PROTECTION)

1. Type: To BS EN 520, type F
2. Core: Including fibres and/ or other additives for improved cohesion.
 - Density (minimum): 760-784 kg/m³.
3. Recycled content: Not applicable
4. Exposed surface and edge profiles: Suitable to receive specified finish
5. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Gyproc FireLine glass fibre reinforced gypsum board

408A GYPSUM PLASTERBOARD (IMPACT RESISTANT)

1. Type: To BS EN 520, types D, F, I and R
2. Core density (minimum): 885-908 kg/m³.
3. Paper facings: Heavy duty.
4. Recycled content: Manufacturer's standard
5. Exposed surface and edge profiles: Suitable to receive specified finish
6. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Gyproc DuraLine glass fibre reinforced gypsum board

409A GYPSUM PLASTERBOARD (IMPROVED SOUND INSULATION)

1. Type: To BS EN 520, type D
2. Core density (minimum): 820 kg/m³.
3. Recycled content: Manufacturer's standard
4. Exposed surface and edge profiles: Suitable to receive specified finish
5. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Gyproc SoundBloc gypsum board

410A GYPSUM PLASTERBOARD (IMPROVED SOUND INSULATION AND MOISTURE RESISTANT)

1. Type: To BS EN 520, type D, F and H1
2. Core: Moisture resistant.
 - Density (minimum): 820 kg/m³.
3. Paper facings: Moisture resistant.
4. Recycled content: Not applicable
5. Exposed surface and edge profiles: Suitable to receive specified finish
6. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Gyproc CoreBoard gypsum board

412 GYPSUM PLASTERBOARD (IMPROVED FIRE PROTECTION AND IMPACT RESISTANCE)

1. Type: To EN 15283-1, types GM-F and H2
2. Core: Including fibres and/ or other additives for improved cohesion.
 - Density (minimum): 800-900 kg/m³.
3. Recycled content: Manufacturer's standard
4. Exposed surface and edge profiles: Suitable to receive specified finish
5. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Glasroc F FireCase glass reinforced gypsum board

413 GYPSUM PLASTERBOARD (RADIATION SHIELDING)

1. Type: To BS EN 520, type A
2. Core density (minimum): 650 kg/m³.
3. Recycled content: Manufacturer's standard
4. Exposed surface and edge profiles: Clean and undamaged, square edged
5. Manufacturer:
 - Wardray Premise Ltd, Hampton Court Estate, Summer Road, Thames Ditton, Surrey, KT7 0SP, or;
 - Envirotec Ltd, Unit 7, Westbury Close, Townsend Industrial Estate, Houghton Regis, Dunstable, Bedfordshire, LU5 5BL, or;
 - Calder Industrial Materials Ltd, Jupiter Drive, Chester West Employment Park, Chester, CH1 4EX

431 CEILING ACCESS PANELS

1. Description: Non-fire resisting
2. Manufacturer: Profab Access Ltd, Units 45-48 Fourways, Carlyon Road Industrial Estate, Atherstone, Warwickshire, CV9 1LG
 - Product reference: Profab ref 1000/ NFR/ BF/ PD/ BL/ EWP hinged mild steel access panel
3. Type: Non-fire resisting
 - Sizes: As shown on ceiling layout drawing(s)
4. Frame: Bead for taping and jointing
5. Door: 12.5 mm plasterboard
6. Lock: Budget lock
7. Other requirements: Additional Gypframe ref FEA1 steel angle hangers at each corner of trimmed opening for panel

431A RWP RODDING ACCESS PANELS

1. Description: Non-fire resisting
2. Manufacturer: Artex Ltd, Pasture Lane, Ruddington, Nottingham, NG11 6AE
 - Product reference: Profilex standard hinged, non-fire resisting zinc coated mild steel access panel with beaded frame
3. Type: Non-fire resisting
 - Sizes: As shown on detail(s)
4. Frame: Bead for taping and jointing
5. Door: Metal; primed for site painting
6. Lock: Budget lock
7. Other requirements: None

431B ACCESS PANELS

1. Description: Fire resisting
2. Manufacturer: Profab Access Ltd, Units 45-48 Fourways, Carlyon Road Industrial Estate, Atherstone, Warwickshire, CV9 1LG
 - Product reference: Profab ref 7000/ 1FR/ BF/ PD/ BL/ SD/ EWP hinged, lockable mild steel access panel
3. Type: 60 mins fire resisting
 - Sizes: As shown on ceiling layout drawing(s)
4. Frame: Simulated edge bead for taping and jointing
5. Finish: Electro-galvanised, finished with factory applied white powder coated primer
6. Door: 12.5 mm Gyproc Fireline plasterboard, overlaid with 25mm fire rated mineral wool and foil sheet
7. Lock: Budget lock
8. Other requirements: Additional Gypframe ref FEA1 steel angle hangers at each corner of trimmed opening for panel

431C ACCESS PANELS

1. Description: Fire resisting
2. Manufacturer: Profab Access Ltd, Units 45-48 Fourways, Carlyon Road Industrial Estate, Atherstone, Warwickshire, CV9 1LG
 - Product reference: Profab ref 7000/ 1FR/ BF/ PD/ BL/ SD/ EWP hinged, lockable mild steel access panel
3. Type: 60 mins fire resisting
 - Sizes: As shown on ceiling layout drawing(s)
 - Fire performance:
 - o Fire resistance: 60 mins fire resisting
4. Frame: Simulated edge bead for taping and jointing
 - Finish: Electro-galvanised, finished with factory applied white powder coated primer
5. Panel: 12.5 mm Gyproc Fireline plasterboard, overlaid with 25mm fire rated mineral wool and foil sheet
6. Lock: Budget lock
7. Other requirements: Additional Gypframe ref FEA1 steel angle hangers at each corner of trimmed opening for panel

INSTALLATION

436 DRY LININGS GENERALLY

1. General:
 - Use fixing, jointing, sealing and finishing materials, components and installation methods recommended by board manufacturer.
 - Except where stated otherwise, comply with recommendations laid down in BS8212: 1995 "Code of practice for Dry lining and partitioning using gypsum plasterboard".
2. Do not use damaged boards.
3. Operatives: Properly trained for dry lining work and who have attended a recognised training scheme.
4. Accuracy: Set out and construct partitions so that deviations from stated setting out positions and tolerances in erected partition faces do not exceed the permissible deviations and tolerances laid down in BS 8212:1995, Section 3, clauses 3.3.2-3.3.3 and 3.3.5-3.3.7.
5. Environmental conditions:
 - Comply with recommendations laid down in BS8212: 1995, Section 5, clauses 5.2-5.3.
 - Prevent frost damage.
6. Cutting gypsum boards: Neatly and accurately without damaging core or tearing paper facing.
 - Cut edges: Minimise and position at internal angles wherever possible. Mask with bound edges of adjacent boards at external corners.
7. Fixings boards: Securely and firmly to suitably prepared and accurately levelled backgrounds. Set heads of fastenings in a depression; do not break paper or gypsum core.
8. Finishing: Neatly to give flush, smooth, flat surfaces free from bowing and abrupt changes of level.

445A CEILINGS

1. Sequence: Fix boards to dry lined walls and partitions before fixing to ceilings.
2. Orientation of boards: Fix with bound edges at right angles to supports and with ends staggered in adjacent rows.
3. Two layer boarding: Stagger joints between layers by not less than 600 mm.

455A METAL FRAMING FOR PARTITIONS/ WALL LININGS

1. Setting out: Accurately aligned and plumb.
 - Frame/ Stud positions: Equal centres to suit specified linings, maintaining sequence across openings. Where sequence would otherwise require the provision of a stud within the opening for a pre-plumbed sanitary assembly in order to ensure support to vertical board edges located on the reverse partition face, use vertical Gypframe ref 99FC90 fixing channel(s) to avoid obstructing opening.
 - Additional studs: To support vertical edges of boards.
2. Fixing centres at perimeters (maximum): 600 mm.
3. Twin frame partitions: Cross-brace between studs with horizontal bracing at 600 mm centres comprising short lengths of Gypframe stud or channel section twice screwed to studs at each end.
4. Fixing centres at perimeters (maximum):
 - Fix floor/head channels and perimeter abutment studs with a single row of fixings at 600 mm centres.
 - Fix 94 and 148 mm wide floor/head channels/ 92 and 146 mm perimeter abutment studs using two rows of staggered fixings, each at 600 mm centres and with each fixing 25 mm in from flange.

- Fix head channel to ShaftWall head channels at max 300 mm centres, incorporating 25 x 3 mm Gyproc FireStrip.
- 5. Splayed junctions: Form internal and external corners using Gypframe ref GA6 pre-formed splayed angles.
- 6. Openings:
 - Form accurately.
 - Framing assembly for doorsets:
 - o To achieve Severe (SD) strength grade requirements to BS 5234-1 and to adequately support weight of door.
 - o Form using sleeved metal studs incorporating continuous preservative treated sawn softwood inserts full height to structural soffit level to jambs and extra deep flange channel incorporating continuous full width inverted stud insert to head.
 - Services penetrations: Allow for associated fire stopping.

485 SUSPENDED CEILING GRIDS

1. Setting out: Accurately aligned and level.
 - Grid members and hangers: Centres to suit specified linings and imposed loads.
 - Additional grid members: Provide bracing and stiffening at upstands, partition heads, access hatches, etc.
2. Fixing: Securely at perimeters, grid joints, top and bottom hanger fixings.

495 FIXING K10/ 265A THREE SIDED BEAM CASING ON STEEL ANGLES

1. Framing:
 - Fix continuous lengths of Gypframe ref FEA1 Steel Angle to both sides of top flange or background using shot-fired or fire resistant fixings at 600 mm centres, ensuring face of angle is flush with edge of flange.
2. Boarding:
 - Lightly butt boards together.
 - Fix fascia boards to ref FEA1 Steel Angles using 40 mm Glasroc F FireCase screws at 150 mm centres.
 - Fix fascia boards to soffit boards using 40 mm Glasroc F FireCase screws/ 50 mm galvanised staples at 150 mm centres.
 - Back fascia board joints with 60 mm wide strip of glass reinforced gypsum board as clause 412 fixed through fascia boards using 40 mm Glasroc F FireCase screws/ staples at 150 mm centres.
 - Stagger board joints minimum 600 mm between adjacent sides.
 - Set screw heads in a depression.

496 FIXING K10/ 265A THREE SIDED BEAM CASING ON SOLDIERS

1. Boarding:
 - Push fit soldiers pre-cut from glass reinforced gypsum board as clause 412 between flanges to opposing sides of beam at 1200 mm centres generally but with two soldiers at fascia board joints, each flush with board end.
 - Butting boards lightly together, fix fascia boards to soldiers and soffit boards using 40 mm Glasroc F FireCase screws/ 50 mm galvanised staples at 150 mm centres setting screw heads/ staples in a depression.
 - Stagger board joints minimum 600 mm between adjacent sides.

499 FIXING K10/ 265A FOUR SIDED COLUMN CASING

1. Boarding:

- Butting boards lightly together, fix to each other on adjacent faces using 40 mm Glasroc F FireCase screws/ 50 mm galvanised staples at 150 mm centres setting screw heads/ staples in a depression.
- Stagger board joints minimum 600 mm between adjacent sides.

505 INSTALLING MINERAL WOOL INSULATION

1. Fitting insulation: Closely butted joints and no gaps. Use fasteners to prevent slumping or displacement.
2. Services
 - Electrical cables overlaid by insulation: Sized accordingly.
 - Ceilings: Cut insulation around electrical fittings, etc.

515 SEALING GAPS AND AIR PATHS

1. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Gyproc Sealant
2. Location of sealant: After installation of cut pieces of board forming any deflection heads, channels and perimeter studs and immediately prior to installation of boards, apply continuous bead of sealant to perimeter abutments and around openings.
 - Pressurised shafts and ducts: At board-to-board and board-to-metal frame junctions.
3. Application: To clean, dry and dust free surfaces as a continuous bead with no gaps.
 - Gaps greater than 6 mm between floor and underside of gypsum board: After sealing, fill with jointing compound.

535 CAVITY FIRE BARRIERS WITHIN PARTITIONS/ WALL LININGS

1. Metal framed systems:
 - Location: Horizontally at head of boarding to part boarded partitions.
 - Framing: Support top edges of boarding with noggings comprising Gypframe C stud with flanges uppermost and each end cut, fitted and screwed to studs.
 - Material: 50 mm Rockwool ProRox SL 920 mineral fibre insulation
 - Installation: Infill top of channel with insulation accurately cut and securely fitted with no gaps, to provide a complete barrier to smoke and flame.
2. Twin frame metal systems:
 - Location: Horizontally at head of boarding to part boarded partitions.
 - Framing: Support top edges of boarding with pairs of noggings comprising Gypframe C stud with flanges facing downwards and each end cut, fitted and screwed to studs.
 - Material: Minimum 12.5 mm thick plasterboard.
 - Installation: Close off top of partition cavity with material cut to a good fit and screw fixed to top of noggings across full width of partition with no gaps at joints and perimeters, to provide a complete barrier to smoke and flame.
3. Adhesive fixed wall lining systems:
 - Material: Adhesive compound.
 - Installation: Form in a continuous line with no gaps to provide a complete barrier to smoke and flame.

555 FIRE-STOPPING AT PERIMETERS OF DRY LINING SYSTEMS

1. Material: Tightly packed mineral wool or intumescent mastic/ sealant.
2. Application: To perimeter abutments to provide a complete barrier to smoke and flame.

560 JOINTS BETWEEN BOARDS

1. Tapered edged gypsum boards
 - Bound edges: Lightly butted.
 - Cut/ unbound edges: 3 mm gap.
2. Square edged plasterboards: 3 mm gap.
3. Square edged gypsum fibre boards: 5 mm gap.

565 VERTICAL JOINTS

1. Joints: Centre on studs.
 - Partitions: Stagger joints on opposite sides of studs.
 - Two layer boarding: Stagger joints between layers.

570A HORIZONTAL JOINTS

1. Surfaces exposed to view: Horizontal joints not permitted.
 - Exception: Where height of partition/ lining exceeds maximum manufactured length of board. Agree positions of joints.
2. Two layer boarding: Stagger joints between layers by at least 600 mm.
3. Edges of boards: Support using additional framing.
 - Two layer boarding: Support edges of outer layer.

590A FIXING GYPSUM BOARD TO METAL FRAMING/ FURRINGS

1. Partitions/ Wall linings: Fix securely and firmly at the following centres (maximum):
 - Single layer boarding: To all framing at 300 mm centres. Reduce to 200 mm centres at external angles.
 - Multi-layer boarding: Face layer at 300 mm centres, and previous layers around perimeters at 300 mm centres.
2. Ceilings: Fix securely and firmly at 230 mm centres. Reduce to 150 mm at board ends and at lining perimeters.
3. Position of screws from edges of boards (minimum): 10 mm from bound edges and 13 mm from cut edges.
 - Screw heads: Set in a depression. Do not break paper or gypsum core.

595 DEFLECTION HEADS

1. Fixing boards: Do not fix to head channels.

621 FIXING GYPSUM BOARD WITH ADHESIVE DABS

1. Setting out boards: Accurately aligned and plumb.
2. Fixing to substrates:
 - Securely using adhesive dabs.
 - Apply grid of adhesive dabs to achieve at least 20% contact with background for each board.
3. Adhesive dab spacings for each board:
 - Horizontally: One row along top edge and one continuous dab along bottom edge.
 - Vertically: One row along each edge and thereafter at intermediate spacings to suit size of board:
 - o Thickness (mm) Width (mm) Dab centres (mm)
 - o 9.5 1200 400
 - o 9.5/12.5 900 450

- o 12.5 1200 600
4. Adhesive dab dimensions (width x length): At least 50-75 mm x 250 mm.
 - Position of dabs from edges/ ends of boards (minimum): 25 mm.
 5. Temporary supports: Provide under bottom edge of boards until dabs have set.

FINISHING

650 LEVEL OF DRY LINING ACROSS JOINTS

1. Sudden irregularities: Not permitted.
2. Joint deviations: Measure from faces of adjacent boards using methods and straightedges (450 mm long with feet/ pads) to BS 8212, clause 3.3.5.
 - Tapered edge joints
 - o Permissible deviation (maximum) across joints when measured with feet resting on boards: 3 mm.
 - External angles
 - o Permissible deviation (maximum) for both faces: 4 mm.
 - Internal angles
 - o Permissible deviation (maximum) for both faces: 5 mm.

675 TAPED SEAMLESS FINISH TO FIBRE REINFORCED GYPSUM BOARD

1. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Jointing system compound: Gyproc Joint Cement
 - Joints/gaps/internal corners: Gyproc Joint Tape
 - External angles: Gyproc Drywall Metal Angle Bead
2. Filling and taping: Fill joints, gaps and internal angles with jointing compound and cover with continuous lengths of tape, fully bedded.
3. Protection of edges/ corners: Reinforce external angles, stop ends, etc. with specified edge/ angle bead.
4. Finishing: Apply moderately stiff mix of joint compound to full depth of all joints, gaps and angles, and wipe off flush with board surface. Repeat process after 15-20 minutes and again after a further two hours to give a flush, smooth, seamless surface.
5. Nail/ screw depressions: Spot with two coats jointing compound to give a flush surface.
6. Minor imperfections: Remove by light sanding.

685 SKIM COAT PLASTER FINISH

1. Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Thistle Multi-Finish
 - Thickness: 2-3 mm.
2. Joints, corners and edges:
 - Fill and tape except where coincident with metal beads.
 - o Joints/ gaps/ internal corners: Gyproc Joint Tape bedded in Gyproc Joint Cement
 - o External corners: Thistle Thin-Coat Angle Bead
 - o Edges: Thistle Thin-Coat Plaster Stop Bead
3. Finish: Tight, matt, smooth surface with no hollows, abrupt changes of level or trowel marks.

692 RIGID BEADS/STOPS

1. Internal: To BS EN 13658-1.
2. External: To BS EN 13658-2.

695 INSTALLING BEADS/ STOPS

1. Cutting: Neatly using mitres at return angles.
2. Fixing: Securely using longest possible lengths, plumb, square and true to line and level, ensuring full contact of wings with substrate.
3. Finishing: After joint compounds/ plasters have been applied, remove surplus material while still wet from surfaces of beads exposed to view.

K11 RIGID SHEET FLOORING/ SHEATHING/ DECKING/ SARKING/ LININGS/ CASINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF FLOORING/ SHEATHING/ DECKING/ SARKING/ LINING/ CASINGS

110 WOOD-BASED SHEETS GENERALLY

1. Standard: To BS EN 13986.
 - Evidence of compliance: All sheets to be CE marked. Submit Declaration of Performance (DoP).

415A PLYWOOD WALL SHEATHING

1. Substrate: G10/ 150 steel framing system
 - Additional supports: SFS straps at horizontal board joints
2. Sheathing: Plywood manufactured to the relevant standards and quality control procedures specified in BS EN 636, and so marked.
 - Type: American construction and industrial plywood
 - Grade: B-C Exterior
 - Nominal thickness/ number of plies: 18 mm/ 5 plies
 - Fire performance: Not applicable
 - Other requirements: None
3. Setting out: Long edges vertical and centred on supports.
 - Expansion gap between adjacent boards (unless otherwise recommended by manufacturer): 2-3 mm.
4. Fixing to supports:
 - Fasteners: 4.8 x 38 mm zinc coated wing tip self-drilling fixings with counter sunk head and minimum 500 hours salt spray resistance
 - Fixing centres (maximum):
 - Around board edges: 150 mm
 - Along intermediate supports: 300 mm.
 - Fixing distance from edges (minimum): 25 mm from bottom edge of board and 10 mm from other edges.

486A WALL SHEATHING

1. Description: Glass fibre mat faced gypsum based board
2. Substrate: G10/ 150 steel framing system
3. Sheathing: Glass fibre mat fibre-reinforced gypsum board to BS EN 15283-1
 - Manufacturer: British Gypsum Ltd, East Leake, Loughborough, Leicestershire, LE12 6JT
 - Product reference: Glasroc X sheathing board
 - Thickness: 12.5 mm
 - Fire performance:
 - o Reaction to fire: Class A1 to BS EN 13501-1
4. Setting out: Long edges vertical and centred on supports

- Expansion gap between adjacent boards: Butted, sealed with British Gypsum Glasroc X sealant applied into joint ensuring good contact is made with sides of joints, and ensuring continuity of seal
5. Fixing to supports:
- Fasteners: 25 mm British Gypsum Glasroc X screws
 - Fixing centres (maximum):
 - Horizontal: 300 mm
 - Vertical: 300 mm
 - Fixing distance from edges (minimum): Minimum 13 mm from cut edges/ 10 mm from bound edges

515A PLYWOOD ROOF DECKING

1. Substrate: Timber furrings to joists
 - Additional supports: As clause 930A
2. Decking: Plywood manufactured to the relevant standards and quality control procedures specified in BS EN 636, and so marked.
 - Finish: Sanded
 - Use class: Class 3
 - Grade: CE marked to BS EN 13986:2004, glue line conforming with BS EN 314-2 class 3 and conforming to requirements of BS EN 636-2
 - Nominal thickness/ number of plies: 22 mm/ 9-11 plies
 - Fire performance: Not applicable
 - Edges: Tongued-and-grooved to all edges
 - Other requirements: Face grade II/III to BS EN 635-3 and containing only durable species timber face and inner veneers suitable for use in BS EN 335-3 Hazard Class 2
3. Setting out: Long edges running across supports. End joints central over joists and staggered.
4. Fixing
 - Fasteners: 50 mm x 8 gauge wood screws into pilot holes
 - Fixing centres:
 - Along each support: 25 mm from each long edge and at maximum: 300 mm centres between.
 - Around perimeter of roof area: Maximum: 150 mm centres.
5. Expansion provision
 - Clear expansion gap around perimeter of roof area and upstands: 10 mm.
 - Intermediate expansion/ movement joints: As recommended by decking manufacturer.

525 PARTICLEBOARD ROOF DECKING

1. Substrate: Timber joists to engineer's details. Minimum 150mm x 50mm
 - Additional supports: As clause 930A
 - Decking: P5.
 - Thickness: 22mm
 - Fire performance: Not applicable
 - Edges: Tongued-and-grooved to all edges
2. Setting out: Lay with long edges running across supports. End joints to be central over joists and staggered.
3. Fixing

- Fasteners: 55 mm x 8 gauge wood screws into pilot holes
 - Fixing centres: 100mm
 - Minimum edge distance to fixing along supports: 8mm
4. Expansion provision
- Clear expansion gap around perimeter of roof area and upstands: 10 mm.
 - Intermediate expansion/ movement joints: As recommended by decking manufacturer.

585 TIMBER BOARD ROOF DECKING

1. Description: Tongued and grooved softwood boarding
2. Substrate: Timber joists to engineer's details. Minimum 150 x 50mm at maximum 600mm centres.
3. Decking: Contractors choice
 - Thickness: Minimum 25mm thick (finished)
 - Edges: Tongued-and-grooved
 - Other requirements: Preservative treatment: Organic solvent impregnation to clause 160A of NBS section Z12
4. Setting out: Long edges running across supports. End joints central over joists and staggered.
5. Fixing
 - Fasteners: 65 x 3.35 mm galvanised annular ringed shank nails
 - Fixing centres: 200mm centres to perimeter framing and 300mm centres to intermediate framing. Nails to be fixed minimum 25 mm from edge of boards

815A PLYWOOD

1. Description: Inner lining to K10 plasterboard/ metal stud partitions
2. Substrate: Metal partition framing
 - Additional supports: As clause 930A
3. Plywood: Plywood to BS EN 636.
 - Face veneer species: Contractor's choice; biological durability appropriate for plywood subject to the risk of attack outlined in BS EN 335, use class 2
 - Face grain direction: Parallel to long edges of boards
 - Bonding quality to BS EN 314-2: Class 1
 - Appearance class to BS EN 635: Class: III
 - Finish: Sanded
 - Thickness: 12 mm where fixed to resilient bars/ 18 mm where fixed to British Gypsum Service Plates
 - Fire performance: Not applicable
 - Edges: Square
 - Treatment: Not required
 - Other requirements: Sheet size reduced to match dimensions of plasterboard used to outer lining to partition
4. Setting out: Long edges running: along supports
 - Gap between adjacent boards: 3 mm
5. Fixing to supports:
 - Fasteners: Drywall fasteners
 - Fixing centres (maximum):

- Around board edges: 150 mm
- Along intermediate supports: 300 mm
- Fixing distance from edges (minimum): 10 mm.

885A FIBRE-REINFORCED CALCIUM SILICATE FIRE PROTECTION BOARDS

1. Contact details

- Address: Passive Fire Protection
Gordano House, Marsh Lane
Easton-in-Gordano
Bristol
BS20 0NE
- Telephone: +44 (0)800 145 6033
- Web: www.promat.com
- Email: technical.promat@etexbp.co.uk

2. Board:

- Standard: BS 476-21, BS 476-22.
- Fire rating: To BS EN:13501-1, Class A1.
- Thickness: 12mm
- Edges: Square.
- Colour: Off-white.
- Certification: Certifire Certificate CF 420, BFTC Report 07/25 (Protected Zone).
- Frame: Timber joists.
- Insulation thickness (minimum): Not required
- Inner layer: Promat SUPALUX®.
- Face layer: Promat SUPALUX®.
- Fasteners: Layer 1 - 63mm steel wire nails at 400mm centres
Layer 2 - M4 x 75mm steel screws at 300mm centres
Fix layer 2 to layer 1 at joints using M4 x 38mm screws at 300mm centres both sides of joints
- System accessories: PROMASEAL® Intumescent Sealant.
- Fire protection: Protection from below.
- Moisture: Humidity up to 85%.
- Board size: 2440 x 1220 mm.
- Surface finish: Sanded.
- Type: Timber Floors and Roofs - Fire from below.

885B FIBRE-REINFORCED CALCIUM SILICATE FIRE PROTECTION BOARDS

1. Contact details

- Address: Passive Fire Protection
Gordano House, Marsh Lane
Easton-in-Gordano
Bristol
BS20 0NE
- Telephone: +44 (0)800 145 6033
- Web: www.promat.com
- Email: technical.promat@etexbp.co.uk

2. Board:

- Density: 700 kg/m³.

- Thickness: 15 mm.
- Colour: Off-white.
- Fire resistance: 60 minutes.
- Dimensions: 1200 x 2500 mm.
- Manufacturer/ Supplier: Promat UK
- Manufacturer/ Supplier:
 - o Product reference: PROMATECT®-250

WORKMANSHIP

910 INSTALLATION GENERALLY

1. Timing: Building to be weathertight before fixing boards internally.
2. Moisture content of timber supports (maximum): 18%.
3. Joints between boards: Accurately aligned, of constant width and parallel to perimeter edges.
4. Methods of fixing, and fasteners: As section Z20 where not specified otherwise.

930A ADDITIONAL SUPPORTS

1. Additional studs, noggings/ dwangs (Scot) and battens
 - Provision: In accordance with board manufacturer's recommendations and as follows:
 - o Tongue and groove jointed rigid board areas: To all unsupported perimeter edges.
 - o Butt jointed rigid board areas: To all unsupported edges.
 - Size: Not less than 50 mm wide and of adequate thickness.
 - Quality of timber: As for adjacent timber supports.
 - Treatment (where required): As for adjacent timber supports.

940 BOARD MOISTURE CONTENT AND CONDITIONING

1. Moisture content of boards at time of fixing: Appropriate to end use.
2. Conditioning regime: Submit proposals.

950 MOISTURE CONTENT TESTING

1. Test regime and equipment: Submit proposals.
2. Test results: Submit record of tests and results.

960 FIXING GENERALLY

1. Boards/ sheets: Fixed securely to each support without distortion and true to line and level.
2. Fasteners: Evenly spaced in straight lines and, unless otherwise recommended by board manufacturer, in pairs across joints.
 - Distance from edge of board/ sheet: Sufficient to prevent damage.
3. Surplus adhesive: Removed as the work proceeds.

980 OPEN JOINTS

1. Perimeter joints, expansion joints and joints between boards: Free from plaster, mortar droppings and other debris.
2. Temporary wedges and packings: Removed on completion of board fixing.

K32 PANEL CUBICLES

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

160C DUCT LININGS – ONE PIECE SOLID GRADE LAMINATE ASSEMBLY AND PROPRIETARY FIXINGS

1. Description:
2. Manufacturer: Total Laminate Systems Ltd, 11 Nimrod Way, East Dorset Trade Park, Wimborne, Dorset, BH21 7SH
 - Product reference: Simplicity pre-plumbed sanitary assemblies with flush fitting, semi-recessed hinged access doors as shown on detail drawings
3. One piece units:
 - Dimensions: As described in Sanitary Schedule and shown on detail drawings
 - Material: Compact Laminate (CGL)
 - o Thickness: 12 mm
 - Colour/ Pattern: To CA's requirements from the following ranges:
 - Formica Group "Washroom Collection" range
 - Polyrey UK "Washroom Collection" range
 - Edge treatment: Square edges
4. Fasteners: Assembly manufacturer's angle brackets and stainless steel 'Slot & Secure' system screw fixed to rear of assemblies and to sawn s/w bearers within metal stud partition framing forming structural openings
5. Other requirements:
 - Access doors to be lockable
 - Fix all sanitary and other components to/ through assemblies using fixings recommended by assembly manufacturer

250A INSTALLATION

1. Programming: Do not install duct linings before building is weathertight, wet trades have finished their work, wall and floor finishes are complete, and the building is well dried out.
2. Accuracy: Set out to ensure duct linings are plumb, level and accurately aligned.
3. Modifications: Do not cut, plane or sand prefinished components except where shown on drawings.
4. Fixing: Secure components using methods and fasteners shown on detail drawing(s). Prevent pulling away, bowing or other distortions to duct linings.
5. Moisture and thermal movement: Make adequate allowance for future movement.

K40 DEMOUNTABLE SUSPENDED CEILINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF CEILING SYSTEM

115N UNIT/ MODULAR SUSPENDED CEILING SYSTEM

1. Description: With K40/ 265N infill units
2. Standard: To BS EN 13964.
3. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
4. Loadbearing structure: Unistrut loadbearing ceiling system by specialist sub-contractor comprising ref P1001 ceiling channels at 650 mm centres complete with Unistrut white PVC snap-in cover strips ref P1184-PW installed following installation of imaging equipment rails
5. Ceiling system manufacturer: OWA (UK) Ltd, 23-25 Elmshott Lane, Cippenham, Slough, Berkshire, SL1 5QS
6. Ceiling:
 - Infill units: As clause 265N
 - Ceiling module: 600 x 600 mm
 - Soffit height above finished floor level: As shown on ceiling layout drawing(s)
7. Grid:
 - Form: Non-interlocking
 - Exposure: Concealed
8. Access: Infill units fully demountable
9. Suspension system: Not required
10. Perimeter trim: As clause 260H
11. Accessories:
 - Edge battens as clause 255
 - OWA (UK) Ltd noggin tee no 23 inserted in adjoining grooved edges of tiles spanning between loadbearing ceiling channels
12. Integrated services fittings: Luminaires, air grilles, diffusers and other services terminals as shown on M & E Services Consultant's drawing(s)
13. Other requirements: None

115R UNIT/ MODULAR SUSPENDED CEILING SYSTEM

1. Description: With K40/ 265R infill units
2. Standard: To BS EN 13964.
3. Evidence of compliance: All ceilings kits to be CE marked. Submit Declaration of Performance (DoP).
4. Ceiling system manufacturer: Rockfon, 14th Floor, Chiswick Tower, 389 Chiswick High Road, London, W4 4AL
5. Ceiling:
 - Infill units: As clause 265R
 - Ceiling module: 600 x 600 mm
 - Soffit height above finished floor level: As shown on ceiling layout drawing(s)
6. Grid:

- Form: Interlocking
 - Exposure: Exposed
7. Access: Infill units fully demountable
 8. Suspension system: As clause 250F
 9. Perimeter trim: As clause 260L
 10. Accessories: Edge battens as clause 255
 11. Integrated services fittings: Luminaires, air grilles, diffusers and other services terminals as shown on M & E Services Consultant's drawing(s)
 12. Other requirements:
 - All tiles to be clipped
 - Provide timber battens notched over ceiling grid, with additional suspension hangers adjacent to each batten, to allow fixing of ceiling mounted cubicle curtain track

GENERAL/ PERFORMANCE - NOT USED

COMPONENTS

245 STANDARDS

1. Steel panels: To BS EN 10346.
2. Aluminium sheet, strip and plate: To BS EN 485-1 and -2.
3. Aluminium bars, tubes and sections: To relevant parts of BS EN 515, BS EN 573, BS EN 755 and BS EN 12020.

250F SUSPENSION SYSTEM

1. Description: To K40/ 115R ceiling system
2. Manufacturer: Rockfon, 14th Floor, Chiswick Tower, 389 Chiswick High Road, London, W4 4AL
 - Product reference: Chicago Metallic T24 Click 2890 exposed ceiling grid
3. Extent of system: Include all hangers, fixings, main runners, cross members, primary channels, perimeter trims, splines, noggings, clips, bracing, bridging, etc. necessary to complete the ceiling system and achieve specified performance.
4. Top fixings: To suit structural soffit
5. Hangers: 19 x 19 mm galvanised mild steel rigid suspension hangers
6. Grid type: 24 mm wide steel T sections
 - Colour: White

255A EDGE BATTENS

1. Description:
2. Material: Planed softwood to BS EN 942, class J10; moisture content at time of fixing: 15% ± 2%- Moisture content at time of fixing: 15% ± 2%
 - Finished size: As shown on detail drawings
 - Finish (apply before ceiling grid is installed): 2 coats matt black emulsion

260H PERIMETER TRIMS

1. Description: To K40/ 115N ceiling system
2. Manufacturer: OWA (UK) Ltd, 23-25 Elmshott Lane, Cippenham, Slough, Berkshire, SL1 5QS
 - Product reference: No 50 perimeter angle trim, colour white
3. Fixings:
 - Fasteners: BZP raised head screws to timber edge battens/ pop riveted to loadbearing ceiling channels

- Fixing centres (maximum): 450 mm to edge battens/ 500 mm to loadbearing ceiling channels

260L PERIMETER TRIMS

1. Description: To K40/115R ceiling system
2. Manufacturer: Rockfon, 14th Floor, Chiswick Tower, 389 Chiswick High Road, London, W4 4AL
 - Product reference: Ref 170595 perimeter angle trims, colour white 001
3. Fixings:
 - Fasteners: BZP raised head screws
 - Fixing centres (maximum): 450 mm

265N INFILL UNITS

1. Description: To K40/ 115N ceiling system
2. Manufacturer: OWA (UK) Ltd, 23-25 Elmshott Lane, Cippenham, Slough, Berkshire, SL1 5QS
 - Product reference: Owacoustic mineral fibre ceiling tiles, pattern Cosmos, ref 6821
 - Sizes: 600 x 600 x 15 mm
 - Colour: White
3. Recycled content: Manufacturer's standard

265R INFILL UNITS

1. Description: To K40/ 115R ceiling system
2. Manufacturer: Rockfon, 14th Floor, Chiswick Tower, 389 Chiswick High Road, London, W4 4AL
 - Product reference: Rockfon MediCare Plus E24 mineral fibre ceiling tiles with tegular edge
 - Sizes: 600 x 600 x 20 mm
 - Colour: White
3. Recycled content: Manufacturer's standard

EXECUTION

302 CONTROL SAMPLES

1. General: Complete areas as part of the finished work in the following locations: Ceiling system:
 - K40/ 115E: one complete room
 - K40/ 115N: one complete room
2. Approval: Obtain before completing areas of similar work.

305A SETTING OUT

1. General: Completed ceiling should present, over the whole of its surface exposed to the room below, a continuous and even surface, jointed (where applicable) at regular intervals.
2. Infill and access units, integrated services: Fitted correctly and aligned.
3. Edge/ perimeter infill units size (minimum): Unless shown otherwise on ceiling layout(s), half standard width or length.
4. Corner infill units size (minimum): Half standard width and length.
5. Grid: Position to suit infill unit sizes. Allow for permitted deviations from nominal sizes of infill unit.
6. Infill joints and exposed suspension members: Straight, aligned and parallel to walls, unless specified otherwise.

7. Suitability of construction: Give notice where building elements and features to which the ceiling systems relate are not square, straight or level.

310 BRACING

1. General: Secure, with additional bracing and stiffening to give a stable ceiling system resistant to design loads and pressures.

315 PROTECTION

1. Loading: Do not apply loads for which the suspension system is not designed.
2. Ceiling materials: When necessary, remove and replace correctly using special tools and clean gloves, etc. as appropriate.

320 TOP FIXING

1. Building structure: Verify suitability.
2. Structural soffit: As shown on drawing(s)
 - Suitability to receive specified fixings: Evaluate and confirm.
3. Fixing generally: In accordance with BS EN 13964.
4. Fixing to
 - Concrete: Drill and insert suitable expanding anchors.
 - Aerated concrete: Fix through from the top of concrete units and provide a system of primary support channels.
 - Structural steel: Drill, or use suitable proprietary clips/ adaptors.
 - Metal roof decking: Fix to sides of liner tray corrugations.
 - Timber: Fix to side of joists at least 50 mm from bottom edge. If ceiling system is intended for fire protection, fix into top third of joists.
 - Hollow structural members: Submit fixing proposals.

325A INSTALLING ANGLE/ STRAP HANGERS

1. Installation: Install vertical or near vertical, without bends or kinks. Do not allow hangers to press against fittings, services, or insulation covering ducts/ pipes.
2. Obstructions: Where obstructions prevent vertical installation, either brace diagonal hangers against lateral movement, or hang ceiling system on an appropriate rigid sub-grid bridging across obstructions and supported to prevent lateral movement.
3. Extra hangers: Provide as necessary to carry additional loads.
4. Fixing: Do not use rivets for top fixing.
5. Spacings: As shown on detail drawing(s)

330A INSTALLING EDGE BATTENS

1. Fixing: Firmly to perimeter wall or other building structure.
 - Fasteners: Self tapping screws to metal stud partitions/linings or plugged and screwed to masonry backgrounds
 - Fixing centres (maximum): 600 mm to metal stud partitions/linings and 450 mm to masonry backgrounds

335 PERIMETER TRIMS

1. Jointing: Neat and accurate, without lipping or twisting.
 - External and internal corners: Mitre joints generally. Overlap joints at internal corners are not acceptable.
 - Intermediate butt joints: Minimise. Use longest available lengths of trim. Align adjacent lengths.

2. Fixing: Fix firmly to perimeter wall, edge battens or other building structure.
 - Fasteners: BZP raised head screws
 - Fixing centres: 450 mm

340 EXPOSED GRIDS

1. Grid fixings: Angle hangers
2. Main runners: Install level. Do not kink or bend hangers.
 - Spliced joints: Stagger.
 - Wire hangers passing through main runners: Use sharp bends and tightly wrapped loops.
 - Angle/ strap hangers: Do not use rivets for bottom fixing.
 - Angular displacement of long axis of one runner in relation to next runner in line with it: Not visually apparent.
3. Cross members supported by main runners or other cross members: Install perpendicular to intersecting runners.
4. Cross tees: Flat and coplanar with flanges of main runners after panel insertion.
 - Cross tees over 600 mm long, cut and resting on perimeter trim: Provide an additional hanger.
5. Holding down clips: Locate to manufacturer's recommendations.
 - Fire protecting/ resisting ceiling systems: Use clip type featured in the fire test/ assessment.

355A INSTALLING INFILL UNITS

1. General:
 - Perimeter infill units: Trimmed, as necessary, to fully fill space between last grid member and perimeter trim. Prevent subsequent movement.
 - Perimeter infill units with tegular edges: Reform tegular edge(s) as necessary, reseal using brush applied 1:1 mix of PVA adhesive/ water and paint with infill unit manufacturer's touch up paint.
 - Deeply textured infill units: Minimize variations in apparent texture and colour. In particular, avoid patchiness.
2. Concealed grids: Install infill units uniformly, straight and aligned. Avoid dimension creep.
 - Infill units around recessed luminaires and similar openings: Prevent movement and displacement.

390 OPENINGS IN CEILING MATERIALS

1. General: Neat and accurate. To suit sizes and edge details of fittings. Do not distort ceiling system.

395 INTEGRATED SERVICES

1. General: Position services accurately, support adequately. Align and level in relation to the ceiling and suspension system. Do not diminish performance of ceiling system.
2. Small fittings: Support with rigid backing boards or other suitable means. Do not damage or distort the ceiling.
 - Surface spread of flame rating of additional supporting material: Not less than ceiling material.
3. Services outlets
 - Supported by ceiling system: Provide additional hangers.
 - Independently supported: Provide flanges to support ceiling system.

401 CEILING-MOUNTED LUMINAIRES

1. Support: Independent
 - Independently supported luminaires: Suspension adjusted to line and level of ceiling.
 - Ceiling supported luminaires: Modifications and/ or extra support required: Not applicable.
2. Surface mounted luminaires: Units installed so that in event of a fire the designed grid expansion provision is not affected.
3. Modular fluorescent recessed luminaires: Compatible with ceiling module. Extension boxes must not foul ceiling system.
4. Recessed rows of luminaires: Provide flanges for support of grid and infill units, unless mounted above grid flanges. Retain in position with lateral restraint.
5. Fire protecting/ resisting ceiling systems: Luminaires must not diminish protection integrity of ceiling system.
6. Access: Provide access for maintenance of luminaires.

411A MECHANICAL SERVICES

1. Fan coil units:
 - Inlet/ Outlet grilles: Trim ceiling grid and infill units to suit.
 - Space beneath: Sufficient for ceiling system components.
 - Suspension and connections: Permit accurate setting out and levelling of fan coil units.
2. Air grilles and diffusers:
 - Setting out: Accurate and level.
 - Linear air diffusers: Retain in place with lateral restraint. Provide flanges for support of grid and infill units.
 - Grille/ Diffuser ceiling joints: Provide smudge rings and edge seals.
3. Smoke detectors and PA speakers:
 - Ceiling infill units: Scribe and trim to suit.
 - Independent suspension: Required
 - Flexible connections: Required.

500 ELECTRICAL CONTINUITY AND EARTH BONDING

1. Inclusion in finished work: Not required

COMPLETION

520 USER INSTRUCTIONS

1. Contents: Include the following:
 - Correct methods for removing and replacing infill units and other components.
 - Cleaning methods and materials.
 - Recommendations for redecoration.
 - Ceiling systems intended for fire protection: Limitations placed on subsequent alterations and maintenance procedures, to ensure that their fire performance is not impaired.
 - Maximum number, position and value of point loads that can be applied to ceiling system after installation.

530 SPARES

1. General: At practical completion, supply the following: 1 no box infill units for ceiling system K40/ 115E.

L10 WINDOWS/ ROOFLIGHTS/ SCREENS/ LOUVRES

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL

115 TIMBER PROCUREMENT

1. Timber (including timber for wood based products): Obtained from well managed forests and/or plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. Documentation: Provide either:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. Certification scheme: Forest Stewardship Council (FSC)
 - Other evidence: None

120 PRECONSTRUCTION SURVEY

1. Procedure: Before starting work on designated items take site dimensions, record on shop drawings and use to ensure accurate fabrication.
2. Designated items: Windows; roof lights
3. Primary support structure: Carry out survey sufficient to verify that required accuracy and security of erection can be achieved.
4. Timing: Before fabrication.

140 CONTROL SAMPLES

1. Procedure
 - Finalise component details.
 - Fabricate one of each of the following designated items as part of the quantity required for the project.
 - Obtain approval of appearance and quality before proceeding with manufacturer of the remaining quantity.
2. Designated items:
3. - Window frame - Glazing - Louvre

PRODUCTS

330A ALUMINIUM WINDOWS

1. Standard: Non-fire and/ or smoke rated windows to BS EN 14351-1 and BS 4873
2. Non-fire and/ or smoke rated windows to BS EN 14351-1 and BS 4873
3. Fire and/ or smoke rated opening windows to BS EN 14351-1, BS EN 16034 and BS 4873
4. Manufacturer: Technal, Albert Drive, Silkwood Park, Wakefield, WF5 9TG
 - Product reference: Soleal FY65 thermally insulated internally glazed fixed light windows
5. Finish as delivered: Polyester powder coating to BS 6496
 - Film thickness: 40 microns

- Colour: To Architect's requirements from manufacturer's full range
- 6. Thermal performance (U-value maximum): 1.6 W/m²K
- 7. Acoustic performance rating: Not required
- 8. Fire resistance: Not required
- 9. Glazing details: As section L40, clauses 370A and 650A
 - Beading: Internal
- 10. Ironmongery/ Accessories: PPC aluminium extension cill
- 11. Fixing: Screwed to SFS reveal as clause 782
- 12. Other requirements: Windows to be manufactured and certificated to meet the requirements of BS 7950 and PAS24:2016 (to achieve RC2 when tested to BS EN 1627:2011)

460B ROOFLIGHTS

1. Manufacturer: Glazing Vision Ltd, 36 Wimbledon Avenue, Brandon, Suffolk, IP27 0NZ
 - Product reference: Flushglaze flat fixed rooflight
2. Type: Square
3. Frame: Aluminium
 - Finish: Polyester powder coating to BS 6496
 - Colour: RAL 7015
4. Kerb: 75 mm wide preservative treated timber with 5° fall to top
5. Thermal performance (U-value maximum): 1.2 W/m²K
6. Glazing details: 34.8 mm insulating glass unit comprising 12.8 mm clear laminated safety glass inner pane as clause L40/162A, 14 mm 90% argon filled cavity and 8 mm Saint-Gobain Glass Securit Planitherm Ultra N II toughened safety glass outer pane heatsoak tested to BSEN1417928, as clause L40/ 650A
7. Fixing: Plugged and screwed to concrete upstand in accordance with manufacturer's installation instructions.

510A GLAZED WOOD SCREENS

1. Manufacturer: Glazed wood screens to be manufactured by doorset manufacturer
2. Timber: Generally to BS EN 942.
 - Species: American Oak but to be confirmed
 - Appearance class: J10 generally but J2 for glazing beads
 - Moisture content on delivery: 9-13%
3. Assembly adhesive: PVAC to BS EN 204, Class D4
4. Joinery workmanship: As section Z10.
5. Finish as delivered: Clear lacquer with Hygienilac antimicrobial additive
6. Fire performance: As shown on detail drawing(s)
7. Glazing details:
 - 6 mm toughened glass secured using hardwood quirk beads as section L40/ 523 to non-fire resisting screens.
 - 10.8 mm clear laminated glass using hardwood cloak beads as section L40/ 523A to non-fire resisting screens
 - 24 mm thick fire resisting insulating glass unit secured using hardwood quirk beads as section L40/ 524 to 30 mins (Integrity) fire resisting screens
 - 27 mm fire resisting glass secured using hardwood quirk beads as section L40/ 526 to 60/ 60 mins (Integrity/ Insulation) fire resisting screens
 - 30 mm insulating glass unit with integral venetian blind secured using hardwood quirk beads as section L40/ 527 to non-fire resisting screens

- 36.8 mm insulating glass unit with integral venetian blind secured using hardwood quirk beads as section L40/ 527A to non-fire resisting screens
 - 41 mm fire resisting insulating glass unit with integral venetian blind secured using hardwood quirk beads as section L40/ 528 to 30/ 30 mins (Integrity/ Insulation) fire resisting screens
8. Special features/ Other requirements:
- Arrises to architraves to be splayed to a 2 mm flat plane
 - Glazed wood screens to comply, unless stated otherwise, with DoH Health Technical Memorandum 57: Internal Glazing
9. Fixing: Plugged and screwed to masonry or screw fixed to metal framing forming structural opening within metal stud partition. All fixings to be concealed behind glazing beads

520 GLAZED WOOD HATCHES

1. Manufacturer: Glazed wood hatches to be manufactured by doorset manufacturer
2. Timber: Generally to BS EN 942.
 - Species: American Oak but to be confirmed
 - Appearance class: J30 generally but J2 for glazing beads
 - Moisture content on delivery: 9-13%
3. Assembly adhesive: PVAC to BS EN 204, Class D4
4. Joinery workmanship: As section Z10.
5. Finish as delivered: Clear lacquer with Hygienilac antimicrobial additive
6. Sliding glass door details:
 - Manufacturer: T Saveker Ltd, 101 Aldridge Road, Perry Barr, Birmingham, B42 2TS
 - Product reference: Frameless sliding glass door system comprising:
 - Ref D24 silver anodised double top track
 - Ref D24 double side channel
 - Ref D20 double bottom track incorporating ref D1718 nylon wheel rollers
 - 2 no 6 mm thick clear toughened glass doors overlapping 25 mm, each incorporating 22 mm dia hole to accept ref C331 finger pull. One door also to incorporate 25 mm dia hole to accept ref D465 plunger lock
7. Special features/ Other requirements:
 - Arrises to architraves to be splayed to a 2 mm flat plane
 - Glazed wood hatches to comply, unless stated otherwise, with DoH Health Technical Memorandum 57: Internal Glazing
8. Fixing: Plugged and screwed to masonry or screw fixed to metal framing forming structural opening within metal stud partition. All fixings to be concealed behind glazing beads

655B METAL LOUVRES

1. Manufacturer: Colt International Ltd, Colt House, Ridgeway Office Park, Bedford Road, Petersfield, GU32 3QF
 - Product reference: 2UL/DH Universal Louvre
2. Material: Aluminum
 - Finish as delivered: Polyester powder coated in colour to Architect's requirements from manufacturer's full colour range
3. Fire resistance rating: Not applicable
4. Number of louvre banks: Two
5. Louvre blade pitch and angle: 100 mm blade pitch at 45°
6. Blanking panels: Polyester powder coated aluminium faced stone wool insulated blanking panels to provide U-Value of 0.25 W/m²K with cutouts to suit M & E Services Consultant's requirements

7. Accessories/ Other requirements:
 - Stainless steel insect mesh
 - Perimeter EPDM seals
 - Fixing angles
8. Fixing: In accordance with manufacturer's recommendations

655C METAL LOUVRES

1. Enclosure to roof mounted air source heat pumps
2. Manufacturer: Colt International Ltd, Colt House, Ridgeway Office Park, Bedford Road, Petersfield, GU32 3QF
 - Product reference: 1UL DH Screening Louvre
3. Material: Aluminium
 - Finish as delivered: Polyester powder coated in colour to Architect's requirements from manufacturer's full colour range
4. Fire resistance rating: Not applicable
5. Number of louvre banks: One
6. Louvre blade pitch and angle: 100 mm blade pitch at 45°
7. Blanking panels: Not required
8. Accessories/ Other requirements:
 - Mitred corners
 - Fixing angles
9. Fixing: To primary structural steel frame in accordance with manufacturer's recommendations

EXECUTION

710 PROTECTION OF COMPONENTS

1. General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry floored and covered storage.
2. Stored components: Stack vertical or near vertical on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 PRIMING/ SEALING

1. Wood surfaces inaccessible after installation: Prime or seal as specified before fixing components.

750 BUILDING IN

1. General: Not permitted unless indicated on drawings.
 - Brace and protect components to prevent distortion and damage during construction of adjacent structure.

765 WINDOW INSTALLATION GENERALLY

1. Installation: Into prepared openings.
2. Gap between frame edge and surrounding construction
 - Minimum: 5 mm
 - Maximum: 8 mm
3. Distortion: Install windows without twist or diagonal racking.

770 DAMP-PROOF COURSES IN PREPARED OPENINGS

1. Location: Ensure correct positioning in relation to window frames. Do not displace during fixing operations.

782 FIXING OF ALUMINIUM FRAMES

1. Standard: As section Z20.
2. Fasteners: 25 x 3 x 150 mm galvanized carbon steel frame cramps
 - Spacing: When not predrilled or specified otherwise, position fasteners not more than 250 mm from ends of each jamb, adjacent to each hanging point of opening lights, and at maximum 600 mm centres.

810 SEALANT JOINTS

1. Sealant
 - Manufacturer: Adshead Ratcliffe & Co Ltd, Derby Road, Belper, Derby, DE5 1WJ
 - o Product reference: Arbosil 1090 low modulus silicone sealant
 - Colour: To CA's requirements from manufacturer's full range
 - Application: As section Z22 to prepared joints. Finish triangular fillets to a flat or slightly convex profile.

815 JOINTS AROUND WINDOWS

1. General: Seal using impregnated foam tape and insulate using gun applied foam.
2. Manufacturer: Tremco Illbruck Ltd, 3A Walton Road, Pattinson North, Washington, Tyne & Wear, NE38 8QA
 - Product reference: illbruck i3 system comprising:
 - External weather seal tape: TP600 Compriband 600 impregnated foam tape
 - Thermal and sound insulating foam: FM330 Pro Foam Window one part, moisture curing polyurethane expanding foam
 - Internal airtight seal: ME508 Duo flexible window membrane
 - Internal seal to window reveal lining boards: LD730 Acrylic Sealant
3. Application of external weather seal tape:
 - Ensure surfaces to which tape is to be applied are free from irregularities
 - Loose particles: Remove
 - Oily surfaces: Clean
 - Locate tape in required position between flat, parallel surfaces and at least 2mm from any edge, applying tape to horizontal sections before vertical sides
4. Gap behind tape: Apply insulating foam to approximately 80% of joint depth to allow for post-application expansion
5. Application of internal airtight seal:
 - Bond to frame using acrylic self-adhesive strip and to the reveal using butyl strip
 - Further seal all membrane lap joints and areas of potential water ingress or air leakage with Tremco SP525 low modulus sealant

820 IRONMONGERY

1. Fixing: In accordance with any third party certification conditions applicable. Assemble and fix carefully and accurately using fasteners with matching finish supplied by ironmongery manufacturer. Do not damage ironmongery and adjacent surfaces.
2. Checking/ Adjusting/ Lubricating: Carry out at Completion and ensure correct functioning.

L20 DOORS/ SHUTTERS/ HATCHES

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL

110 EVIDENCE OF PERFORMANCE

1. Certification: Provide independently certified evidence that all incorporated components comply with specified performance requirements.

112 TIMBER PROCUREMENT

1. Timber (including timber for wood-based products): Obtained from well-managed forests and/or plantations in accordance with:
 - The laws governing forest management in the producer country or countries.
 - International agreements such as the Convention on International Trade in Endangered Species of wild fauna and flora (CITES).
2. Documentation: Provide either:
 - Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied.
 - Evidence that suppliers have adopted and are implementing a formal environmental purchasing policy for timber and wood-based products.
3. Certification scheme: Forest Stewardship Council (FSC)
 - Other evidence: None

115 FIRE RESISTING AND SMOKE CONTROL PEDESTRIAN DOORS/ DOOR ASSEMBLIES/ DOORSETS

1. CE marked fire resisting and smoke control pedestrian doorsets: To BS EN 16034 and in conjunction with BS EN 13241 and BS EN 14351-1 (and eventually prEN 14351-2).
2. Door products: As defined in BS EN 12519.
3. Evidence of fire performance: Provide certified evidence, in the form of a product conformity certificate, directly relevant fire test report or engineering assessment, that each door/ door assembly/ doorset supplied will comply with the specified requirements for fire resisting and/or smoke control if tested to BS 476-22, BS EN 1634-1, BS EN 1634-3 or is CE marked to BS EN 16034. Specified values should not be a combination of both standards. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
4. Components, assemblies or sets will be marked to the relevant CE marking European product standard (hEN), national product standard and/ or third party certification rating.

120 NON FIRE RESISTING PEDESTRIAN DOORS/ DOOR ASSEMBLIES/ DOORSETS

1. Provide certified evidence, in the form of a product conformity certificate or engineering assessment, that each pedestrian door/ doorset/ assembly supplied will comply with the specified requirements to BS EN 14351-1. Such certification must cover door and frame materials, glass and glazing materials and their installation, essential and ancillary ironmongery, hinges and seals.
2. Components and assemblies will be marked to the relevant CE marking European product standard (hEN), national product standard and/ or third party certification rating.

170 CONTROL SAMPLES

1. Procedure

- Finalize component details.
 - Fabricate one of each of the following designated items as part of the quantity required for the project.
 - Obtain approval of appearance and quality before proceeding with manufacture of the remaining quantity.
2. Designated items: 1 no FD30S single swing doorset with vision panel, complete with architraves, as clause L20/ 410A

PRODUCTS

410A WOOD DOORSETS

1. Description: Internal
2. Manufacturer: Principal Doorsets Ltd, Riverside Road, Pottington Business Park, Barnstaple, Devon, EX31 1NB
 - Product reference: SPL solid frame doorsets as detail drawing(s) and complying, unless stated otherwise, with DoH Health Technical Memorandum 58: Internal Doorsets
3. Door leaf:
 - Core: As shown on doorset schedule(s)
 - Thickness:
 - Generally: 45 mm
 - FD60/ FD60S fire resisting doorsets: 54 mm
 - Facings: 0.7 mm thick laminate in colour(s) selected by CA from the following ranges:
 - Egger (UK) Ltd Uni Colours range
 - Formica Collection Colors range
 - Polyrey Papago plain colour range
 - Lippings: 6 mm hardwood exposed lippings all round
 - Finish as delivered: Clear lacquer (25% gloss level) with Hygienilac antimicrobial additive to hardwood lippings and glazing beads
4. Frame and architraves:
 - Wood species: Frames: American Oak but to be confirmed
 - Finish as delivered: Clear lacquer (25% gloss level) with Hygienilac antimicrobial additive
5. Preservative treatment: Not required
6. Glazing/ Infill details: Vision panels, where specified, to comprise:
 - Vision panels to non-fire resisting leaves glazed with 6 mm clear toughened glass secured using hardwood quirk beads as section L40/ 516
 - Vision panels to FD30/ FD30S fire resisting leaves glazed with 7 mm AGC Glass UK Ltd PYROBELite clear laminated fire resisting glass secured using hardwood quirk beads as section L40/ 517
 - Vision panels to FD60/ FD60S fire resisting leaves glazed with 15 mm Pilkington UK Ltd Pyrostop clear fire resisting glass secured using hardwood quirk beads as section L40/ 518
 - Manifestation: Not required
7. Ironmongery: As ironmongery schedule(s) with hinges factory fitted
8. Perimeter seals: As noted on detail drawing(s) installed in door leaf lippings
9. Other requirements:
 - Arrises to frames and architraves to be splayed to a 2 mm flat plane
 - Square edged meeting stiles to leaf and a half and double leaf doorsets
 - Apertures for vision panels within laminate faced leaves to have radiused corners to accommodate 11 mm radiused corner quirk beads

- Acrovyn door edge protection to leading edge of door leaves where noted on doorset schedule(s)
10. Fixing: Plugged and screwed to masonry or screw fixed to sawn s/w packs within metal stud partition with fixings concealed with h/w pellets supplied loose by doorset manufacturer

411 WOOD DOORSETS

1. Description: Internal, x-ray resisting
2. Manufacturer: Principal Doorsets Ltd, Riverside Road, Pottington Business Park, Barnstaple, Devon, EX31 1NB
 - Product reference: SPL solid frame doorsets
3. Door leaf:
 - Core: Principal core comprising 400-500 kg/m³ softwood lamel core with 9 mm and 3 mm thick mdf sub-facings each side, hardwood lippings all round and incorporating single embedded sheet of 2.24 mm (Code 5) lead to BS 1178, all to achieve Severe Duty rating to DD171
 - Thickness: 45 mm + lead sheet + facings
 - Facings: 0.7 mm thick laminate in colour(s) selected by CA from the following ranges:
 - Egger (UK) Ltd Uni Colours range
 - Formica Collection Colors range
 - Polyrey Papago plain colour range
 - Lippings: 6 mm hardwood exposed lippings all round
 - Finish as delivered: Clear lacquer (25% gloss level) with Hygienilac antimicrobial additive to lippings
4. Frame and architraves:
 - Wood species:
 - Frames: Hardwood with a density of not less than 560 kg/ m³
 - Architraves: American Oak but to be confirmed
 - Finish as delivered: Clear lacquer (25% gloss level) with Hygienilac antimicrobial additive to lippings
5. Preservative treatment: Not required
6. Ironmongery: As ironmongery schedule(s) with hinges factory fitted
7. Perimeter seals: As noted on detail drawing(s) installed in door leaf lippings
8. Other requirements:
 - Door frames, architraves and leaves to incorporate 2.24 mm (Code 5) lead sheet to BS 1178 as shielding against X-ray scatter
 - Arrises to frames and architraves to be splayed to a 2 mm flat plane
 - Square edged meeting stiles with astragal incorporating 2.24 mm (Code 5) lead sheet to BS 1178 as shielding against X-ray scatter to leaf and a half and double leaf doorsets
9. Fixing: Plugged and screwed to masonry or screw fixed to sawn s/w packs within metal stud partition with fixings concealed with h/w pellets supplied loose by doorset manufacturer

480A DOORSETS

1. Description: Hermetically sealed sliding
2. Manufacturer: DorteK Ltd, St Mark Street, Hull, HU8 7ED
 - Product reference: Ref MF5 sliding door with hermetic seal
3. Door leaf: 48 mm thick PU core faced both sides with 1.0 mm thick laminate in colour(s) selected by CA from full Formica Plain Colours range on 5 mm mdf, edged all round with flush satin anodised aluminium profiles

4. Frame and architraves: 'Halmstad' satin stainless steel wrap frame profiles to suit specified wall thickness
5. Glazing/ Infill details: 1350 x 150 mm flush, clear double glazed vision panel with white acid etched glass incorporating 50 mm dia clear spyhole to corridor side pane
 - Manifestation: Not required
6. Ironmongery: Handles not required
7. Perimeter seals: Neoprene seal incorporated into aluminium profile leaf edgings
8. Other requirements:
 - Track: Aluminium rail system with nylon bearings
 - Guide: Internal bottom track with nylon door runners plugged and screwed to floor
 - Canopy: Satin stainless steel with sloping top
9. Operation: Ref SDA-04 automated operator controlled by:
 - 2 no touchless sensors, complete with safety photo-cell in-built safety sensor
 - Break glass emergency release
 - Thumbturn lock

480C DOORSETS

1. Description: External, steel, swing, pas24 tested
2. Manufacturer: ASSA ABLOY Security Doors, 21 Ferguson Drive, Knockmore Hill Industrial Park, Llsburn, Co Antrim, BT28 2EX
 - Product reference: Powershield 'Carlingford' range outward opening external galvanised mild steel security (PAS 24 2007 compliant) doorsets
3. Finish as delivered: Polyester powder coated in colour to CA's requirements from manufacturer's full range, to gloss level of 30% and dry film thickness of 40-50 microns
4. Fire performance: As doorset schedule(s)
5. Leaf: 44mm thick with no face seams, comprising 1.5 mm zinc coated steel skins with honeycomb core
6. Frame: Single rebate, 1.5 mm zinc coated steel
7. Hinges: Union ref JH-BB-DOG-M-SS ball bearing dogbolt security ss butt hinges
8. Glazing/ Infill details:
 - Vision panel type/ size: Not applicable
 - Glass type: Not applicable
 - Manifestation: Not applicable
 - Beading: Not applicable
9. Ironmongery: As ironmongery schedule(s), factory fitted
10. Perimeter seals: Pemko type S88 self-adhesive silicon draught bulb seal around frame rebate and to meeting stiles
11. Thermal performance (U-value maximum): Manufacturer's standard
12. Other requirements: Aluminium low profile threshold incorporating compressible neoprene seal, bedded on silicone sealant and plugged and screwed to slab using 32 mm long 12 gauge csk woodscrews
13. Fixing: Manufacturer's bespoke frame adjuster system and:
 - Masonry/ concrete: 80 x 7.5 mm masonry screws
 - Metal studs/ channels: Drillit self-drilling screws

481A DOORS

1. Description: External, aluminium, swing, PAS24 tested
2. Type: Swing

3. Manufacturer: Technal, Severn Drive, Tewkesbury, Gloucestershire. GL20 8SF
 - Product reference: STII Stormframe thermally broken, anti-finger trap automated doorset, security tested to PAS24:2012
4. Materials/ finishes
 - Doors: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
 - Frames: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
 - Screens: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
5. Glazing/ Infill details:
 - 29.5 mm insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A, comprising 7.5 mm clear laminated inner pane, 16 mm cavity and 6 mm toughened glass outer pane to door leaves
 - 32.5 mm insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A, comprising 7.5 mm clear laminated inner pane, 19 mm cavity and 6 mm toughened glass outer pane to fanlights and side screens
 - Manifestation: 50 mm silk screened white dots in pattern as shown on detail drawing(s)
6. Ironmongery: As shown on ironmongery schedule
7. Thermal performance (U-value maximum): 1.8 W/m²K
8. Other requirements: None

485 DOORSETS

1. Description: Internal, aluminium, sliding, with adjacent fixed screen
2. Manufacturer: Axis Entrance Systems Ltd, Unit 6, Queens Park Industrial Estate, Studland Road, Northampton, NN2 6NA
 - Product reference: Axis Flo-Motion manually operated telescopic ref T100 sliding door system
3. Door frame, leaf and adjacent fixed screen: Aluminium door and screen incorporating manually operated sliding door leaf employing recirculating bearing system and track complete with stop mechanism, bottom channel to door complete with floor mounted nylon guide and single fixed screen
 - Finish as delivered: Polyester powder coated as section Z31
 - Colour: To CA's requirements from manufacturer's full range
 - Film thickness: 40 microns
4. Glazing/ Infill details: 32.8 mm double glazed units comprising two panes 6.4 mm thick clear laminated glass and 20 mm air gap
 - Manifestation: Not required
5. Ironmongery: Allgood ref CS6599 pull handle each side of door leaf
6. Acoustic rating: Glazed units Rw 35dB
7. Other requirements: 125 mm high horizontal pelmet to conceal track mechanism complete with hold open lid
8. Fixing: Fixed to structural steelwork in accordance with manufacturer's recommendations
9. Other requirements: Digitally force test (distance determined by door width) each doorset at completion and provide certification of mean average opening/ closing force not exceeding 10N (single sliding door leaf)/ 15N (telescopic sliding door leaves) +/- 5N

490A AUTOMATIC DOORS

1. Description: External, aluminium, swing, pas24 tested
2. Type: Swing
3. Manufacturer: Technal, Severn Drive, Tewkesbury, Gloucestershire. GL20 8SF
 - Product reference: STII Stormframe thermally broken, anti-finger trap automated doorset, security tested to PAS24:2012
4. Safety in use: To BS EN 16005 and NHS Estates Safety Notice NHSE SN(96)02
5. Materials/ finishes
 - Doors: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
 - Frames: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
 - Screens: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
6. Glazing/ Infill details:
 - 29.5 mm insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A, comprising 7.5 mm clear laminated inner pane, 16 mm cavity and 6 mm toughened glass outer pane to door leaves
 - 32.5 mm insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A, comprising 7.5 mm clear laminated inner pane, 19 mm cavity and 6 mm toughened glass outer pane to fanlights and side screens
 - Manifestation: 50 mm silk screened white dots in pattern as shown on detail drawing(s)
7. Automatic door operator(s):
 - Manufacturer: GEZE UK Ltd, Blenheim Way, Fradley Park, Lichfield, Staffordshire, WS13 8SY
 - o Product reference: GEZE Powerturn electro-mechanical swing door operator with adjustable closing force to DIN 4-7, complete with linkage push arm and DPS programme switch with off facility offering mode adjustment
 - o Installation: Transome mounted
8. Activation and control system:
 - Entry: Monitored radar activation sensor (mounted above pivot/ hinge point), EN 16005
 - Exit: Monitored radar activation sensor (internally on operator cover), EN 16005
 - Lockdown: Red push button with yellow backing plate mounted at reception to engage lockdown mode .
 - Safety devices:
 - o Automatic door operator's infra-red safety sensors mounted on top rails of door leaves.
 - o Rounded anti-finger trap stiles
9. Power: Automatic door operator's UPS (1000VA uninterruptible power supply) to drive door(s) or allow lockdown locking to remain engaged in event of mains power failure
10. Locking mechanism:
 - Automatic door operator's Gingers Spark SDGi micro power lock to engage when red push button pressed, disengaging automatic door operator(s) and all sensors, allowing door(s) to close and lock to engage.
 - Additional mechanical locks:

- o Master leaf:
 - 2 no single point security deadlocks (Technal ref STP309) positioned 300mm from top and bottom of stile
 - 2 no single point security deadlock keeps (Technal ref STP331)
 - 2 no 3 star Euro cylinders (Technal ref STP385 or STP386)
 - o Slave leaf:
 - Shootbolt gear box (Technal ref STP314)
 - Shootbolt rods (Technal ref CDP252 or CFP161)
 - Shootbolt rod head keep (Technal ref STP315)
 - Shootbolt rod threshold keep (Technal ref STP332)
11. Signs:
- 150 mm dia direction of travel sign in compliance with recommendations given in NHS Estates Safety Notice NHSE SN(96)02 to each face of each folding door leaf
 - 150 x 150 mm "Automatic door" sign in compliance with recommendations given in NHS Estates Safety Notice NHSE SN(96)02 to each face of each folding door leaf
12. Barriers: To BS 6180
13. Thermal performance (U-value maximum): 1.8 W/m²K
14. Other requirements: Connected to fire alarm system

490B AUTOMATIC DOORS

1. Description: Internal, aluminium, swing
2. Type: Swing
3. Manufacturer: Technal, Severn Drive, Tewkesbury, Gloucestershire. GL20 8SF
 - Product reference: STII Stormframe thermally broken, anti-finger trap automated doorset, security tested to PAS24:2012
4. Safety in use: To BS EN 16005 and NHS Estates Safety Notice NHSE SN(96)02
5. Materials/ finishes
 - Doors: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
 - Frames: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
 - Screens: Aluminium extrusions to BS EN 755-9: 2001, Specification 6060/6063 T6, polyester powder coated (minimum 40 microns thick) in colour to CA's requirements from manufacturer's full colour range
6. Glazing/ Infill details:
 - 28.4 mm insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A, comprising 6.4 mm clear laminated inner pane, 16 mm cavity and 6 mm toughened glass outer pane to internally located doorsets
 - 32.5 mm insulating glass units to BS EN 1279, hermetically sealed and Kitemark certified, as section L40, clause 650A, comprising 7.5 mm clear laminated inner pane, 19 mm cavity and 6 mm toughened glass outer pane to fanlights
 - Manifestation: 50 mm silk screened white dots in pattern as shown on detail drawing(s)
7. Automatic door operator(s):
 - Manufacturer: GEZE UK Ltd, Blenheim Way, Fradley Park, Lichfield, Staffordshire, WS13 8SY
 - o Product reference: GEZE Powerturn electro-mechanical swing door operator with adjustable closing force to DIN 4-7, complete with linkage push arm and DPS Programme switch with off facility offering mode adjustment

- o Installation: Transome mounted
8. Activation and control system: Entry:
Monitored radar activation sensor (mounted above pivot/ hinge point), EN 16005
Exit:
 - Monitored radar activation sensor (internally on operator cover), EN 16005
 - Stainless steel pushplate, engraved "Push to Open"
 - Safety devices:
 - Automatic door operator's infra-red safety sensors mounted on top rails of door leaves
 - Rounded anti-finger trap stiles
 9. Locking mechanism: Not required
 10. Signs:
 - 150 mm dia direction of travel sign in compliance with recommendations given in NHS Estates Safety Notice NHSE SN(96)02 to each face of each folding door leaf
 - 150 x 150 mm "Automatic door" sign in compliance with recommendations given in NHS Estates Safety Notice NHSE SN(96)02 to each face of each folding door leaf
 11. Barriers: Not required
 12. Thermal performance (U-value maximum): 1.8 W/m²K
 13. Other requirements: Llnked to fire alarm system

630A NON-FIRE RESISTING WALL ACCESS PANELS

1. Manufacturer: Profab Access Ltd, Riversdale House, Unit C & D, Riversdale Road, Carlyon Road Ind Estate, Atherstone, Warwickshire, CV9 1FA
 - Product reference: Prima 1000 series non-fire resisting steel access panel with beaded frame
2. Resistance to fire: Not applicable
3. Smoke control: Not applicable
4. Panel/ frame construction:
 - Panel: Flush faced 0.9 mm thick electro-galvanised mild steel
 - Frame: 1.2 mm thick electro-galvanised mild steel rigid box section incorporating drywall edge bead profile
 - Finish as delivered: Polyester powder coated etched primer, colour RAL 9010
5. Ironmongery:
 - Pivot hinged
 - Concealed budget lock with removable white plastic cap
6. Fixing: Plugged and screwed to masonry or screw fixed to sawn s/w packs within metal stud partition
7. Other requirements:
 - Foam gasket to prevent rattle

632 RISER DOORSETS

1. Description:
2. Manufacturer: Selo, K2, Kents Hill Business Park, Timbold Drive, Milton Keynes, MK7 6TT
 - Product reference: Selo Quadra pre-hung concealed frame, 4-sided steel riser doorset
3. Fire performance: As doorset schedule(s)
4. Door leaves/ frame construction:
 - Door leaves: Flush faced 1.2 mm thick galvannealed mild steel infilled with mineral wool

- Door frame: 1.2 mm thick folded galvanized mild steel frame section
 - Finish as delivered: Smooth polyester powder coated in colour to CA's requirements from manufacturer's full range
5. Ironmongery:
 - Concealed quick release pivot hinges
 - 3-point lock incorporating key operated single-sided Euro-cylinder (supplied by others)
 6. Self-closing: Not required
 7. Operation: Manual
 8. Fixing: Plugged and screwed to masonry or screw fixed to sawn s/w packs within metal stud partition
 9. Other requirements: Self-adhesive leading edge "Fire Door Keep Locked" sign to leading edge

EXECUTION

710 PROTECTION OF COMPONENTS

1. General: Do not deliver to site components that cannot be installed immediately or placed in clean, dry, floored and covered storage.
2. Stored components: Stacked on level bearers, separated with spacers to prevent damage by and to projecting ironmongery, beads, etc.

730 PRIMING/ SEALING

1. Wood surfaces inaccessible after installation: Primed or sealed as specified before fixing components.

750 FIXING DOORSETS

1. Timing: After associated rooms have been made weathertight and the work of wet trades is finished and dried out.

760 BUILDING IN

1. General: Not permitted unless indicated on drawings.

780 DAMP PROOF COURSES IN PREPARED OPENINGS

1. Location: Correctly positioned in relation to door frames. Do not displace during fixing operations.

800 FIXING OF LOOSE THRESHOLDS

1. Spacing of fixings: Maximum 150 mm from each end and at 600 mm maximum centres.

810 FIRE RESISTING AND SMOKE CONTROL DOORS/ DOOR ASSEMBLIES/ DOORSETS/ ROLLER SHUTTERS AND CURTAINS – CONTRACTOR INSTALLED

1. Gaps between frames and supporting construction: Filled as necessary in accordance with requirements for certification and/ or door/ doorset manufacturer's instructions.

820A SEALANT JOINTS

1. Description: Aluminium and steel external doorsets
2. Sealant:
 - Manufacturer: Adshedd Ratcliffe & Co Ltd, Derby Road, Belper, Derby, DE5 1WJ
 - o Product reference: Arbosil 1090 low modulus silicone sealant
 - Colour: To CA's requirements from manufacturer's full range

- Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

821 SEALANT JOINTS

1. Description: Fire resisting steel doorsets
2. Sealant:
 - Manufacturer: Adshead Ratcliffe & Co Ltd, Derby Road, Belper, Derby, DE5 1WJ
 - o Product reference: Arbosil 1070/ 1071 low modulus fire resisting silicone sealant
 - Colour: To CA's requirements from manufacturer's full range
 - Application: As section Z22 to prepared joints. Triangular fillets finished to a flat or slightly convex profile.

831 FIXING IRONMONGERY GENERALLY

1. Fasteners: Supplied by ironmongery manufacturer.
 - Finish/ Corrosion resistance: To match ironmongery.
2. Holes for components: No larger than required for satisfactory fit/ operation. Pre-drill screw holes and drive screws taking care not to burr the slot in the screwhead or scratch the surface finish.
3. Mortices: Cut neatly so that hinges, flush bolts, locks and the like finish flush and tight to the surrounding woodwork.
4. Adjacent surfaces: Undamaged.
5. Moving parts: Adjusted, lubricated and functioning correctly at completion.

840 FIXING IRONMONGERY TO FIRE RESISTING DOOR ASSEMBLIES

1. General: All items fixed in accordance with door leaf manufacturer's recommendations ensuring that integrity of the assembly, as established by testing, is not compromised.
2. Holes for through fixings and components: Accurately cut.
 - Clearances: Not more than 8 mm unless protected by intumescent paste or similar.
 - Lock/ Latch cases for fire doors requiring: ≥ 60 minutes integrity performance: Coated with intumescent paint or paste before installation.

L35 FIXED UTILITARIAN ACCESS SYSTEMS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL

150 STAIR SYSTEMS

1. Description: To provide roof level plantroom access
2. Method of provision: Fabricated off site and assembled on site
3. Dimensions: As shown on detail drawing
4. Basic component material: Galvanised carbon steel
5. Treads: Welded mesh
6. Stringers: Plates
7. Landings: To match treads
8. Guarding system: Required
9. Assembly connectors: Galvanised steel bolt assemblies
10. Fixing to superstructure: Submit proposals
11. Accessories: Contrasting anti slip nosings to treads

170 GUARDING SYSTEM

1. Description: To stair as clause 150 & plantroom internal concrete steps
2. Method of provision: Fabricated off site and assembled on site
3. Dimensions: As shown on detail drawing
4. Basic component material: Galvanised carbon steel
5. Standards: Tubes
6. Handrails: Tubes
7. Knee rails: Tubes
8. Infill panels: Not required
9. Assembly connectors: Full welds
10. Fixing to parent structure: Galvanised steel bolts
11. Accessories: None required

SYSTEM PERFORMANCE

214A COMPLETION OF DESIGN

1. Description: For stair system clause 150 and guarding system as clause 170
2. Requirement: Complete the detailed design to satisfy specified performance criteria and coordinate with the detailed design of related and adjacent work.
 - Standards: Straight stairs and winders: In accordance with BS 5395-1
3. Structural requirement: Complete design in accordance with the designated code of practice to satisfy relevant performance criteria.
4. Additional requirements: None

PRODUCTS - NOT USED

FABRICATION

510 FABRICATION GENERALLY

1. Shop drawings: Submit.

EXECUTION

620 EXECUTION GENERALLY

1. Structural members: Do not subject to nondesign loading. Do not modify, cut, notch or make unspecified holes.
2. Frameworks: Assemble and brace, including temporary members required for installation.
 - Temporary support: Do not use access systems as temporary support or strutting for other work.
3. External durability of fastenings: Corrosion resistant material or with a corrosion resistant finish.
4. Bolted joints
 - Contact between dissimilar metals: Avoid.
 - Bolts and washers: Select types, sizes and quantities of fasteners or packings and spacings to retain supported components without distortion or loss of support.
5. Welded joints
 - Standards
 - o Aluminium alloys: TIG or MIG welding to BS EN 1011-4.
 - o Carbon steel: Metal arc welding to BS EN 1011-1 and -2.
 - o Stainless steel: TIG welding to BS EN 1011-3.
 - Surfaces to be jointed: Clean.
 - Tack welds: Use only for temporary attachment.
 - Traces of flux residue, slag and weld spatter: Remove.
 - Surface of welds: Grind smooth.
 - Joints: Fully bonded with no holes or cracks.
6. Finished components
 - Free: From distortion, cracks, burrs and sharp arrises.
 - Corner junctions of identical sections: Mitre.
 - Handrails: Smooth and continuous, with no sharp edges.

660 ANCHORING

1. Fixing positions: Coordinate location of holding down bolts and wall fixings with services fixing positions.
2. Edge distance and spacing (minimum): - Unless otherwise specified, locate anchors to permit the development of their full shear and pull out capacities.- Report any locations where the size or position of the member will prevent the correct positioning of anchorages

COMPLETION

910 CLEANING

1. General: Clean surfaces and wipe down finishes.

920 INSPECTION

1. Notice for inspection (minimum): 5 days

930 DOCUMENTATION

1. Operation and maintenance instructions: Submit.
2. Record drawings: Submit.

L37 EXTERNAL STAIR, RAMPS, HANDRAIL AND BALUSTRADES SYSTEMS

REVISED

GENERAL

150 HANDRAIL SYSTEMS

1. Description: All steps ref: HR1
2. System manufacturer: Submit design and cost proposals
3. Material: Austenitic stainless steel
 - Cross section: As drawing HG0052-IBI-ED-XX-DT-L-700008
 - Finish: Stainless steel
4. Height (to upper surface of handrail)
 - Above pitch line: As drawing HG0052-IBI-ED-XX-DT-L-700008
 - Above landing: As drawing HG0052-IBI-ED-XX-DT-L-700008
5. Accessories: Handrail to be root fixed

160 BALUSTRADE SYSTEMS REVISED

1. Description: Geo Balustrade to main pedestrian route to hospital entrance
REF: BAL
2. System manufacturer: Marshalls PLC,
Sales office: 0370 600 2425
Email: StreetFurniture@marshalls.co.uk
3. Guarding
 - Material: Grade 316 Stainless steel
 - Finish: Bead blasted
4. Rail
 - Cross section: As manufacturer standard
 - Material: Grade 316 stainless steel
 - Finish: Bead blasted
5. Height (to upper surface of rail)
 - Above landing: 1200 mm
6. Accessories: Handrail system. Radium panels to radius kerb lines. AS drawing HG0052-IBI-ED-XX-DT-L-700009. Balustrade to be root fixed. Panel size 2500mm and no smaller than 1000mm for end panels / make up panels. Contractor to submit design and cost proposals for approval Handrail system Handrail system

SYSTEM PERFORMANCE - NOT USED

PRODUCTS

310 PRECAST CONCRETE STEP UNIT

1. Description: REF: S
2. Manufacturer: Marshalls or similar approved
 - Product reference: Conservation X Step Units ID: FL9670200
3. Standard: To BS EN 771-2 and -3.
4. Size
 - Surface width: 1950mm
 - Going: 300 mm

- Rise: 160 mm
- 5. Colour: Silver Grey
- 6. Finish: Textured
 - Slip resistance value of integral tread - water wet (minimum): As manufactured
 - Slip resistance value of integral nosing - water wet (minimum): As manufactured
 - o Colour of integral nosing: Black
- 7. Accessories: none

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. Concrete: Designated not less than GEN 1 or standard prescribed 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: To engineers details
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.

650 INSTALLATION GENERALLY

1. Fasteners: To 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 finished work as temporary support or strutting for other work.
4. Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

662 ADVERSE WEATHER

1. General: Do not use frozen materials and do not lay on frozen surfaces.
2. Working limits: Do not lay blocks/ dressings:
 - Cement gauged mortars: When the air temperature is at or below 3°C and falling or below 1°C and rising (unless mortar has a temperature of not less than 4°C when laid and work is thoroughly protected).
 - Hydraulic lime:sand mortars: When the air temperature is at or below 5°C and falling or below 3°C and rising.
3. Temperature of the work: Maintain above freezing until mortar has fully set.
4. Newly erected work: Protect from precipitation; Prevent rapid drying in hot conditions.
5. Remedial work: Rake out and replace mortar damaged by frost.
 - Damaged work: Rebuild.

COMPLETION

910 INSPECTION

1. Timing: Two weeks prior to date when principal contractor expects work to be practically complete
2. Period of notice (minimum): 3 working days.

L40 GENERAL GLAZING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL REQUIREMENTS

111 PRE-GLAZING

1. Pre-glazing of components: Permitted.
2. Prevention of displacement: Submit details of precautions to be taken to protect glazing and compound/ seals during delivery and installation.
3. Defective/ displaced glazing/ compound/ seals: Reglaze components in situ.

112 VISION PANELS TO INTERNAL TIMBER DOORSETS

1. Pre-glazed by doorset manufacturer.

150 WORKMANSHIP AND POSITIONING GENERALLY

1. Glazing generally: In accordance with BS 6262 series.
2. Integrity: Glazing must be wind and watertight under all conditions with full allowance made for deflections and other movements.
3. Dimensional tolerances: Panes/ sheets to be within ± 2 mm of specified dimensions.
4. Materials
 - Compatibility: Glass/ plastics, surround materials, sealers, primers and paints/ clear finishes to be used together to be compatible. Avoid contact between glazing panes/ units and alkaline materials such as cement and lime.
 - Protection: Keep materials dry until fixed. Protect insulating glass units and plastics glazing sheets from the sun and other heat sources.

151 PREPARATION

1. Surrounds, rebates, grooves and beads: Cleaned and prepared by others.

152 PREPARATION

1. Surrounds, rebates, grooves and beads: Clean and prepare before installing glazing; ensure compliance with any certified installation requirements.

155 GLASS GENERALLY

1. Standards: To BS 952 and relevant parts of:
 - BS EN 572 for basic soda lime silicate glass.
 - BS EN 1096 for coated glass.
 - BS EN 1748-1-1 for borosilicate glass.
 - BS EN 1748-2-1 for ceramic glass.
 - BS EN 1863 for heat-strengthened soda lime silicate glass.
 - BS EN 12150 for thermally toughened soda lime silicate safety glass.
 - BS EN 12337 for chemically strengthened soda lime silicate glass.
 - BS EN 13024 for thermally toughened borosilicate safety glass.
 - BS EN ISO 12543 for laminated glass and laminated safety glass.
2. Panes/ sheets: Clean and free from obvious scratches, bubbles, cracks, rippling, dimples and other defects.

- Edges: Generally undamaged. Shells and chips not more than 2 mm deep and extending not more than 5 mm across the surface are acceptable if ground out.

162 LAMINATED GLASS

1. Manufacturer: Saint Gobain Glass UK, Weeland Road, Eggborough, East Riding of Yorkshire, DN14 0FD
 - Product reference: Stadip Protect laminated safety glass comprising sheets of toughened glass bonded together with polyvinyl (PVB) film interlayer
 - o Overall thickness: Glass thickness: PVB film thickness
 - o 6.8 mm 2 x 3 mm 0.76 mm
 - o 7.5 mm 2 x 3 mm 1.52 mm
 - o 8.8 mm 2 x 4 mm 0.76 mm
 - o 10.8 mm 2 x 5 mm 0.76 mm
 - o 12.8 mm 2 x 6 mm 0.76 mm .

162D LAMINATED GLASS INCORPORATING DIFFUSED INTERLAYER

1. Manufacturer: Saint Gobain Glass UK, Weeland Road, Eggborough, East Riding of Yorkshire, DN14 0FD
 - Product reference: Stadip Diffusa Tint 2165 laminated safety glass comprising sheets of toughened glass bonded together with white translucent polyvinyl (PVB) film interlayer

164 OPAQUE GLASS

1. Manufacturer: Saint Gobain Glass UK, Weeland Road, Eggborough, East Riding of Yorkshire, DN14 0FD
 - Product reference: Emalit Evolution toughened glass with enamelled surface one side in colour(s) to CA's requirements from manufacturer's full range

165 HEAT-SOAKING OF THERMALLY TOUGHENED GLASS

1. Standard: To BS EN 14179-1 and -2.
 - Holding period (minimum): 8 hours
2. Certified evidence of treatment: Submit.
3. Designated locations: Where noted on drawings

166 THERMAL STRESS IN GLAZING

1. Glass panes/ units: Must have adequate resistance to thermal stress generated by orientation, shading, solar control, construction or where opaque/coloured interlayers or enamel coatings are used.

180 BEAD-FIXING WITH PINS

1. Pin spacing: Regular at maximum 150 mm centres, and within 50 mm of each corner.
2. Exposed pin heads: Punched just below wood surface.

TYPES OF GLAZING

370A BEAD FIXED INSULATING GLASS UNITS

1. Description: To aluminium windows
2. IGU: As clause: 650A
 - Perimeter taping: Do not use.
3. Surround/ bead: Aluminium
 - Preparation: Priming/ sealing not required
 - Bead location: Inside

- Bead fixing: Proprietary clip fixing
- 4. Glazing system: Preformed gasket sections supplied by window manufacturer
- 5. Thermal performance (U-value maximum): As glazing insert
- 6. Glazing installation:
 - Insulating unit: Located centrally in surround using setting and location blocks.
 - Gaskets and beads: Installed as recommended by frame manufacturer.
 - o Gasket fit at corners: Tight, without gaps.
 - Drainage and ventilation holes: Unobstructed.
- 7. Other requirements: Fabricated by single source supplier using glass obtained from same manufacturer.

516 BEAD FIXED GLAZING TO VISION PANELS TO NON FIRE RESISTING INTERNAL TIMBER DOORSETS

1. Pane material: 6 mm clear toughened glass or, where noted on doorset schedules, 6.4 mm clear laminated safety glass incorporating white translucent PVB film interlayer as clause 162D
2. Surround/ bead: Timber door leaf/ hardwood quirk beads as section L20/ 410
 - Bead fixing: Pinned with 50 mm steel pins at equal but maximum 150 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing system: Pyroplex Ltd ref 30049 glazing seal (colour: black)
4. Bed beads dry to glazing seal and fix securely.
5. Other requirements: Quirk beads to laminate faced leaves to have 10 mm radiused corners

517 BEAD FIXED GLAZING TO VISION PANELS TO FD30/ FD30S FIRE RESISTING INTERNAL TIMBER DOORSETS

1. Pane material: 7 mm AGC Glass UK Ltd PYROBELite clear laminated fire resisting glass
2. Surround/ bead: Timber door leaf/ hardwood quirk beads as section L20/ 410
 - Bead fixing: Pinned with 50 mm steel pins at equal but maximum 150 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing system: Sealed Tight Solutions STS 105GT intumescent seals
4. Bed beads dry to glazing seal and fix securely.
5. Other requirements: Quirk beads to laminate faced leaves to have 10 mm radiused corners

518 BEAD FIXED GLAZING TO VISION PANELS TO FD60/ FD60S FIRE RESISTING INTERNAL TIMBER DOORSETS

1. Pane material: 15 mm Pilkington UK Ltd Pyrostop clear fire resisting glass
2. Surround/ bead: Timber door leaf/ hardwood quirk beads as section L20/ 410
 - Bead fixing: Pinned with 50 mm steel pins at equal but maximum 150 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing system: Lorient Polyproducts Ltd System-36/15 PLUS flexible 'U' shaped intumescent gasket
4. Bed beads dry to glazing seal and fix securely.
5. Other requirements:
 - Vision panel aperture lined with 2 mm Intumescent Seals Ltd Therm-A-Line intumescent liner
 - Quirk beads to laminate faced leaves to have 10 mm radiused corners

523 BEAD FIXED GLAZING TO NON FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: 6 mm clear toughened glass
2. Surround/ bead: Timber screen/ hardwood quirk beads as section L10/ 510
 - Bead fixing: Pinned with 50 mm steel pins at equal but maximum 250 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing tape: Close cell foam glazing tape
4. Bed beads dry to rebate and glazing tape and fix securely. Trim tape flush on both sides.

523A BEAD FIXED GLAZING TO CIRCULAR NON FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: 10.8 mm clear laminated glass
2. Surround/ bead: Plywood incorporating circular aperture/ multi-layer plywood aperture linings as section L10/ 510
 - Bead fixing: Pinned with 50 mm steel pins at equal but maximum 250 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing tape: Close cell foam glazing tape
4. Bed aperture linings dry to rebate and glazing tape and fix securely. Trim tape flush on both sides.

524 BEAD FIXED GLAZING TO 30 MINS (INTEGRITY) FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: Fire Glass UK Ltd, 24-26 Hainge Road, Tividale, Oldbury, West Midlands, B69 2NH; Insulating glass unit comprising 6 mm Venetian Mirrored toughened glass, 8 mm air gap and 10 mm Pilkington United Kingdom Ltd Pyrodur Plus clear laminated fire resisting glass
2. Surround/ bead: Timber screen/ hardwood quirk beads as section L10/ 510
 - Bead fixing: Pinned with 50 mm steel pins at equal but maximum 250 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Intumescent seal: 20 x 2 mm Dufaylite Developments Ltd, St Neots, Cambridge, PE19 1QW; Interdens intumescent seal
4. Bed beads dry to rebate and intumescent seal and fix securely.

526 BEAD FIXED GLAZING TO 60/ 60 (INTEGRITY/ INSULATION) FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: Pilkington United Kingdom Ltd, 27 mm ref 60-201 Pyrostop fire resistant glass
2. Surround/ bead: Timber screen/ hardwood beads as section L10/ 510
 - Bead fixing: Fixed with 65 mm long x 8 gauge countersunk screws at equal but maximum 200 mm centres, maximum 50 mm in from ends of beads with fixing holes factory pre-drilled, counterbored and timber pelleted
3. Glazing seal: Dufaylite Developments Ltd, St Neots, Cambridge, PE19 1QW; 20 x 2 mm Interdens intumescent seal
4. Bed beads dry to rebate and glazing seal and fix securely.

527 BEAD FIXED INSULATING GLASS UNIT WITH INTEGRAL VENETIAN BLIND TO NON FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: Pilkington Plyglass Ltd, Cotes Park, Somercotes, Alfreton, Derbyshire, DE55 4PL; Insulight Sun insulating glass unit comprising two panes 4 mm clear toughened glass with 22 mm silver spacer bars and polysulphide seal, incorporating ref SL22B ScreenLine non-fogging 12.5 mm venetian blind in colour selected by CA from manufacturer's full range

operable by means of ref SL2110 slim knob external magnetic device (operable one side of screen or both sides as shown on detail drawing)

2. Surround/ bead: Timber screen/ hardwood quirk beads as section L10/ 510
 - Bead fixing: Pinned with steel pins at equal but maximum 250 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing tape: Close cell foam glazing tape
4. Bed beads dry to rebate and glazing tape and fix securely. Trim tape flush on both sides.

527A BEAD FIXED INSULATING GLASS UNIT WITH INTEGRAL VENETIAN BLIND TO NON FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: Pilkington Plyglass Ltd, Cotes Park, Somercotes, Alfreton, Derbyshire, DE55 4PL; Insulight Sun insulating glass unit comprising 4 mm clear toughened glass, 22 mm silver spacer bars and polysulphide seal, incorporating ref SL22B ScreenLine non-fogging 12.5 mm venetian blind in colour selected by CA from manufacturer's full range operable by means of ref SL2110 slim knob external magnetic device and 10.8 mm clear laminated glass
2. Surround/ bead: Timber screen/ hardwood quirk beads as section L10/ 510
 - Bead fixing: Pinned with steel pins at equal but maximum 250 mm centres, maximum 50 mm in from ends of beads with fixing holes filled with Konig UK 140 tinted soft wax filler
3. Glazing tape: Close cell foam glazing tape
4. Bed beads dry to rebate and glazing tape and fix securely. Trim tape flush on both sides.

528 BEAD FIXED INSULATING GLASS UNIT WITH INTEGRAL VENETIAN BLIND TO 30/ 30 MINS (INTEGRITY/ INSULATION) FIRE RESISTING TIMBER GLAZED SCREENS

1. Pane material: Pilkington Plyglass Ltd, Cotes Park, Somercotes, Alfreton, Derbyshire, DE55 4PL; Insulight Sun insulating glass unit comprising 4 mm clear toughened glass, 22 mm silver spacer bars and polysulphide seal, incorporating ref SL22B ScreenLine non-fogging 12.5 mm venetian blind in colour selected by CA from manufacturer's full range operable by means of ref SL2110 slim knob external magnetic device and 15 mm Pilkington United Kingdom Ltd Pyrostop 60-101 fire resisting glass
2. Surround/ bead: Timber screen/ hardwood quirk beads as section L10/ 510
 - Bead fixing: Fixed with 50 mm long x 8 gauge countersunk screws at equal but maximum 200 mm centres, maximum 50 mm in from ends of beads with fixing holes factory pre-drilled, counterbored and timber pelleted
3. Intumescent seal: Dufaylite Developments Ltd, St Neots, Cambridge, PE19 1QW; 20 x 2 mm Interdens intumescent seal
4. Bed beads dry to rebate and intumescent seal and fix securely.

560A PLASTICS MIRRORS

1. Description:
2. Manufacturer: Clarke's Safety Mirrors Limited, Unit 302, Queensway Business Park, Hadley Park, Telford, TF1 7UL
 - Product reference: Polycarbonate mirror with scratch resistant coating and smooth polished edges
3. Mirror material: Silvered finish to give maximum reflection, free from tarnishing, discoloration, scratches and other defects visible in the designed viewing conditions.
 - Thickness: 6 mm
 - Backing: Paper masking
4. Fixing method: Countersunk woodscrews with 15 mm cp flat coverheads and polyethylene sleeves and washers at max 600 mm centres
5. Installation: Fixed accurately and securely without overtightening fasteners, to provide a flat surface giving a distortion free reflection.

630 MANIFESTATION

1. Description: To entrance lobby doors
2. Design: As drawing HG0052-IBI-ED-BL-DT-A-322003
 - Art work: To be prepared by contractor and submitted for approval
 - Media: CD Rom
3. Technique: Silk screened

650A INSULATED GLASS UNITS (IGUS)

1. Description:
2. Type: Double pane and gas fill
3. Standard: To BS EN 1279.
4. Alternative specifications as referenced on elevations: GS1: 29 mm insulating glass unit comprising:
 - Inner pane: 6.8 mm clear laminated safety glass as clause 162
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 6 mm Saint-Gobain Glass Securit Cool-lite SKN176 II toughened safety glass heatsoak tested to BSEN14179GS2: 29 mm insulating glass unit comprising:
 - Inner pane: 7.5 mm clear laminated safety glass as clause 162
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 6 mm Saint-Gobain Glass Securit Cool-lite SKN176 II toughened safety glass heatsoak tested to BSEN14179GS3: 31 mm insulating glass unit comprising:
 - Inner pane: 8.8 mm clear laminated safety glass as clause 162
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 6 mm Saint-Gobain Glass Securit Cool-lite SKN176 II toughened safety glass heatsoak tested to BSEN14179GS10: 28 mm insulating glass unit comprising:
 - Inner pane: 6.4 mm laminated glass incorporating diffused interlayer as clause 162D
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 6 mm Saint-Gobain Glass Securit Cool-lite SKN176 II toughened safety glass heatsoak tested to BSEN14179GS11: 28.8 mm insulating glass unit comprising:
 - Inner pane: 6.8 mm clear laminated safety glass as clause 162
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 6 mm Saint-Gobain Glass Emalit Evolution toughened safety glass heatsoak tested to BSEN14179GS12: 36.8 mm insulating glass unit comprising:
 - Inner pane: 12.8 mm clear laminated safety glass as clause 162A
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 8 mm Saint-Gobain Glass Securit Cool-lite SKN176 II toughened safety glass heatsoak tested to BSEN14179GS13: 32.8 mm insulating glass unit comprising:
 - Inner pane: 10.8 mm clear laminated safety glass as clause 162D
 - Cavity: 16 mm, 90% argon filled
 - Outer pane: 6 mm Saint-Gobain Glass Securit Cool-lite SKN176 II toughened safety glass heatsoak tested to BSEN14179

5. Spacer: Black continuous stainless steel black warm edge to EN1279 Part 3, maximum 0.065 PSI
6. Perimeter taping: Do not use.
7. Perimeter seals:
 - Resistant to UV light degradation on exposed edges
 - Compatible with structural, assembly and weather sealants
 - Ensure primary seal provides a minimum of 2 mm (+ or - 0.5mm) cover to perimeter spacer and is applied as a continuous bead in full contact with both panes of glass and perimeter spacer and such that there are no voids between primary and secondary seals
 - Ensure secondary seal provides a minimum of 3 mm (+ or - 0.5 mm) cover to perimeter spacer
8. Other requirements: -
Where inner and outer panes are toughened/ laminated, roller waves to be in same orientation
Fabricated by single source supplier using glass obtained from same manufacturer

M10 CEMENT BASED LEVELLING/WEARING SCREEDS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

TYPES OF SCREED

111 BONDED CEMENT:SAND LEVELLING SCREEDS

1. Description: To dished shower areas
2. Substrate: In situ concrete slab
3. Screed construction: Fully bonded as clause 262 and laid to falls as clause 350 at maximum slope of 1:20
4. Thickness:
 - Minimum: 15 mm.
 - Maximum: 50mm.
5. Mix:
 - Cement: CEM I 42.5 N+R
 - Additive:
 - o Manufacturer: PCT Chemie UK, Suite 8i, Enterprise Centre, Moorgate Point, Moorgate Road, Liverpool, L33 7XW
 - o Product reference: Retanol Xtreme screed additive
 - Proportions: 62.5 kg cement per 250 litres gross capacity standard screed pump vessel incorporating 400ml admixture added to first mixing water (nom 5-10 litres)
6. In situ crushing resistance (ISCR) category: A (3 mm maximum indentation)
7. Flatness/ Surface regularity class: SR2
8. Finish: Trowelled, as clause 540
 - To receive: 2.0 mm thick extra slip resistant vinyl sheet
9. Other requirements: Bonding agent/ damp proof membrane
 - Manufacturer: Resdev Ltd, Pumaflor House, Ainleys Industrial Estate, Elland, West Yorkshire, HX5 9JP
 - o Product reference: Pumaprime DPM two component solvent-free damp proof membrane
 - Number of coats: Two

GENERALLY/ PREPARATION

210 SUITABILITY OF SUBSTRATES

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

211 WORKING CONDITIONS

1. Before starting work ensure that:

- Working areas are suitable for finishing work.
- Windows and other openings are closed.
- The internal temperature exceeds 10 deg C.
- The mix temperature does not exceed 25 deg C.
- The relative humidity of the concrete floor does not exceed 95%.

262 FULLY BONDED CONSTRUCTION FOR SCREED TYPE M10/ 111

1. Preparation: Generally in accordance with BS 8204-1.
2. Removing mortar matrix: Shortly before laying screed, expose coarse aggregate over entire area of hardened substrate.
3. Texture of surface: Suitable to accept screed and achieve a full bond over complete area.
4. Laying: Lay screed while bonding agent/ second coat of damp proof membrane is still tacky to ensure a good bond.

BATCHING/ MIXING

302 CEMENTS

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

305 AGGREGATES

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

331 MIXING

1. Admixtures: Do not use except where specified.
2. Water content: Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.
3. Mixing: Mix materials thoroughly to uniform consistency in a suitable forced action mechanical mixer. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.
4. Consistency: Use while sufficiently plastic for full compaction.

341 ADVERSE WEATHER

1. Frost damage: Take adequate precautions to prevent. Do not use frozen materials or lay mixes on frozen or frost covered surfaces.
2. Sand heaps: Cover to keep out frost and, in severe freezing conditions, provide heated enclosure to prevent sand pockets forming.
3. Storage of materials: Store cement and proprietary additives above freezing point.
4. Screeds surface temperature: Maintain above 5°C for a minimum of four days after laying.
5. Hot weather: Prevent premature setting or drying out.

LAYING

345 LEVEL OF SCREED SURFACES

1. Permissible deviation: (allowing for thickness of coverings) ± 5 mm from datum.

350 SCREEDING TO FALLS

1. Minimum screed cover: Maintain at the lowest point.
2. Falls: Gradual and consistent.
 - Gradient (minimum): As detail drawing

355 FLATNESS/ SURFACE REGULARITY OF FLOOR SCREEDS

1. Standard: In accordance with BS 8204-1, Table 5.
2. Test: In accordance with BS 8204-1, Annex C.
3. Sudden irregularities: Not permitted.

375 COMPACTION OF SCREEDS

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

FINISHING/CURING

510 FINISHING GENERALLY

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

540 TROWELLED FINISH TO LEVELLING SCREEDS

1. Floating: To an even texture with no ridges or steps.
2. Trowelling: To a uniform, smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive specified flooring material.

650 CURING

1. General: Prevent premature drying. Immediately after laying, protect surface from wind, draughts and strong sunlight. As soon as screed has set sufficiently, closely cover with polyethylene sheeting.
2. Curing period (minimum): Keep polyethylene sheeting in position for: 7 days.
3. Drying after curing: Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions that will cause cracking or other shrinkage related problems.

M50 RUBBER/ PLASTICS/ CORK/ LINO/ CARPET TILING/ SHEETING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF COVERING

150C SHEETING

1. Description: Slip resistant vinyl
2. Location: Where shown on layout drawing(s)
3. Base: New power floated concrete slab as section E05/ 315, power ground as section E41/ 415
 - Preparation: Apply F Ball & Co Ltd Stopgap P131 general purpose neoprene primer and min 3 mm thick Stopgap 300 smoothing underlayment to power floated concrete slab prior to application of adhesive
4. Fabricated underlay: Not applicable
5. Flooring roll:
 - Standard: To BS EN 14041.
 - o Evidence of compliance: Submit.
 - Reaction to fire classification: Bfl-s1
 - Material: Homogeneous PVC to BS EN ISO 10581
 - Manufacturer: Polyflor Ltd, PO Box 3, Radcliffe New Road, Whitefield, Manchester M45 7NR
 - o Product reference: Polysafe Verona PUR slip resistant vinyl floorcovering
 - BS EN ISO 10874 class: 23/ 34/ 43
 - Slip potential:
 - o Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2 and -3: 36 wet
 - o Surface roughness (Rz) (minimum) to BS 1134: 20 micrometres
 - Recycled content: 2%
 - Width: 2000 mm
 - Thickness: 2.0 mm
 - Colour/ pattern: To CA's requirements from manufacturer's full range
6. Adhesive (and primer if recommended by manufacturer): F Ball & Co Ltd, Styccobond F44 adhesive
7. Seam welding: Hot welding with complementary coloured rod
8. Accessories: Form 100 mm high self-coved skirtings with 100 mm toe by carrying a separate piece of sheeting over cove former and vertically up face of wall. Fix skirting with Styccobond F60 adhesive and hot weld joints, all as clause 773B
9. Finishing: As clause 820C
10. Other requirements: Increase skirting height to 150 mm where continued behind pvc sheet wallcovering as clause 161A/ 161B

151A SHEETING

1. Description: Vinyl
2. Location: Where shown on layout drawing(s)

3. Base: New power floated concrete slab as section E05/ 315, power ground as section E41/ 415
 - Preparation: Apply F Ball & Co Ltd Stopgap P131 general purpose neoprene primer and min 3 mm thick Stopgap 300 smoothing underlayment to power floated concrete slab prior to application of adhesive
4. Fabricated underlay: Not applicable
5. Flooring roll:
 - Standard: To BS EN 14041.
 - o Evidence of compliance: Submit.
 - Reaction to fire classification: Bfl-s1
 - Material: Homogeneous PVC to BS EN ISO 10581
 - Manufacturer: Polyflor Ltd, PO Box 3, Radcliffe New Road, Whitefield, Manchester M45 7NR
 - o Product reference: Polyflor Classic Mystique PUR vinyl sheet flooring
 - BS EN ISO 10874 class: 23/ 34/ 43
 - Slip potential:
 - o Slip resistance value (SRV) to DIN 51130: R9
 - Recycled content: 25%
 - Width: 2000 mm
 - Thickness: 2.0 mm
 - Colour/ pattern: To CA's requirements from manufacturer's full range
6. Adhesive (and primer if recommended by manufacturer): F Ball & Co Ltd, Styccobond F44 adhesive
7. Seam welding: Hot welding with complementary coloured rod
8. Accessories: 100 mm high set-in PVC skirtings as clause 770A, 2 mm gauge
9. Finishing: As clause 820C
10. Other requirements: 500 x 50 mm insert in contrasting colour to be let into floorcovering to Room 0-041 (Eye Treatment) in location shown on Architect's layout

155A PVC SHEET FLOORING IN SPECIAL WET AREAS

1. Location: Where shown on layout drawing(s)
2. Base: M10/ 111 screed
 - Preparation: None
3. Fabricated underlay: Not applicable
4. Flooring roll: PVC to BS EN 14041 and BS EN 13553.
 - Evidence of compliance: Submit.
 - Reaction to fire classification: Class Bfl-s1
 - Manufacturer: Altro Ltd, Works Road, Letchworth, Hertfordshire, SG6 1NW
 - o Product reference: Altro Aquarius safety flooring
 - Identity code: W2
 - BS EN ISO 10874 class: 34/ 43
 - Slip potential:
 - o Slip resistance value (SRV) (minimum)/ Pendulum test value (PTV) (minimum) to BS 7976-1, -2 and -3: 36 wet
 - o Surface roughness (Rz) (minimum) to BS 1134: 20 micrometres (wet)
 - Recycled content: 10%

- Width: 2000 mm
 - Thickness: 2.0 mm
 - Colour/ pattern: To CA's requirements from manufacturer's full range
5. Adhesive (and primer if recommended by manufacturer): Altro Ltd, Altrofix A19 Plus adhesive
 6. Seam welding: Hot welding with complementary coloured rod as clause 681
 7. Accessories:
 - Form 100 mm high self-coved skirtings with 100 mm toe by carrying a separate piece of sheeting over cove former and vertically up face of wall. Fix skirting with Altrofix A25NF adhesive and hot weld joints, all as clause 773A
 - Form 120 mm wide shower threshold around perimeter of dished shower floor by carrying a separate piece of sheeting as clause 150A over shower threshold as clause 745
 8. Finishing: As clause 820B
 9. Other requirements: None

160D SHEETING

1. Description: Vinyl/ acrylic wallcovering
2. Location: Where shown on layout drawing(s)
3. Base: New plaster/ plasterboard
 - Preparation: None
4. Sheeting:
 - Manufacturer: Construction Specialties (UK) Ltd, 1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
 - o Product reference: Acrovyn high impact vinyl/ acrylic sheeting
 - Recycled content: 100%
 - Sheet size: 2440 x 1220 mm
 - Thickness: 1.5 mm
 - Colour/ pattern: To CA's requirements from manufacturer's full range
5. Adhesive (and primer if recommended by manufacturer): Construction Specialties (UK) Ltd, Acrovyn acrylic adhesive. Prime porous surfaces with Construction Specialties (UK) Ltd Acrovyn acrylic adhesive primer
6. Seam welding: Maintain 2.5 mm gap between sheets and seal with Silirub Color neutral cure elastic one-component silicone based joint sealant
7. Accessories: None
8. Other requirements: None

161B SHEETING

1. Description: Solid colour PVC wallcovering
2. Location: Where shown on layout drawing(s)
3. Base: New plaster/ plasterboard
 - Preparation: Ensure substrate is within manufacturer's recommended tolerance of +/- 3 mm under a 2 m straightedge
4. Sheeting:
 - Reaction to fire classification: B-s3, d0
 - Material: Homogeneous PVC to BS EN ISO 10581
 - Manufacturer: Altro Ltd, 48 Pinbush Road, South Lowestoft Industrial Estate, Lowestoft, Suffolk, NR33 7NL

- o Product reference: Whiterock Chameleon (W160/ 161)/ Altro Satins (W136/ 137) extruded EU grade PVC sheet
 - Sheet size: - W160/ W136: 2500 x 1220 mm - W161/ W137: 3000 x 1220 mm
 - Thickness: 2.5 mm
 - Colour/ pattern: To CA's requirements from manufacturer's full range
5. Adhesive (and primer if recommended by manufacturer): Altro Ltd, Altrofix W139 (ref A814) 2 part polyurethane adhesive (ref 915). Prime/ seal porous surfaces with diluted PVA (1:10) or Altro Primer Seal (ref AGCPNF/ 01)
 6. Seam welding: Hot welding with complementary coloured rod
 7. Accessories:
 - Horizontal junction with skirtings: Overlapping coved skirting by 50 mm. Close bottom of sheet with clear silicone sealant (ref A803)
 - Vertical abutments with architraves, window frames etc: Sealed with white silicone sealant (ref A802)
 - Internal and external corners: Thermo-formed to a pencil round on site
 8. Finishing: Apply Whiterock anti-static solution (ref A809) to all surfaces at completion of installation
 9. Other requirements: Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from rippling, scratches, adhesive marks and stains

175A CLEAN-OFF ZONE CARPETING

1. Location: Where shown on layout drawing(s)
2. Base: New power floated concrete slab
 - Preparation: Apply F Ball & Co Ltd Stopgap P131 general purpose neoprene primer and min 3 mm thick Stopgap 300 smoothing underlayment to power floated concrete slab prior to application of adhesive
3. Fabricated underlay: Not applicable
4. Carpet:
 - Standard: To BS EN 14041.
 - o Evidence of compliance: Submit.
 - Reaction to fire classification to BS EN 13501-1: Class Cfl s1
 - Manufacturer: 3M United Kingdom plc, 3M Centre, Cain Road, Bracknell, RG12 8HT
 - o Product reference: Nomad Aqua series 85 barrier matting with pvc backing
 - Type: Polyamide loop pile dual fibres tuft
 - BS EN 1307 classification:
 - o Additional performance properties to BS EN 1307: None
 - Recycled content: Manufacturer's standard
 - Width: 2000 mm
 - Colour/ pattern: To CA's requirements from manufacturer's full range
5. Carpet adhesive (and primer if recommended by manufacturer): F Ball & Co Ltd, Styccobond F74 adhesive
6. Accessories: 100 mm high coved skirtings formed by carrying carpet over Gradus Ltd ref CF20 cove former and up adjacent walls to Gradus Ltd ref CC75 pvc carpet skirting
7. Other requirements: None

GENERAL REQUIREMENTS

206 APPROVED FIRMS

1. The installation of pvc sheet wallcovering types M50/ 161B is to be carried out by system manufacturer's trained installer selected from the following:
 - Richardson Cladding Limited, 4 Lodge Lane, Wainstalls, Halifax, Yorkshire, HX2 2TU
 - MGD Specialist Interior Finishes, Suite 167, 792 Wilmslow Road, Didsbury, Manchester, M20 6UG
 - Commercial Coverings, Potter Street, Willington Quay, Wallsend, Tyne and Wear, NE28 6TZ

210 WORKMANSHIP GENERALLY

1. Base condition after preparation: Rigid, dry, sound, smooth and free from grease, dirt and other contaminants.
2. Finished coverings: Accurately fitted, tightly jointed, securely bonded, smooth and free from air bubbles, rippling, adhesive marks and stains.

220 SAMPLES

1. Covering samples: Before placing orders, submit representative sample of each type.

230 CONTROL SAMPLES

1. General: Complete areas of finished work in approved locations as follows, and obtain approval of appearance before proceeding:
 - Slip resistant vinyl sheeting M50/ 150B
 - Vinyl sheeting M50/ 151B
 - PVC sheet wallcovering M50/ 161B

253 LAYOUT

1. Set out sheet coverings with joints parallel to room axes and so that seams and cross seams are kept to a minimum. Notwithstanding the foregoing:
 - Set out sheet coverings so that wherever possible, the widths of cut pieces exceed half roll width.
 - Lay sheet coverings across corridors wherever corridor width exceeds roll width.

310 MARKING

1. Ensure that materials are delivered to site in original packing, clearly marked with batch number.

320 STORAGE

1. Store materials in a clean, warm, dry, well ventilated place. Keep in original packing until conditioning commences.

330 COMMENCEMENT

1. Required condition of works prior to laying materials
 - Building is weathertight and well dried out.
 - Wet trades have finished work.
 - Paintwork is finished and dry.
 - Conflicting overhead work is complete.
 - Floor service outlets, duct covers and other fixtures around which materials are to be cut are fixed.
2. Notification: Submit not less than 48 hours before commencing laying.

340 CONDITIONING

1. Prior to laying: Condition materials by unpacking and separating in spaces where they are to be laid. Maintain resilient flooring rolls in an upright position. Unroll carpet and keep flat on a supporting surface.
2. Conditioning time and temperature (minimum): As recommended by manufacturer with time extended by a factor of two for materials stored or transported at a temperature of less than 10°C immediately prior to laying.

350 ENVIRONMENT

1. Temperature and humidity: Before, during and after laying, maintain approximately at levels which will prevail after building is occupied.
2. Ventilation: Before during and after laying, maintain adequate provision.

PREPARING BASES

410 NEW BASES

1. Suitability of bases and conditions within any area: Commencement of laying of coverings will be taken as acceptance of suitability.

420 EXISTING BASES

1. Notification: Before commencing work, confirm that existing bases will, after preparation, be suitable to receive coverings.
2. Suitability of bases and conditions within any area: Commencement of laying of coverings will be taken as acceptance of suitability.

430A NEW WET LAID BASES

1. Base drying aids: Not used for at least four days prior to moisture content testing.
2. Base moisture content test: Carry out in accordance with BS 5325, Annex A or BS 8203, Annex A.
 - Locations for readings: In all corners, along edges, and at various points over area being tested.
3. Commencement of laying coverings: Not until all readings show 75% relative humidity or less or alternatively, following application of a moisture suppressant as section J30/ 135.

440A SUBSTRATES TO RECEIVE THIN COVERINGS

1. Trowelled finishes: Uniform, smooth surface free from trowel marks and other blemishes as clause E41/ 415. Abrade suitably to receive specified floor covering material.

442 STATIC JOINTS OR CRACKS IN BASES

1. Rake or scrape out all cracks and vacuum to remove all loose dirt and debris.
2. Dampen the affected areas with water and Infill with epoxy filler. Allow to dry for minimum 24 hours.
 - Manufacturer: F Ball & Co Ltd, Churnetside Business Park, Station Road, Cheddleton, Leek, Staffordshire, ST13 7RS
 - o Product reference: Stopgap 460 Exterior Repair Mortar

461 SMOOTHING/ SELF-LEVELLING UNDERLAYMENT COMPOUND

1. Manufacturer: F Ball & Co Ltd, Churnetside Business Park, Station Road, Cheddleton, Leek, Staffordshire, ST13 7RS
 - Product reference: Stopgap 1200 Pro smoothing underlayment
2. Apply to base in accordance with manufacturer's recommendations, incorporating 3 mm single sized chippings for applications more than 10 mm thick, and allow to dry before laying floor coverings.

LAYING COVERINGS

620 COLOUR CONSISTENCY

1. Finished work in any one area/ room: Free from banding or patchiness.

640A ADHESIVE FIXING GENERALLY

1. Adhesive type: As specified, as recommended by covering/ underlay manufacturer or as approved.
2. Primer: Type and usage as recommended by adhesive manufacturer.
3. Application:
 - Roll with a 50 kg roller to ensure full contact and a good bond overall.
 - As necessary to achieve good bond.
4. Finished surface: Free from trowel ridges, high spots caused by particles on the substrate, and other irregularities.

650 SEAMS

1. Patterns: Matched.
2. Joints: Tight without gaps.

670 BORDERS AND FEATURE STRIPS IN SHEET MATERIAL

1. Curl: Not acceptable.
2. Corners: Mitre joints.

680 SEAM WELDING COVERINGS

1. Commencement: At least 24 hours after laying, or after adhesive has set.
2. Joints: Neat, smooth, strongly bonded, flush with finished surface.

681 SEAM WELDING SLIP RESISTANT VINYL SHEETING AND PVC SHEET FLOORING IN WET AREAS

1. Commencement: At least 24 hours after laying, or after adhesive has set.
2. Grooves: 3 mm wide by 2/3 depth of material formed evenly along each joint using either:
 - Hand Grooving Tool.
 - Automatic grooving machine fitted with diamond blade.
3. Welding:
 - Hot weld using hot air welding gun fitted with high speed welding nozzle and welding rod in colour to blend with floorcovering.
 - Cut off surplus weld rod with spatula.
 - Do not chemically weld.
4. Joints: Neat, smooth, strongly bonded, flush with finished surface.

720 DOORWAYS

1. Joint location: On centre line of door leaf.

725 HEATING PIPEWORK CASINGS

1. Terminate sheet flooring beneath the front edge of heating pipework casings.
2. Terminate carpet against the front edge of heating pipework casings.

730 FITTED FURNITURE PLINTHS

1. Dress skirtings up plinths to fitted furniture.

735 SEALANT TO M50/ 150 SLIP RESISTANT VINYL SHEETING AND M50/ 155 PVC SHEET FLOORING IN WET AREAS

1. Manufacturer: Altro Ltd, Works Road, Letchworth, Hertfordshire, SG6 1NW
 - Product reference: Altro seal sealant
2. Location: Along top of self-coved skirtings at junction with walls where not overlapped with PVC sheet wallcovering

742 METAL SECTION MOVEMENT JOINTS

1. Description: Flush movement joint
2. Manufacturer: Construction Specialties UK Ltd, Westcott Venture Park, 1010, Ashendon Rd, Westcott, Aylesbury HP18 0XB
 - Product reference: GFT100/50
 - Insert colour: Black
3. Fixing: Centre over joint in substrate set to exact finished level of floor. 75mm wide recess in slab to infilled with epoxy mortar following mechanical fixing of movement joint at max 450mm centres.

751 STAIR NOSINGS AND TRIMS

1. Manufacturer: Gradus Ltd, Park Green, Macclesfield, Cheshire, SK11 7LZ
 - Product reference: Ref ADXT1 stair nosing with Interior slip resistant insert
2. Material/ finish: Mill finish aluminium channel with slip resistant PVC insert in colour to architect's requirements from manufacturer's full ranges
3. Fixing: Secure, level and with mitred joints. Adjusted to suit thickness of covering with continuous packing strips of hardboard or plywood. Nosings and packing strips bedded in gap-filling adhesive recommended by nosing manufacturer and plugged and screw fixed to substrate
 - Screw fixing with matching plugs: Required
 - Adhesive: F Ball & Co Ltd, Styccobond F32 adhesive

770A SKIRTINGS

1. Types: PVC
2. Manufacturer: Quantum Profile Systems, Salmon Fields, Royton, Oldham, OL2 6JG
 - Product reference: Set-in PVC skirting ref Q100 50 (2/ 2.5/ 3.2) SI where 2/ 2.5/ 3.2 = thickness of floorcovering
3. Fixing: Secure with top edge straight and parallel with floor.
 - Corners: Mitre joints.
4. Seal all butt and corner joints using cold welding liquid.
 - Manufacturer: Werner Muller GmbH, Rudolf-diesel-Strasse 7, 67227 Frankenthal, Germany
 - Product reference: Tube Type A PVC cold welding liquid

773A SELF COVED SKIRTINGS TO M50/ 150C AND M50/ 155A PVC SHEET FLOORING IN WET AREAS

1. Height: 100 mm
2. Cove former:
 - Manufacturer: Altro Ltd, Works Road, Letchworth, Hertfordshire, SG6 1NW
 - Product reference: Cove former ref 38R
 - Securely bond to base and background. Accurately mitre at corners.
3. Top edge: Sealed at top against wall using sealant as clause 735

4. Turn flooring material up wall and securely bond to cove former and background, with top edge straight and parallel with floor. Accurately mitre at corners.
5. Adhesive: Altro Floors Ltd, Altrofix A25NF adhesive
6. Hot weld joints and mitred corners with complementary welding rod.

775 JUNCTIONS BETWEEN SELF-COVED SKIRTINGS FORMED FROM SHEET MATERIALS AND ARCHITRAVES

1. Trim back of cove formers 150mm from door openings, and terminate self-coved skirtings against side of architraves.

780 TRAFFICKING AFTER LAYING

1. Covering types: As recommended by adhesive manufacturer(s)
2. Traffic free period: Until adhesive is set

COMPLETION

820B FINISHING

1. Description: Slip resistant PVC sheet flooring in wet areas
2. Cleaning operations:
 - Wash floor with water containing Altro Floors Ltd, AltroClean 44 alkaline cleaner. If necessary, use deck scrubber on small or lightly soiled areas and machine with synthetic pads on large or heavily soiled areas (nylon brushes in the case of M50/ 155A sheeting).
 - Rinse with clean water, removing surplus to prevent damage to adhesive. Allow to dry.
3. Emulsion polish: Not required.

820C FINISHING

1. Description: Vinyl sheeting and slip resistant vinyl sheeting
2. Cleaning operations:
 - Wash floor with water containing neutral (pH 6-9) detergent. If necessary, lightly scrub heavily soiled areas.
 - Rinse with clean water, removing surplus to prevent damage to adhesive. Allow to dry.
3. Emulsion polish: Not required.

870 PROTECTION

1. Cover flooring with clean dust sheets, or other non-staining suitable material to prevent damage from dirt and traffic prior to Practical Completion. Ensure any material with printed information on one face is laid with printed face uppermost.

880 WASTE

1. Spare covering material: Retain suitable material for patching. On completion submit pieces for selection. Hand over selected pieces to Employer.

M60 PAINTING/CLEAR FINISHING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

COATING SYSTEMS

116 TRADE MATT EMULSION PAINT

1. Description: Internal on new plastered ceilings
2. Manufacturer: PPG Architectural Coatings, Huddersfield Road, Birstall, Batley, West Yorkshire, WF17 9XA
 - Product reference: Johnstone's Covaplus Vinyl Matt emulsion paint
3. Surfaces: New uncoated plaster
 - Preparation: As clauses 400 and 581
4. Initial coats: Thinned coat of emulsion paint
 - Number of coats: One
5. Finishing coats: Trade mattemulsion paint.
 - Number of coats: Two

152 TRADE ACRYLIC EGGSHELL PAINT

1. Description: Internal on new plastered walls
2. Manufacturer: PPG Architectural Coatings, Huddersfield Road, Birstall, Batley, West Yorkshire, WF17 9XA
 - Product reference: Johnstone's Trade Microbarr Trade Acrylic Eggshell
3. Surfaces: New uncoated plaster
 - Preparation: As clauses 400 and 581
4. Initial coats: Johnstone's Trade Joncryl Acrylic Primer Undercoat
 - Number of coats: One
5. Finishing coats: Acrylic eggshell paint
 - Number of coats: Two

170A MASONRY COATING

1. Description: To internal face of parapet walls
2. Manufacturer: PPG Architectural Coatings, Huddersfield Road, Birstall, Batley, West Yorkshire, WF17 9XA
 - Product reference: Stormshield Smooth Masonry
3. Surfaces: New cement particle board
 - Preparation: As clause 400
4. Initial coats: Stormshield Quick Dry Stabilising Solution
 - Number of coats: One
5. Finishing coats: Masonry paint
 - Number of coats: Two

180 FLOOR COATING

1. Description: To plantroom floor outside of bunded areas
2. Manufacturer: Conren Ltd, Unit 1, The Bridge Business Centre, Ash Road South, Wrexham Industrial Estate, Wrexham, LL13 9UG

- Product reference: Aquasol two pack, water based epoxy resin protective coating
3. Surfaces: New power floated concrete slab as section E05/ 310 and concrete blockwork/ insitu RC bund
 - Preparation: - New concrete substrates should have been placed for at least 28 days, unless specially water reduced and give a protimeter reading of less than 75% RH. - Power ground as section E41/ 415, clean and free from laitance. - Form cove at junction between floor and bund using Conren Ltd Patchfast heavy duty, fast setting, epoxy resin mortar
 4. Initial coats: Aquasol
 - Number of coats: One
 5. Finishing coats: Aquasol
 - Number of coats: Two
 - Slip resistance value - water wet (minimum): PTV to BS 7976 of 49

180A FLOOR COATING

1. Description: To plantroom floor
2. Manufacturer: Conren Ltd, Unit 1, The Bridge Business Centre, Ash Road South, Wrexham Industrial Estate, Wrexham, LL13 9UG
 - Product reference: Decktect PU
3. Surfaces: New power floated concrete slab as section E05/ 315 and concrete blockwork/ insitu RC bund
 - Preparation:
 - New concrete substrates should have been placed for at least 28 days, unless specially water reduced and give a protimeter reading of less than 75% RH
 - Power floated as section E41/310 and power ground as section E41/ 415, clean and free from laitance
 - Form cove at junction between floor and bund using Conren Ltd Patchfast heavy duty, fast setting, epoxy resin mortar
4. Primer: 2 no. coats of Conren Ltd. Deckprime
5. Initial coats: Decktect PU Basecoat spread to the required thickness using a serrated steel trowel
 - Number of coats: One
6. Finishing coats: Decktect PU Top Coat spread to the required thickness using a squeegee.
 - Number of coats: One
 - Colour: Light grey
 - Slip resistance value - water wet (minimum):
7. Anti-slip:
 - Conren Decktect Anti-Slip Pack. Broadcast a heavy even scatter of aggregate at a rate of 0.5kg per m2.
 - Slip resistance value - water wet (minimum): PTV to BS 7976 of 49

GENERALLY

215 HANDLING AND STORAGE

1. Coating materials: Deliver in sealed containers, labelled clearly with brand name, type of material and manufacturer's batch number.
2. Materials from more than one batch: Store separately. Allocate to distinct parts or areas of the work.

220 COMPATIBILITY

1. Coating materials selected by contractor
 - Recommended by their manufacturers for the particular surface and conditions of exposure.
 - Compatible with each other.
 - Compatible with and not inhibiting performance of preservative/fire retardant pretreatments.

280 PROTECTION

1. 'Wet paint' signs and barriers: Provide where necessary to protect other operatives and general public, and to prevent damage to freshly applied coatings.

300A CONTROL SAMPLES

1. Sample areas of finished work: Carry out, including preparation, as follows:
2. Types of coating Nature of sample
3. M60/ 152 . One room .
4. Approval of appearance: Obtain before commencement of general coating work.

320 INSPECTION BY COATING MANUFACTURERS

1. General: Permit manufacturers to inspect work in progress and take samples of their materials from site if requested.

PREPARATION

400 PREPARATION GENERALLY

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

420A FIXTURES AND FITTINGS

1. Removal: Before commencing work remove: Coverplates, grilles, wall clocks, and other surface mounted fixtures
2. Replacement: Refit when coating is dry.

581 UNCOATED PLASTER

1. Dirt and surface deposits: Remove using a stiff brush.
2. Nibs, trowel marks and plaster splashes: Scrape off.
3. Overtrowelled 'polished' areas: Key lightly.
4. Depressions, holes and cracks: Fill and lightly rub down flush with surface when set.

622 ORGANIC GROWTHS

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

623 MOULD AND ALGAL GROWTH

1. Interior areas affected by, or in proximity to mould or algal growth: Treat with a proprietary interior quality fungicidal solution, used in accordance with pack instructions.
2. Exterior areas affected by, or in proximity to mould or algal growth: Treat with a fungicidal solution, used in accordance with pack instructions. Re-treat as necessary.
3. Removal of infected material: Use high-pressure waterjets to remove infected material from treated areas of the substrate, but do not use this method where the substrate may suffer damage.
4. Disposal of infected material: In accordance with BS 8000, clause 2.3.3.1(c).

625 EFFLORESCENCE

1. Surface salts and other loose material: Remove using a stiff brush or coarse, dry cloth. Do not wash off. Repeat at intervals until efflorescence does not recur within 48 hours.
2. Glossy surfaces: Sand to provide key for finish.
3. General: Ensure affected surfaces are fully dry in depth, then coat with alkali-resisting primer, used neat or thinned with white spirit up to 10% by volume.

626 WATER-BORNE STAINS

1. Ensure affected surfaces are fully dry in depth, then coat with alkali-resisting primer, used neat or thinned with white spirit up to 10% by volume.

627 OIL SOLUBLE STAINS

1. Prime affected areas with 1 coat aluminium spirit based sealer. Repeat where necessary to ensure a complete seal.

628 POWDERY SURFACES

1. Liberally apply 1 coat off-white stabilising primer to surfaces that remain powdery after thorough preparation, brushing well into substrate. Allow up to 16 hours drying time.

629 FILLING AFTER PRIMING

1. Heads of fasteners: Countersink sufficiently to hold stoppers/ fillers. Fill nail and screw holes, joints, cracks, holes, depressions and open or coarse grained wood with stopper/ filler worked well in and finished off flush with surface. Do not use fine surface filling. Sand smooth and remove dust.
2. Use only tinted stoppers with stains and varnishes.

APPLICATION

711 COATING GENERALLY

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

820 COMPLETION

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

M61 INTUMESCENT COATINGS FOR FIRE PROTECTION OF STEELWORK

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS

PROTECTIVE COATING SYSTEMS

160A OFF SITE COATING TO PRIMED STEEL

1. Description: To perimeter steelwork located within external walls
2. Use/ Location: Internal Category C1 or C2 environment
3. Fire performance: To BS 476, as clause 203
4. Preparation and priming: By steelwork fabricator, as section G10
5. Intumescent coating system:
 - Intumescent coat:
 - o Manufacturer: Sherwin-Williams Protective & Marine Coatings, Tower Works, Kestor Street, Bolton, BL2 2AL
 - o Product reference: FIRETEX FX2003 shop applied solvent based intumescent coating
 - o Finish: Basic
 - Top sealer coat:
 - o Manufacturer: Sherwin-Williams Protective & Marine Coatings, Tower Works, Kestor Street, Bolton, BL2 2AL
 - o Product reference: FIRETEX M71V2 sheen finish sealer coat to steelwork where visible within rooms below ceiling level
 - o Colour: To Architect's requirements from manufacturer's full range
6. Bolt head/ Nut protection: Prepare and prime in accordance with current issue of coating manufacturer's Technical Advisory Document TAD0016 "On-Site Treatment of Boltheads and Nuts" prior to application of intumescent coating (and sealer coat where visible within rooms below ceiling level)

PERFORMANCE AND GENERAL REQUIREMENTS

203 FIRE PERFORMANCE TO BS 476

1. Fire resistance to BS 476-21: 60 minutes

204 EXPOSURE AND DURABILITY

1. Environmental exposure: C2
2. Durability classification: W/Z2

205 VALIDATION OF MATERIALS

1. Project-specific evaluation of intumescent coating materials
 - Standard: In accordance with BS EN 16623, clause 4.
 - Test results: Submit on request.

210 WORKING PROCEDURES

1. Standard: In accordance with BS EN 16623.
2. Give notice: Before commencing surface preparation and coating application.
3. Quality control: Record project specific procedures for surface preparation and coating application.

215 WORKING CONDITIONS

1. General: Maintain manufacturer's recommended temperature, humidity and air quality conditions during application and drying.
2. Surface condition: Clean and dry at time of application.

220 APPLICATOR'S PERSONNEL

1. Operatives: Trained/ experienced in anticorrosive and intumescent coatings.
2. Evidence of training/ experience: Submit on request.

250A SPRAYED COATING APPLICATION ON SITE

1. Standard: In accordance with BS EN 16623.
2. Spray drift: Minimise.
3. Masking: Protect adjacent surfaces.

255 SPRAYED COATING APPLICATION OFF SITE

1. Standard: In accordance with BS EN 16623.
2. Uncoated areas of steel: Not permitted

270 INSPECTION

1. Permit intumescent manufacturer to
 - Inspect work in progress.
 - Inspect quality control records.
 - Take dry film thickness and other measurements.
 - Take samples of products.
2. Intumescent manufacturer's inspection reports: Submit without delay.

280 OFF-SITE-COATED STEEL

1. Handling and erection: Use methods and devices designed to minimise damage to intumescent coatings.
2. Damaged areas of coating: Reinstate in accordance with coating manufacturer's recommendations.

290 ON SITE ATTACHMENTS

1. Coat attachments to coated steelwork with intumescent coating matching thickness applied to steelwork to which they are attached, all in accordance with coating manufacturer's Technical Advisory Document TAD0026 "Attachments to Firetex coated steelwork".

PREPARATION OF SURFACES

315 NEW STEEL – BLAST-CLEANING

1. Preparation: Remove oil, grease and contaminants.
2. Blast cleaning:
 - Atmospheric condition: Dry.
 - Abrasive: Suitable type and size, free from fines, moisture and oil.
 - Finish: To BS EN ISO 8501-1, preparation grade SA2½, with an average profile of approximately 75 micrometres.
 - Abrasive residues and moisture: Remove.
3. Primer: Apply as soon as possible after cleaning and before gingering or blackening appears.

APPLICATION OF CASTINGS - NOT USED

APPLICATION OF COATINGS

410 INTUMESCENT COATING DRY FILM THICKNESS (DFT)

1. Applicable coatings: Primer, intumescent and top sealer coat
2. Required dft: Determine for every steel member to give specified period of fire resistance. Use intumescent coating manufacturer's current published loading tables.
 - Special sections and partial fire exposure conditions: Obtain required dft in writing from manufacturer.
3. Schedule and drawings: Submit at least two weeks before starting work.
 - Schedule content: Member sizes, weights/ thicknesses, loading conditions, etc. showing, for each variant, the exposed perimeter/ sectional area (H_p/A) ratio and required dft.
 - Drawing content: Steelwork drawings marked in colour to show required dft for each member.

420 MEASUREMENT OF INTUMESCENT DFT

1. Primer dft: Determine average dft (for deduction from total dft after application of intumescent).
2. Intumescent dft: Determine at:
 - 500 mm centres along each coated plane of universal sections (8 planes), and rectangular hollow sections (4 planes).
 - 125 mm centres along coated circular hollow sections, spread evenly around circumference.
3. Acceptance standard
 - Average intumescent dft: Not less than required dft (exclusive of primer and top sealer).
 - Local intumescent dft: Not less than 80% of required dft. Areas greater than 100 mm equivalent diameter with a dft of less than 80% of required dft must be brought up to thickness.

440 BASIC FINISH

1. Definition: Reasonably smooth and even. Orange peel, other texture, minor runs and similar minor defects are acceptable.

490 TOP SEALER COAT

1. Application: To achieve dft recommended by manufacturer and to give an even, solid, opaque appearance, free from runs, sags and other visual defects.

520 COMPLETION OF OFF-SITE-COATED STEEL

1. Uncovered areas, including fixings: Following erection of steelwork, apply intumescent coating locally.
2. Unscheduled additional connections to erected steelwork: Remove and reinstate intumescent coating locally.

COMPLETION

530 RECORDS OF INTUMESCENT APPLICATION

1. On completion of intumescent work, submit
 - Accurate surface preparation, coating and intumescent application records.
 - Fire resistance certificates.
 - Intumescent manufacturer's recommendations for maintenance and overcoating.

N10

GENERAL FIXTURES/FURNISHINGS/EQUIPMENT REVISED

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

PRODUCTS

120 EQUIPMENT CLIP

1. Type and size: 32 mm dia open Terry type equipment clip
2. Finish: bzp finish

131 X-RAY APRON STORAGE RACK

1. Manufacturer: Everything X-Ray Ltd, Unit B6 Regent Park, Summerleys Rd, Princes Risborough, HP27 9LE
 - Product reference: Ref AW419 Wall 5 folding arm X-ray apron storage rack

164 KEY CABINET

1. Manufacturer: Manutan UK Ltd, Black Moor Road, Ebblake Industrial Estate, Verwood, Wimborne, Dorset, BH31 6AT
 - Product reference: Ref A158754 key cupboard

173 NAPPY CHANGING STATION

1. Manufacturer: Bobrick Washroom Equipment Inc, Gor-Ray House, The Business Centre, 758 Great Cambridge Road, Enfield, Middlesex, EN1 3PN
 - Product reference: Surface mounted nappy changing station ref KB-100-00

193D WRITING BOARDS

1. Description: Magnetic
2. Type: Marker pen
3. Manufacturer: Teacherboards Ltd, Airedale Business Centre, Skipton, North Yorkshire, BD23 2TZ
 - Product reference: Aluminium framed vitreous enamelled steel drywipe board
4. Frame:
 - Material: Aluminium
 - Finish/ Colour: Satin silver-anodized
5. Surface:
 - Type: Coated steel, magnetic
 - Markings: Not
 - Colour: White
6. Size: As shown on Furniture/ Fittings layout drawing(s)
7. Accessories: 300 mm clip on pen ledge

232M CURTAIN TRACK, ANTI-LIGATURE, FACE FIX

1. Manufacturer: Silent Gliss Ltd, Star Lane, Margate, Kent, CT9 4EF
 - Product reference: Ref 6021 face fix safety curtain track fixed with anti-tamper safety screws, complete with secure endcovers ref 6122, 10 no safety gliders ref 6148 and 2 no safety gliders ref 6149

2. Finish/ colour: All visible aluminium items to have white (RAL 9010) polyester powder coated finish

234M CUBICLE CURTAIN TRACK, ANTI-LIGATURE, SUSPENDED

1. Manufacturer: Silent Gliss Ltd, Star Lane, Margate, Kent, CT9 4EF
 - Product reference: Ref 6101 extruded aluminium cubicle curtain track complete with dust cover (ref 0715), 10 no gliders and captive hooks (ref 6147) per m run, safety wall supports (ref 6655)/ safety parallel wall supports (ref 6668), spring stops (ref 6086) and hanger rods/ sleeves/ ceiling studs/ dummy ceiling support sleeves/ safety devices (ref 6187/ 6191/ 6192/ 6193/ 6675)
2. Finish/ colour: All visible aluminium items to have white (RAL 9010) polyester powder coated finish

240A BLINDS

1. Description: Vertical louvre
2. Standard: To BS EN 13120.
3. Manufacturer: Pentel Contracts Ltd, Dyer Street, off Ordsall Lane, Salford, M5 4TH
 - Product reference: Pentel Astralux 1000 vertical blind with white polyester powder coated headrail and 90 mm wide louvres
4. Type: Vertical louvre
5. Material: Obscura wipeable pvc fabric
 - Finish/ Colour: To CA's requirements
6. Operation: Opening and closing wand
7. Operating effort: Class 1
8. Testing: Not required
9. Mechanism endurance: Class 1
10. Accessories/ Other requirements: Safety cord retainer minimum 1500mm above floor level

302 ENTRANCE MATWELL REVISED

1. Manufacturer: (Contractor to submit proposals)
 - Product reference: Recessed entrance matting system with infills assembled with flexible steel ropes, all set within 17 mm aluminium matwell frame to dimensions shown on Fabric/ Finishes layout drawing(s)
2. Colour of matting infills: To CA's requirements from manufacturer's full range

460 GROUP 2 EQUIPMENT

1. Receive, unload, take in and store all Group 2 equipment supplied by Client.
2. Assemble and fix in strict accordance with manufacturer's recommendations in locations shown on Furniture/ Fittings layout drawing(s) at heights provided by CA.

EXECUTION

710 MOISTURE CONTENT OF WOOD AND WOOD-BASED BOARDS

1. Standard: To BS EN 942
2. Moisture content on delivery: 6-10%
3. Temperature and humidity: During delivery, storage, fixing and to handover maintain conditions to suit specified moisture contents of timber components.

720 INSTALLATION GENERALLY

1. General: As Preliminaries section A33
2. Fixing and fasteners: As section Z20.

3. Services: As M & E Services Consultant's specification

770 TRIMS

1. Lengths: Wherever possible, unjointed between angles or ends of runs.
2. Running joints: Where unavoidable, obtain approval of location and method of jointing.
3. Angle joints: Mitred.

COMPLETION

910 GENERAL

1. Doors and drawers: Accurately aligned, not binding. Adjusted to ensure smooth operation.
2. Ironmongery: Checked, adjusted and lubricated to ensure correct functioning.

N11 FITTED FURNITURE

CLAUSES

10 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS

GENERAL

110 PURPOSE AND USE

1. Manufacture and install storage units, worktops, Staff Bases and Reception Desks as follows:
 - Wall mounted cupboards with hinged or sliding doors, tambour units and shelves, installed either as single units or jointed side by side to form ranges of units fixed to partitioning.
 - Floor mounted base cupboards/ drawer units installed singly or side by side to form ranges of units supported upon plinths and fixed to partitioning.
 - Worktops mounted against partitioning/ in the angle between adjacent partitions/ between partitions or in a peninsula or island arrangement supported by floor mounted base storage units and/ or leg frames. Where specified, worktops to be supplied complete with inset sink bowls thermally bonded to their underside or with cut-outs to accept inset sinks/drainers.
 - Freestanding Staff Bases and Reception Desks comprising worktops, base storage units, end gables and consoles incorporating pigeonhole units and panels for service terminals and incorporating concealed lighting and space for the concealed distribution of associated services.

120 CONSTRUCTION AND APPEARANCE

1. Construct storage units, worktops, Staff Bases and Reception Desks strictly in accordance with materials, details and co-ordinating dimensions (**specifically, do not vary the overall system controlling height of 2123 mm**) shown on detail drawings using the materials specified.
2. Where not stated otherwise on drawings or elsewhere in this specification, fitted furniture is to comply, as a minimum, with the relevant performance requirements (but not dimensional standards) laid down in NHS Estates Health Technical Memorandum.
3. Details of any proposed alternatives to specified design requirements, materials or performance requirements must be submitted in writing for approval by the CA before submission of tenders. Such approval shall not necessarily be given.

130 LOCK SUITING

1. General: Modular system cylinder cores to be random keyed
2. Suiting: Suite all cylinder cores under one Master key

WORKMANSHIP

210 APPROVED FIRMS

1. Storage units and worktops to be manufactured and installed by one of the following:
 - CS Medical, Gore Road Industrial Estate, New Milton, Hampshire, BH25 6SA
 - Deanestor Healthcare, Warren Way, Crown Farm Business Park, Mansfield, NG19 0FL
 - JTS Joinery, 2 Preston Road, Grimsargh, Preston, PR2 5SD
 - Medstor, Stamford Products Ltd, Bayley Street, Stalybridge, Cheshire, SK16 1QQ
 - WorkSpace, 1 Bertha Park View, Inveralmond Industrial Estate, Perth, PH1 3JE

220 MANUFACTURE AND ASSEMBLY

1. Manufacture and assemble fitted furniture as specified and to BS 1186 Part 2. Manufacture and assembly is to take place off site.
2. Form sections out of the solid when not specified otherwise. Carefully machine materials to accurate lengths and profiles, free from twist and bowing.
3. After machining, surfaces to be smooth and free from tearing, woolliness, chip bruising and other machining defects and suitable to receive specified finishes.
4. Assemble with tight, close fitting joints to produce rigid components free from distortion and within permitted dimensional tolerances.
5. All screws to have clearance holes. Screws 3 mm or more and all screws into mdf, chipboard and hardwood to have pilot holes.

230 SHAPE, DIMENSIONS, STRENGTH OF FITTED FURNITURE

1. Shape: All carcasses and frames are to be constructed square and rigid. Tolerances for deviations in overall shape shall not exceed the following:
 - cup and bow: short edge 1.5 mm
long edge 3.0 mm
diagonal 4.0 mm
 - twist: at any corner 3.0 mm
 - squareness: in 500 mm 0.75 mm
2. Dimensions: Storage units shall be manufactured to their co-ordinating dimensions to a tolerance of +0 -2 mm.
3. Evenness and appearance: The maximum acceptable surface deviations from a true plane are as follows;
 - when measured over 50 mm; 0.1 mm
 - when measured over 200 mm; 0.15 mm
4. Like components fabricated from like materials must be indistinguishable one from the other in colour, grain and texture on all visible surfaces, regardless of whether the component is pre-finished or has a site applied finish by others. Any mismatching will be rejected.

MATERIALS

310 GENERALLY

1. To BS 476 Part 4 and achieving a Class 1 surface spread of flame rating when tested to BS 476 Part 7.

320 LAMINATE SHEET GENERALLY

1. To BS EN 438.
2. Colour(s): To CA's requirements from the following ranges: Egger (UK) Ltd:
 - "Uni Colours" range.
 - "Woodgrains" range.Formica Group:
 - "Collection Colours" range.
 - "Collection Woods" range.Polyrey UK:
 - "Papago Color" range.
 - "Origine" range
3. Laminate grade: VGS/ HGP.

330 LAMINATE SHEET TO CONSOLE TOPS/ WORKTOPS

1. To BS EN 438.
2. Colour(s): To CA's requirements from the following ranges:
 - Egger (UK) Ltd "Fantasy" range.
 - Formica Group "Collection Patterns" range.
 - Polyrey UK "Patterns" range.
3. Laminate grade: HGP.

340 LINOLEUM SHEET TO CONSOLE TOPS/ WORKTOPS

1. Colour(s): To CA's requirements from the following ranges:
 - Forbo Nairn Ltd "Marmoleum Real".
 - Forbo Nairn Ltd "Marmoleum Dual".
 - Forbo Nairn Ltd "Marmoleum Fresco".
 - Forbo Nairn Ltd "Marmoleum Piano".
 - Forbo Nairn Ltd "Artoleum".
 - Forbo Nairn Ltd "Desk Top"

350 SOLID SURFACING TO CONSOLE TOPS

1. Colour(s): To CA's requirements from the following ranges:
 - DuPont "Corian".
 - LG Hausys "Hi-Macs".

EXECUTION

410 GENERALLY

1. Prevent distortion of components during storage, transit and handling.
2. Keep components clean and dry before fixing. Prevent damage to components and marking of surfaces which will be visible in completed work.

420 CONDITIONS

1. Do not fix fitted furniture until rooms are weathertight and the work of wet trades is finished and dried out.

430 MOISTURE CONTENT OF WOOD AND WOOD BASED BOARDS

1. Control and monitoring:
 - Method statement: Submit.

440 INSTALLATION GENERALLY

1. Joinery workmanship: As section Z10.
2. Metal workmanship: As section Z11.
3. Fixings and adhesives: As section Z20.
4. General: Well fitting, stable and secure.
5. Accuracy: Plumb, level and aligned as necessary.
6. Fix securely to prevent pulling away, deflection, distortion or other movement during use and to ensure compliance with design and performance requirements.
7. Do not distort components when tightening fixings or packings.
8. Carry out installation with minimum of cutting, bending or shaping of component parts to fit one to the other. Cut and fit accurately and neatly around pipework etc. Where items are shown as a tight fit between walls (ie worktops), do not manufacture until all dimensions have been verified and allow for on-site adjustments.

9. Ensure adequate clearances for moving parts. If necessary, adjust packings and fixings to eliminate binding.
10. Do not cut, plane or sand completed components to remedy defects or distortion.

450 WORKTOPS

1. Worktops to be in unjointed lengths except where lengths in excess of 3.0 m are required.
2. Minimum length of any make up piece: 1.5 m.
3. Strap joints on the underside of worktops and locate over underbench units or leg frames ensuring butt joints are watertight.
4. Stepped joints: Not permitted.

460 TRIMS

1. Lengths: Un-jointed between angles or ends of runs.
2. Angle joints: Mitred.
3. Running joints: Where unavoidable, obtain approval of location and method of jointing.

470 IRONMONGERY AND FITTINGS

1. Assemble and fix carefully and accurately using fixings to manufacturer's recommendations.
2. Prevent damage to ironmongery and adjacent surfaces.

COMPLETION

510 GENERAL

1. Doors and drawers: Accurately aligned, not binding. Adjusted to ensure smooth operation.
2. Shelves: Fitted to tolerances allowing easy adjustment in location whilst maintaining adequate support.
3. Ironmongery: Checked, adjusted and lubricated to ensure correct functioning.

N13 SANITARY APPLIANCES/ FITTINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

PRODUCTS

200 SANITARY APPLIANCES/ FITTINGS

1. Sanitary appliances and associated fittings: As described in Sanitary Schedule.

431 COAT HOOKS

1. Description:
2. Manufacturer: Allgood plc, 76 King Street, Manchester, M2 4NH
 - Product reference: Allgood ref 6550 coat hook
3. Material: Stainless steel

431A ANTI-LIGATURE COAT HOOKS

1. Description:
2. Manufacturer: Kingsway Group, Unit 2, Teardrop Centre, London Road, Swanley, Kent, BR8 8TS
 - Product reference: Ref KG180 GR coat hook
3. Material: Stainless steel surround with flexible rubber hook

436 HANDRAILS AND GRAB BARS

1. Description:
2. Manufacturer: NYMAS, Royce House, Royce Avenue, Billingham, TS23 4BX
 - Product reference: NymaCARE non-corrosive grade 304 stainless steel grab rails generally with concealed screw flanges but roseless type to sanitary back panels where noted in Sanitary Schedule, all to dimensions scheduled on drawing(s)
3. Diameter: 32 mm
4. Material: Stainless steel
5. Finish/ colour: Satin finish

437H WALL MOUNTED HINGED HANDRAIL

1. Description: 800 mm long
2. Manufacturer: NYMAS, Royce House, Royce Avenue, Billingham, TS23 4BX
 - Product reference: 211880/SS hinged grab rail
3. Diameter: 32 mm
4. Material: Stainless steel
5. Finish/ Colour: Satin finish

522 PREPLUMBED SANITARY ASSEMBLIES

1. Generally: Deliver as factory assembled, fully tested sanitary assemblies comprising solid grade laminate duct linings, sanitary appliance sealed to duct lining, supply pipework, waste, trap, tap(s) and cistern as described in Sanitary Schedule together with all fittings necessary for fitting assembly into prepared opening in partition and with back panel pre-drilled for waste pipework
2. Pre-plumbed solid grade laminate sanitary back panels: As clause K32/ 160C

580 SEALANT FOR POINTING

1. Standard: To BS EN ISO 11600
 - Class: F20 HM
2. Type: High modulus acetoxysilicone sealant
 - Manufacturer: Dow Corning Ltd, Meridien Business Park, Copse Drive, Allesley, Coventry, CV5 9RG
 - o Product reference: 785 Silicone Sanitary Sealant
3. Colour: White

EXECUTION

610 INSTALLATION GENERALLY

1. Assembly and fixing: Surfaces designed to fall to drain as intended.
2. Fasteners: Nonferrous or stainless steel.
3. Supply and discharge pipework: Fix before appliances.
4. Fixing: Fix appliances securely to structure. Do not support on pipework.
5. Jointing and bedding compounds: Recommended by manufacturers of appliances, accessories and pipes being jointed or bedded.
6. Appliances: Do not use. Do not stand on appliances.
7. On completion: Components and accessories working correctly with no leaks.
8. Labels and stickers: Remove.

620 NOGGINGS AND BEARERS

1. Noggings, bearers, etc. to support sanitary appliances and fittings: Position accurately. Fix securely.

640 OPENINGS FOR PREPLUMBED SANITARY ASSEMBLIES

1. Timing: Accurately form openings in plasterboard/ metal stud partitions as shown on detail drawing before commencing installation of pre-plumbed sanitary assemblies.

650 INSTALLING WC PANS

1. Floor mounted pans: Screw fix and fit cover caps over screw heads. Do not use mortar or other beddings.
2. Seat and cover: Stable when raised.

670 INSTALLING CISTERNS

1. Cistern operating components: Obtain from cistern manufacturer.
2. Inlet and flushing valves: Match to pressure of water supply.
3. Internal overflows: Into pan, to give visible warning of discharge.
4. External overflows: Fix pipes to falls and locate to give visible warning of discharge. Agree location where not shown on drawings.

710 INSTALLING TAPS

1. Fixing: Secure against twisting.
2. Seal with appliance: Watertight.
3. Positioning: Hot tap to left of cold tap as viewed by user of appliance.

720 INSTALLING WASTES AND OVERFLOWS

1. Bedding: Waterproof jointing compound.
2. Fixing: With resilient washer between appliance and backnut.

N14 GENERAL INTERNAL SIGNAGE SYSTEMS **REVISED**

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL

105 GENERAL REQUIREMENTS

1. Detailed requirements and locations of signs: See Signposting Schedule.

SYSTEM PERFORMANCE

210A GENERAL REQUIREMENTS

1. Signage system: Complete to BS 559, including facing information, components, inserts, accessories and fixings necessary to complete the system.
 - Comply with the requirements of: Signposting Schedule
2. Geometric shapes, colours and layout: In accordance with BS 8501.
3. Design standard for disabled people: In accordance with BS 8300-2.
4. Proposals: Submit drawings, schedules, technical information, calculations and manufacturer's literature.

290 SIGNAGE SAMPLES

1. Sign type: One of each type scheduled in Signposting schedule
 - Action: Submit labelled samples.
 - Conformity: Retain samples on site for the duration of the contract or until instructed to remove.
 - Delivered product: To conform with labelled samples.

PRODUCTS

350 PLASTICS **ADDED**

1. Description: SHEETS
2. Material: Acrylic
3. Manufacturer: Contractor's choice
 - Product reference:
4. Component thickness: 6 mm, 2 mm facing on 4 mm backing panel
5. Finish:
6. Perimeters:

EXECUTION

610A FIXING SIGNS GENERALLY

1. Installation: To BS 559.
 - Secure, plumb and level.
2. Strength of fasteners: Sufficient to support all live and dead loads.
3. Fasteners and or adhesives: As section Z20.
4. Fixings showing on surface of sign: Not permitted.

COMPLETION - NOT USED

N91

EXTERNAL SIGNAGE AND INTERPRETATION

SIGNAGE OUTLINE

110 PROPRIETARY SIGNAGE SYSTEM

1. Description: Wayfinding Signage [from car park]
2. Function: Direction Wayfinding. Strategy TBC.
3. Sign type: Monolith/ entrance/ welcome sign
4. Electrical supplies: Not required

SYSTEM PERFORMANCE

210 EXTERNAL SIGNAGE GENERALLY

1. Signage systems generally: Complete to BS 559, including components, inserts, accessories and fixings necessary to complete the system.
2. External signage: To BS 559, clause 6.1.
3. Content: Signs including facing information, components, inserts, accessories and fixings necessary to complete the system.
4. Geometric shapes, colours and layout: To BS 8501 and ISO 7001.
5. Wind loads: To BS EN 1991-1-4.

PRODUCTS - NOT USED

MATERIALS - NOT USED

FABRICATION

520 MONOLITH/ ENTRANCE/ WELCOME SIGN

1. Description: FOR HOSPITAL WAYFINDING
2. Manufacturer: Fitzpatrick Woolmer
 - Product reference: dCipher Monolith
3. Material: Stainless steel
 - Finish: Brushed
4. Layout and dimensions: Single sided
 - Content: TBC
 - Lettering
 - o Manufacturing process: Manufacturer's standard
 - o Font: Manufacturer's standard
 - o Size: Manufacturer's standard range
 - o Colours: Manufacturer's standard
 - o Language: English
 - Symbols and graphics: Not required
 - o Manufacturing process: Not applicable
 - o Size: Not applicable
 - o Colours: Not applicable
 - Bespoke artwork: Map to be supplied by ???
 - o Manufacturing process: Manufacturer's standard
5. Fixing accessories: Tamper-resistant fixings. In-ground fixing to manufacturer's standard

EXECUTION/ ERECTION/ INSTALLATION

605 METHOD OF FIXING SIGNS

1. Description: MONOLITH/ ENTRANCE/ WELCOME SIGN
2. Method of fixing Root fix into concrete.

COMPLETION - NOT USED

P10 SUNDRY INSULATION/PROOFING WORK/FIRE STOPS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF INSULATION

190A INSULATION FITTED BETWEEN STUDS

1. Manufacturer: Rockwool Ltd, Pencoed, Bridgend, CF35 6NY
 - Product reference: Rockwool Steel Frame Slab
2. Material: Mineral wool to BS EN 13162
 - Facing: Not required
3. Recycled content: Not applicable
4. Thickness: 150 mm
5. Installation requirements:
 - Joints: Butted, no gaps.
 - Fasteners: Use where necessary to retain insulation and/ or prevent slumping.

190B INSULATION FITTED TO WINDOW REVEALS & EXTERNAL WALL DEFLECTION HEAD

1. Manufacturer: Rockwool Ltd, Pencoed, Bridgend, CF35 6NY
 - Product reference: Rockwool RWA5 Semi Rigid Mineral Wool Slabs 100Kg/m3 density
2. Material: Mineral wool to BS EN 13162
 - Facing: Not required
3. Recycled content: Not applicable
4. Thickness: 25 mm
5. Installation requirements:
 - Joints: Butted, no gaps.
 - Fasteners: Use where necessary to retain insulation and/ or prevent slumping.

310B VAPOUR CONTROL LAYER

1. Description: To G10/ 150 cold rolled steel framing system
2. Manufacturer: DuPont (UK) Ltd, Bristol and Bath Science Park, Dirac Crescent, Emersons Green, Bristol, BS16 7FR
 - Product reference: AirGuard A2 FR fire retardant airtight vapour control layer
3. Material: Laminate of glass fibre-mesh with lacquered aluminium foil
4. Minimum vapour resistance: 24,000 MN s/ g
5. Reaction to fire classification to BS EN 13501-1: A2-s1,d0
6. Installation requirements:
 - Setting out: Horizontally laid with joints minimised.
 - Method of fixing:
 - Sealed continuously to each stud using Tyvek Double Sided Butyl Tape. Fixing of internal lining boards to provide mechanical fix
 - Sealed continuously to clean and primed concrete floor slab using Tyvek Double Sided Butyl Tape & mechanically fixed using suitable fixings at maximum 500 mm centres
 - Sealed continuously to metal soffit of roof deck using Tyvek Double Sided Butyl Tape and Tyvek Metallised Tape

- Joints: Lapped 100 mm sealed with Tyvek Metallised Tape.
 - Openings: Membrane dressed into reveals and sealed using Tyvek Double Sided Acrylic Tape to provide continuous air seal.
 - Joints and edges:
 - Penetrations: Seal using both Tyvek Double Sided Acrylic Tape and Tyvek Metallised Tape.
7. Other requirements:
- Maintain continuity of membrane at all times, taking particular care at openings, penetrations, floor and roof junctions
 - Take care not to damage membrane during or following installation. Repair small punctures with Tyvek Metallised Tape/ replace large areas with new material

320A BREATHER MEMBRANE

1. Manufacturer: DuPont (UK) Ltd, Bristol and Bath Science Park, Dirac Crescent, Emersons Green, Bristol, BS16 7FR
 - Product reference: Tyvek FireCurb Housewrap
2. Installation requirements:
 - Setting out: Horizontally laid with joints minimized. Membrane to form a continuous barrier to prevent water, snow and wind blown dust reaching the substrate.
 - Method of fixing: Tyvek Double Sided Acrylic Tape in combination with austentic stainless steel staples to face of sheathing board
 - Joints: Lapped 100 mm minimum horizontally and 150 mm minimum vertically and sealed using Tyvek Double Sided Acrylic Tape.
 - Openings: Membrane dressed into reveals and sealed using Tyvek Double Sided Acrylic Tape. Make good to corners using Tyvek FlexWrap EZ.
 - Bottom edges: Membrane lapped over flashings, sills, etc. by 100 mm minimum to allow free drainage to the exterior.
 - External corners: Dress around ensuring minimum 300 mm return.
3. Penetrations: Sealed using Tyvek Double Sided Acrylic Tape.

432 CAVITY BARRIERS

1. Manufacturer: PFC Corofil Fire Stop Products, Units 3 & 4, King George's Trading Estate, Davis Road, Chessington, Surrey KT9 1TU
 - Product reference: CCFS Cavity Fire Stop
2. Fire resistance rating: Up to 120 mins
3. Thickness: 100 mm
 - Installation requirements: Continuous with minimum joints tightly butted, under minimum 5mm compression between substrates. All joints and gaps up to 5mm filled with PFC Corofil Acoustic Intumescent Sealant.
 - Fasteners: PFC Corofil Multi Purpose Brackets at max 500 mm centres and 250mm from each end of section in length to ensure minimum 25mm between end of bracket and outer face of barrier.
4. Other requirements: Fitted strictly in accordance with manufacturer's guidelines.

433 VENTILATED CAVITY BARRIERS

1. Manufacturer: PFC Corofil Fire Stop Products, Units 3 & 4, King George's Trading Estate, Davis Road, Chessington, Surrey KT9 1TU
 - Product reference: COSB 25 Open State Cavity Barrier
2. Fire resistance rating: Up to 120 mins
3. Thickness: 100 mm

- Installation requirements: Continuous with minimum joints tightly butted with all joints and gaps up to 5mm filled with PFC Corofil Acoustic Intumescent Sealant. Ensure 25mm air gap is maintained to rear face of cladding.
 - Fasteners: PFC Corofil HP Brackets at max 500 mm centres and 250mm from each end of section in length to ensure minimum 25mm between end of bracket and outer face of barrier.
4. Other requirements: Fitted strictly in accordance with manufacturer's guidelines.

434 FIRE RESISTING PROFILE FILLERS TO COMPOSITE FLOOR SLAB DIRECTLY ABOVE FIRE RESISTING AND/ OR ACOUSTICALLY IMPROVED PARTITIONS

1. Manufacturer: PFC Corofil Fire Stop Products, Units 3 & 4, King George's Trading Estate, Davis Road, Chessington, Surrey KT9 1TU
 - Product reference: Corofil C144 high density compressible mineral fibre fire stop blocks
2. Fire resistance rating: To BS 476-20, 60/60 integrity/ insulation
3. Profile/ length:
 - Profile: Precisely matching profile of composite floor decking
 - Length: Minimum 75 mm but in length(s) to span full width of partition or, where partition incorporates deflection head, head plate
4. Installation:
 - Insert blocks into profiles ensuring minimum 5 mm compression ensuring that faces align with edges or outer boards or, where partition incorporates deflection head, head plate.
 - Apply Fastight coating to nominal 1.0 mm thickness over exposed faces of blocks.
 - Point in any minor gaps (2-3 mm wide) using Corofil Acoustic Intumescent Sealant.

434A FIRE RESISTING PROFILE FILLERS TO COMPOSITE FLOOR SLAB TO PERIMETER OF EXTERNAL WALL

1. Manufacturer: PFC Corofil Fire Stop Products, Units 3 & 4, King George's Trading Estate, Davis Road, Chessington, Surrey KT9 1TU
 - Product reference: Corofil C144 high density compressible mineral fibre fire stop blocks
2. Fire resistance rating: To BS 476-20, 60/60 integrity/ insulation
3. Profile/ length:
 - Profile: Precisely matching profile of composite floor decking
 - Length: 100 mm
4. Installation:
 - Insert blocks into profiles ensuring minimum 5 mm compression ensuring that faces align with edges or outer boards.
 - Apply Fastight coating to nominal 1.0 mm thickness over exposed faces of blocks.
 - Seal perimeter and point in any minor gaps (2-3 mm wide) using Corofil Acoustic Intumescent Sealant.

P12 FIRE STOPPING SYSTEMS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL

130H FIRESTOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Uninsulated upvc and other combustible pipework/ conduit
2. Fire resistance: To match fire resisting walls/ partitions/ floors
3. Penetration seal: Firestop flexible firestop foam as clause 335H
 - Pipework outside diameter: Max 50 mm
4. Installation: As clause 661H

131H FIRESTOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Uninsulated copper/ steel pipework/ conduit
2. Fire resistance: To match fire resisting walls/ partitions/ floors
3. Penetration seal: Firestop acrylic sealant as clause 391H
 - Pipework outside diameter: Min 32 mm/ max 160 mm
4. Installation: As clause 746H

132H FIRESTOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Uninsulated upvc and other combustible pipework
2. Fire resistance: To match fire resisting walls/ partitions/ floors
3. Penetration seal: Firestop collar as clause 380H
 - Pipework outside diameter: Min 50 mm/ max 250 mm
4. Installation: As clause 731H

133H FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Sheathed cables
2. Fire resistance: To match fire resisting walls/ partitions/ floors
3. Penetration seal: Firestop cable collar as clause 381H
 - Cable outside diameter: Single max 50 mm/ bunched max 100 mm with max single cable 21 mm
4. Installation: As clause 732H

134H FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Insulated metal pipework
2. Fire resistance: To match fire resisting walls/ partitions/ floors
3. Penetration seal: Firestop bandage as clause 375H
 - Pipework outside diameter: Max 90 mm
 - Insulation thickness: Max 100 mm
4. Installation: As clause 733H

135H FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Uninsulated upvc and other combustible pipework
2. Fire resistance: To match fire resisting walls/ partitions/ floors

3. Penetration seal: Firestop wrap strip as clause 376H
 - Pipework outside diameter: Min 50 mm/ max 160 mm
4. Installation: As clause 734H

136 FIRESTOPPING/ ACOUSTIC REINSTATEMENT TO SERVICES BACK BOXES

1. Description: To fire resisting and/ or acoustically enhanced plasterboard/ metal stud partitions
2. Joint filler: Intumescent acoustic putty pad as clause 351H
 - Size or thickness:
 - Single back box: 170 x 170 mm
 - Double back box: 170 x 230 mm

137H FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Cables, except unsheathed
2. Fire resistance: To match fire resisting walls/ partitions
3. Joint filler: Self-adhesive firestop cable disc as clause 352H
 - Cable/ conduit outside diameter:
 - o Cable (except unsheathed): Single/ bunched max 21 mm
 - o Conduit/ tube: Copper/ upvc max 16 mm

138H FIRE STOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Sheathed cables, single/ bunched cables, conduits
2. Fire resistance: To match fire resisting walls/ partitions
3. Joint filler: Firestop intumescent sealant as clause 392H
 - Cable/ conduit outside diameter:
 - o Cable:
 - Single max 80 mm
 - Bunched max 100 mm with max single cable 21 mm
 - o Conduit:
 - Steel max 16 mm
 - uPVC max 32 mm
4. Application: As clause 747H

139H REINSTATABLE FIRESTOPPING SYSTEM TO INDIVIDUAL SERVICES PENETRATIONS

1. Description: Sheathed cables
2. Fire resistance: To match fire resisting walls/ partitions
3. Penetration seal: Firestop sleeve as clause 382H
 - Cable outside diameter:
 - Single max 80 mm
 - Bunched max 86 mm with max single cable 21 mm
4. Installation: As clause 735H

141H FIRE STOPPING SYSTEM TO MULTIPLE SERVICES PENETRATIONS

1. Description: Non-combustible metallic conduit/ pipework, upvc and other combustible pipework, single/ bunched cable penetrations, cable trays
2. Fire resistance: To match fire resisting walls/ partitions
3. Board barrier:
 - Material: Mineral wool ablative coated rigid batts as clause 360H
 - o Thickness: 50 mm

- o Number of layers:
 - To concrete/ masonry/ and plasterboard/ metal stud partitions with weighted sound reduction index of Rw42dB or less: Type A (one layer)
 - To concrete/ masonry/ and plasterboard/ metal stud partitions with weighted sound reduction index of Rw43dB or more: Type B (two layers)
 - Pipe outside diameter:
 - Steel pipes: Max 250 mm
 - Copper pipes: Max 88.9 mm
 - uPVC and other combustible pipework: Max 40 mm internal diameter without intumescent pipe collars/ wraps/ sleeves/ max 160 mm external diameter with intumescent pipe collars/ wraps/ sleeves
 - Cable outside diameter: Max 75 mm
 - Steel trunking: Max 250 x 250 mm
 - Framing: Form apertures in plasterboard/ metal stud partitioning using metal studs/ channels lined with plasterboard
 - Finish: Not applicable
4. Installation: As clause 712H

145H FIRE STOPPING SYSTEM TO MULTIPLE SERVICES PENETRATIONS

1. Description: Fire resisting concrete floors
2. Fire resistance: To match fire resisting concrete floor
3. Fire resisting material:
 - Material: Firestop mortar as clause 342H
 - o Thickness: As required to achieve fire resistance of surrounding floor
 - o Number of layers: One
 - Framing: Not required
 - Reinforcement: Not required for openings up to 1600 mm. Where opening dimensions exceed 750 x 750 mm, incorporate 12 mm dia reinforcement bars at 200 mm centres across short span only. Bars to be recessed into surrounding structure min 50 mm on both sides or alternatively, supported on mild steel angles fixed to structure such that underside of bars is located 30 mm above base of fire seal

SYSTEM PERFORMANCE

241 FIRE PERFORMANCE

1. Description: Of firestopping systems
2. Resistance to fire: To BS 476-20 and -22, matching integrity and insulation performance of penetrated substrate
3. Reaction to fire: In accordance with Building Regulations, Class 0
4. Smoke resistance:
 - Air leakage rate (maximum): 10 m³/m²·hr

PRODUCTS

305 PRODUCT CERTIFICATION

1. Certification: For products specified generically, submit evidence of compliance with the specification.
2. Acceptable evidence:
 - LPCB /FM approvals
 - Test reports and/or assessments by NAMAS approved laboratories. Tests to be representative of end use application

- Test reports/ assessments by approved laboratories from EU member states. Tests to be representative of end use application
- Engineering judgements by manufacturer to be under the terms of the Passive Fire Protection Federation 'Guide to Undertaking assessments in lieu of Fire Tests'

335H INTUMESCENT FOAM

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-F FX Flexible Firestop Foam
2. Application: As clause 661.

339H FIRESTOP FILLER MASTIC

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-FIL Firestop Filler Mastic

342H FIRE RESISTING MORTAR

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CP 638 HS FS firestop mortar

351H FIRESTOP PUTTY PAD

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-P PA Firestop Putty Pad

352H SELF-ADHESIVE FIRESTOP CABLE DISC

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-D 25 self-adhesive firestop cable disc

360H MINERAL WOOL RIGID BATTS

1. Standard: To BS EN 13162.
2. Surface treatment: Ablative coating
3. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CP 670 Firestop Coated Board, Type A (one layer) and Type B (two layers)
4. Recycled content: Manufacturer's standard

367 FIRESTOP BLOCKS

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-BL Firestop Block

375H PIPE COLLAR

1. Type: Wrap pipe collar
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-B Firestop Bandage 125 x 2 mm thick

376H PIPE COLLAR

1. Type: Concealed intumescent pipe collar
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-W Firestop Wrap Strip

376J PIPE COLLAR

1. Type: Concealed intumescent pipe collar
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CP645 Firestop Insulated Sleeve

380H PIPE COLLAR

1. Type: Surface mounted intumescent pipe collar
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-C P Firestop collar

381H CABLE COLLAR

1. Type: Surface mounted intumescent cable collar
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-CC firestop cable collar

382H FIRESTOP SLEEVE

1. Type: Surface mounted intumescent sleeve
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-SL GA firestop sleeve

385 SEALANT BACKING MATERIAL

1. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CF 125-50 fire rated backing foam

390A SEALANT

1. Type: Fire resisting silicone
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-S SIL firestop silicone sealant

391H SEALANT

1. Type: Fire resisting acrylic
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-S ACR Firestop Acrylic Sealant

392H SEALANT

1. Type: Fire resisting acrylic

2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-IS Firestop Intumescent Sealant

395H COATING

1. Type: Fire resisting acrylic
2. Manufacturer: Hilti (Gt Britain) Ltd, 1 Trafford Wharf Road, Trafford Park, Manchester, M17 1BY
 - Product reference: CFS-CT Firestop Coating

EXECUTION

610 THIRD-PARTY-CERTIFIED INSTALLER

1. Certification: For the technical competency of the installer of the evidence of compliance with a third party installation certification scheme.
2. Acceptable evidence: FIRAS or LPCB Installer Certification

621 WORKMANSHIP GENERALLY

1. Installation standard: By third party certified installer as clause 610.
2. Evidence of accreditation and installation training from product and system manufacturer: Submit before work commences.
3. Gaps: Seal between building elements and services, to provide effective resistance to fire and the passage of smoke. Allow for capping sealants where required. Finish flush with surrounds.
4. Traceability: Mark all firestopped service penetrations with permanent label showing unique reference number, date of installation, date inspected and name of installer.
5. Recording of penetration seals: Provide records of locations of all firestop seals and necessary data for incorporation into Health & Safety File
6. Adjacent surfaces: Prevent overrun of filler, sealant or mortar on to finished surfaces.

661H APPLYING P12/ 335H FIRESTOP FOAM

1. New joints: Remove builder's debris, mortar droppings, grease, and other contaminants.
2. Old joints: Clean and remove existing sealant from each joint.
3. Services: Clean cables, trays and pipes of dust and grease.
4. Priming: Not required.
5. Openings in plasterboard/ metal stud partitions: Form support shutter within partition void using tightly packed mineral wool.
6. Application: Fill joint to approximately half depth, allowing foam to expand to face of joint/ opening to give 145 mm depth.
7. Trimming: Trim excess foam to give a neat, flush appearance

671 APPLYING FIRE RESISTING MORTAR

1. Sequence: Install mortar after services are permanently installed, allowing access to remote corners.
2. Base material suitability: Remove loose dust and combustible materials and degrease. Ensure that opening is bounded by suitable structural elements.
3. Shuttering: Install suitable shuttering panels to the faces of the opening.
4. Temperature: Do not apply mortar when it could be damaged by frost.
5. Mortar cure: Do not disturb mortar before final set has taken place.
6. Shuttering: Remove after mortar has cured.

7. Loadbearing firestopping: Do not permit foot traffic until curing has taken place and only when manufacturer's written evidence has been provided confirming suitability.

712H INSTALLING FIRESTOP COATED BOARDS

1. Installing boards: Fit tight into void between the penetrating services and the surrounding construction to form a solid barrier, .
2. Pre-coating: Precoat penetrating services to full depth of seal using firestop acrylic sealant as clause 391H
3. Face of board: Flush with one face of wall, floor or soffit.
4. Joints between boards: Close butt joints, seal with firestop acrylic sealant as clause 391H
5. Sealant: Coat cut edges, surface of opening and joints between boards and seal gaps around penetrating services with firestop acrylic sealant as clause 391H
6. Penetrating services: Coat with firestop coating as clause 395H for distance from barrier and to dry film thickness in accordance with manufacturer's requirements

731H FIXING P12/ 132H PIPE COLLARS

1. Collar fixing: Fix to face of plasterboard/ metal stud partitioning using min 8 mm fire rated metal anchors/ plug and screw to face of masonry wall
2. Gap around collar: Close annular space around both sides min 25 mm deep using fire resisting acrylic sealant as clause 391H

732H FIXING P12/ 381H FIRESTOP CABLE COLLARS

1. Collar fixing: Fix to face of plasterboard/ metal stud partitioning using min 8 mm fire rated metal anchors/ plug and screw to face of masonry wall
2. Gap between collar and cable(s): Fill gaps between cable(s) and cable collar min 20 mm deep using firestop filler mastic as clause 339H

733H FIXING P12/ 375H FIRESTOP BANDAGES

1. Bandage fixing: Wrap insulated pipework in two layers +>20 mm overlap of firestop bandage secured with >0.7 mm steel wire
2. Bandage positioning: Embedded into partition 62.5 mm (less for partitions <125 mm thick) and projecting min 62.5 mm (more for partitions <125 mm thick) on each side of opening
3. Gap around firestop bandage: Close any remaining annular space between firestop bandage and opening using fire resisting acrylic sealant as clause 391H

734H FIXING P12/ 376H FIRESTOP WRAP

1. Wrap fixing: Wrap around pipework both sides of wall/ partition and secure with adhesive strip
2. Wrap positioning: Push wraps into annular gap flush with face of wall each side
3. Gap around wrap: Close annular space each side min 15 mm deep in masonry walls/ 25 mm deep in plasterboard/ metal stud partitions using fire resisting acrylic sealant as clause 391H

735H FIXING P12/ 382H FIRESTOP SLEEVE

1. Installation: Seal to face of wall/ partition using EPDM gasket supplied with sleeve

740 INSERTING SEALANT BACKING MATERIAL

1. Preparation: Removed debris from service penetration.
2. Installation: Insert joint filler to full depth of joint leaving sufficient depth to apply sealant

745 APPLYING SEALANTS GENERALLY

1. Application: As section Z22.

746H APPLYING P12/ 391H FIRESTOP INTUMESCENT SEALANT

1. Application of sealant: Apply firestop acrylic sealant to min 15 mm depth ensuring sealant is in contact with all surfaces

747H APPLYING P12/ 392H FIRESTOP INTUMESCENT SEALANT

1. Backfill: Tightly packed mineral wool min 50 mm deep
2. Application of sealant: Apply firestop intumescent sealant to min 25 mm depth ensuring sealant is in contact with all surfaces

COMPLETION

910 CLEANING

1. Masking tapes: Remove.
2. Cleaning: Clean off splashes and droppings. Wipe down finishes.

920A INSPECTION

1. Notice for inspection (minimum): 5 working days
2. Inspection body: Arrange for inspection by accreditation body (FIRAS or LPCB) during and upon completion of firestopping works

P20 UNFRAMED ISOLATED TRIMS/SKIRTINGS/SUNDRY ITEMS

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS

120 HARDWOOD

1. Description: Backrails to coat hooks and equipment clips
2. Quality of wood and fixing: To BS 1186-3.
 - Species: To match doorset frames
 - Class: 1
3. Moisture content at time of fixing: 9 -13%
4. Preservative treatment: Not required
5. Fire rating: Not applicable
6. Profile: Rectangular with exposed arrises splayed to a 2 mm flat plane
 - Finished size: 19 x 94 mm
7. Finish as delivered: Satin clear lacquered
8. Fixing: Screw fixed at centres shown on detail drawing and pelleted where fixings otherwise visible

172 PROPRIETARY WALL PROTECTION RAIL/ HANDRAIL

1. Manufacturer: Construction Specialties (UK) Ltd, 1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
 - Product reference: Acrovyn ref HRB20(93) wall protection rail/ handrail
2. Size: 143 mm
 - Projection from wall: 76 mm
3. Components:
 - Extended 'Rapid fix' mounting brackets at maximum 800 mm centres
 - Continuous aluminium retainer
 - Acrovyn vinyl/ acrylic profile covers snap fixed to aluminium retainer
 - End caps
 - External corners
4. Finish/Colour: Acrovyn/ Acrovyn PVC Free in colour(s) to CA's requirements from manufacturer's full colour ranges
5. Fixing: Aluminium retainer fixed through brackets and plasterboard to horizontal fixing channel within metal stud partition using toggle fixings or, as appropriate, plugged and screwed through brackets to masonry background

173 PROPRIETARY WALL PROTECTION RAIL

1. Manufacturer: Construction Specialties (UK) Ltd, 1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
 - Product reference: Acrovyn ref FR225 rub rail
2. Size: 57 mm
 - Projection from wall: 19 mm
3. Components:
 - Continuous aluminium retainer
 - Acrovyn vinyl/ acrylic profile cover snap fixed to aluminium retainer
 - End caps
4. Finish/Colour: Acrovyn/ Acrovyn PVC Free in colour(s) to CA's requirements from manufacturer's full colour ranges

5. Fixing: Aluminium retainer fixed through plasterboard to s/w bearers within metal stud partition or, as appropriate, plugged and screwed to masonry background

176 PROPRIETARY WALL PROTECTION RAIL

1. Manufacturer: Construction Specialties (UK) Ltd, 1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
 - Product reference: Acrovyn ref SCR-80M/ SCR-80MN wall protection rail
2. Size: 203 mm
 - Projection from wall: 35 mm
3. Components:
 - Continuous aluminium vinyl retainer with buffer cushion
 - Acrovyn vinyl/ acrylic profile cover snap fixed to aluminium retainer
 - End caps
 - Reveal trims between end caps and cover to wall protection rail
4. Finish/Colour: Acrovyn/ Acrovyn PVC Free in colour(s) to CA's requirements from manufacturer's full colour ranges
5. Fixing: Aluminium retainer fixed through mounting cushions and plasterboard to s/w bearers within metal stud partition or, as appropriate, plugged and screwed to masonry background

180 PROPRIETARY 90° CORNER PROTECTOR

1. Manufacturer: Construction Specialties (UK) Ltd, 1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
 - Product reference: Acrovyn ref SSM20 surface mounted corner protectors
2. Size: 51 x 51 mm
 - Corner radius: 6.5 mm
3. Components:
 - Profiled aluminium retainer
 - Acrovyn vinyl/ acrylic profile cover snap fixed to aluminium retainer
 - End caps
4. Finish/Colour: Acrovyn/ Acrovyn PVC Free in colour(s) to CA's requirements from manufacturer's full colour ranges
5. Fixing: Aluminium retainer fixed to wall using two rows of nylon tappits (supplied by corner protector manufacturer) at 400 mm centres

181 PROPRIETARY 90° CORNER PROTECTOR

1. Manufacturer: Construction Specialties (UK) Ltd, 1010 Westcott Venture Park, Westcott, Aylesbury, Bucks, HP18 0XB
 - Product reference: Acrovyn ref SM20 surface mounted corner protectors
2. Size: 76 x 76 mm
 - Corner radius: 6.5 mm
3. Components:
 - Profiled aluminium retainer
 - Acrovyn vinyl/ acrylic profile cover snap fixed to aluminium retainer
 - End caps
4. Finish/Colour: Acrovyn/ Acrovyn PVC Free in colour(s) to CA's requirements from manufacturer's full colour ranges
5. Fixing: Aluminium retainer fixed to wall using two rows of nylon tappits (supplied by corner protector manufacturer) at 400 mm centres

271 PLASTICS VENEERED BOARD CILLBOARDS

1. Description: Cillboards
2. Standard: To BS 4965.
 - Core: 18 mm ply (bonding quality Class 2 to BS EN 314:Part 2) core built up at front edge to give 36 x 18 mm post-formed downstand
 - Durability class: D2
 - Laminate grade: HG
 - Fire rating: Not applicable
3. Thickness: 1.0 mm
4. Colour/Finish: To CA's requirements from the following ranges:
 - Egger (UK) Ltd "Fantasy" range
 - Formica Group "Collection Patterns" range
 - Polyrey UK "Patterns" range.
5. Balancing veneer: Non-decorative
6. Finished thickness: 20 mm
7. Edges: Fully bonded and trimmed, to all edges
8. Support/ Fixing: With panel adhesive to preservative treated battens plugged and screwed to blockwork inner leaf

274 PLASTICS VENEERED BOARD SHELVES

1. Description: Shelves
2. Standard: To BS 4965.
 - Core: 18 mm 650-720 kg/m³ density particleboard core
 - Durability class: D2
 - Laminate grade: HG
 - Fire rating: Not applicable
3. Thickness: 1.0 mm
4. Colour/Finish: To CA's requirements from the following ranges:
 - Egger (UK) Ltd "Uni Colours" range
 - Formica Group "Collection Colours" range
 - Polyrey UK "Papago Color" range
5. Finished thickness: 20 mm
6. Edges:
 - Type: 2 mm colour matching pvc lippings with radiused leading edges
 - Samples: Before placing orders, submit sample of each colour
7. Support/ Fixing:
 - Screw fixed from beneath through plastic nurgles clipped into adjustable shelf brackets

275 PLASTICS VENEERED BOARD COLOSTOMY SHELVES

1. Description: Shelves
2. Standard: To BS 4965.
 - Core: 25 mm 650-720 kg/m³ density particleboard core
 - Durability class: D2
 - Laminate grade: HG
 - Fire rating: Not applicable
3. Thickness: 1.0 mm

4. Colour/Finish: To CA's requirements from the following ranges:
 - Egger (UK) Ltd "Uni Colours" range
 - Formica Group "Collection Colours" range
 - Polyrey UK "Papago Color" range
5. Finished thickness: 27 mm
6. Edges:
 - Type: 2 mm colour matching pvc lippings with radiused leading edges
 - Samples: Before placing orders, submit sample of each colour
7. Support/ Fixing: Twice drilled to suit Hafele ref 283.33.910 concealed shelf supports

422 BRACKET SUPPORTS

1. Description: Shelves to mirror/shelf assemblies
2. Material: Mild Steel
 - Finish: Polyester powder coating
 - Colour: White (RAL 9010)
3. Size: As shown on detail drawing
4. Fixing: Screw fixed through plasterboard to s/w bearers within metal stud partition/plugged and screwed to masonry

425 BRACKET SUPPORTS

1. Description: Adjustable shelving
2. Manufacturer: Click System Components Ltd, Hillside House, Stratford Road, Mickleton, Gloucestershire, GL55 6SR
 - Product reference: Click ref WU aluminium wall uprights and ref SB brackets
3. Type/ Size: Wall uprights in lengths shown on Furniture/Fittings layout drawing(s) with brackets sized to suit shelf depths
4. Finish/ Colour: 5 micron coated satin silver anodised
5. Fixing: Uprights screw fixed through plasterboard to s/w bearers within metal stud partition/plugged and screwed to masonry using roundhead wood screws

EXECUTION

510A INSTALLATION GENERALLY

1. Joinery workmanship: As section Z10.
2. Metal workmanship: As section Z11.
3. Methods of fixing and fasteners: As section Z20 where not specified.
4. Straight runs: To be in one piece, or in long lengths with as few joints as possible.
5. Running joints: Location and method of forming to be agreed where not detailed.
6. Position and level: As detailed.

P21 DOOR/ WINDOW IRONMONGERY

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

PRE-TENDER - NOT USED

GENERAL

110 GENERAL REQUIREMENTS

1. Detailed requirements and locations of ironmongery are shown on Ironmongery Schedule(s).
2. Fixing: As sections L10 and L20.
3. Submittals:
 - Copies of all relevant BS and BS EN test reports.- Supplier's Declarations of Conformity relating to CE Marking for hinges, locks, closing devices and panic/emergency exit hardware, where intended for use on fire-resisting and/or route of escape doors, and as currently listed and published by the Guild of Architectural Ironmongers
 - Evidence of supplier's ISO 9001, Quality Management Certification
 - Copies of all UL listing and Certifire certificates

121A IRONMONGERY FROM SINGLE PROPRIETARY RANGE

1. Manufacturer: Allgood plc, 76 King Street, Manchester, M2 4NH
 - Product reference: Modric range generally but Contego range for lever and pull handles, push plates, thumbturns, cylinders and escutcheons
2. Principal material/ finish: Grade 1.4401 (316) stainless steel generally but anti-microbial copper alloy for lever and pull handles, push plates, thumbturns, cylinders and escutcheons
3. Hinges: By specified doorset manufacturer.
4. Items unavailable within selected range: Submit proposals for use of alternatives from manufacturer's complementary ranges.
5. Other requirements: Anti-microbial alloy to comprise min 70% copper/ 30% nickel mix to provide physical appearance of stainless steel with;- Proven resistance to COVID19 and other bacterial and viral pathogens in traditional indoor environments.- Ability to kill 99.9% of pathogens in minutes
6. Warranty: Obtain from the ironmongery manufacturer, on behalf of the client, a 10 year single source warranty covering the repair or replacement, free of charge, of any items which are or become defective due to faulty materials or workmanship, subject only to the implementation of a future regular maintenance regime in accordance with the manufacturer's O & M manual

150A IRONMONGERY FOR DOORSETS

1. Provide ironmongery required for each doorset in two separate packs (projecting and non-projecting ironmongery) clearly labelled to identify the doorset to which it belongs. Deliver the packs of non-projecting items to the doorset manufacturer for factory fitting and deliver the other packs to site.

170A IRONMONGERY FOR FIRE DOORS

1. Relevant products: Ironmongery fixed to, or morticed into, the component parts of a fire resisting door assembly.
2. Compliance: Ironmongery included in successful tests to BS 476-22 or BS EN 1634-1 on door assemblies similar to those proposed.
 - Certification: Submit evidence of successful testing by UKAS accredited laboratory
3. Melting point of components (except decorative, non-functional parts): 800°C minimum.

DOOR HANGING DEVICES - NOT USED

WINDOW HANGING DEVICES - NOT USED

DOOR OPERATING DEVICES

412A OVERHEAD DOOR CLOSERS

1. Description:
2. Manufacturer: As clause P21/ 121A
3. Standard: To BS EN 1154.
 - Door closing devices to fire/ smoke control doors: CE marked.
4. Minimum classification grades:
 - Category of use: 4
 - Durability: 8.
 - Door closer power size: EN 2-6
 - Suitability for use on fire/ smoke doors: 1
 - Safety: 1.
 - Corrosion resistance: 4
5. Type: Face fixed except where stated otherwise in Ironmongery Schedule(s)
6. Other functions: Back check, latch action and speed control
7. Casing finish: To match finish of specified ironmongery range
8. Operational adjustment:
 - Variable power: Matched to the sizes and weights of doors.
 - Latched doors: Override latches and/ or door seals when fitted.
 - Unlatched doors: Hold shut under normal working conditions.
 - Closing against smoke seals of fire doors: Positive. No gaps.

473 ELECTROMAGNETIC HOLD OPEN OVERHEAD DOOR CLOSERS (24 V)

1. Description:
2. Manufacturer: As clause P21/ 121A
3. Standard: To BS EN 1155.
 - Electromagnetic devices to fire/ smoke control doors: CE marked.
4. Type: Electro-hydraulic hold open overhead door closer
5. Minimum classification grades:
 - Category of use: 3.
 - Durability: 8
 - Hold open power size: 1-6
 - Suitability for use on fire/ smoke doors: 1.
 - Safety: 1.
 - Corrosion resistance: 4
6. Material/ finish: To match finish of specified ironmongery range
7. Means of release: Alarm system and/ or failure of power supply.
8. Test switch: Located in a convenient position adjacent to door.
9. Operational adjustment of integral closer:
 - Variable power: Matched to size, weight and location of doors.
 - Latched doors: Override latches and/ or door seals when fitted.

- Unlatched doors: Hold shut under normal working conditions.

DOOR SECURING DEVICES

525A DOOR LOCKS AND LATCHES

1. Description:
2. Manufacturer: As clause P21/ 121A
3. Standard: To BS EN 12209.
4. Minimum classification grades:
 - Category of use: 3
 - Durability: X
 - Door mass and closing force: 8
 - Suitability for use on fire/ smoke doors: 1
 - Safety: 0.
 - Corrosion resistance and temperature: G
 - Security and drill resistance: 2
 - Field of door application: B
 - Type of key operation and locking: A
 - Type of spindle operation: 3
 - Key identification requirement: 0
5. Backset: As shown on Ironmongery Schedule(s)
6. Material/ finish: Stainless steel faceplate
7. Keying: As clause 588
8. Other requirements:
 - Heavily sprung for unsprung lever furniture
 - Radiused forend and square strike plate

588 LOCK SUITING

1. Suiting: Suite cylinders under existing Grand Master suite.
 - Provide, as appropriate, 3 no keys to each Master and Sub-master suite. In addition, provide 3 no keys to each cylinder.

WINDOW SECURING DEVICES - NOT USED

DOOR FURNITURE

622A LEVER HANDLE SETS

1. Description:
2. Manufacturer: As clause P21/ 121A
3. Standard: To BS EN 1906.
4. Minimum classification grades:
 - Category of use: Grade 4
 - Durability: Grade 7
 - Door mass: (no classification)
 - Fire resistance: Grade 1
 - Safety: Grade 1
 - Corrosion resistance: Grade 4

- Security: Grade 0
 - Type of operation: Type U
5. Style: As shown on Ironmongery Schedule(s)
 6. Size: As shown on Ironmongery Schedule(s)
 7. Material/ finish: As shown on Ironmongery Schedule(s)
 8. Mounting: Quadaxial dry bearing system attaching lever to rose and incorporating captive bolt back to back screw thread fixings between roses
 9. Additional requirements:
 - Solid bar handles
 - Max 4 mm thick unsprung roses

651A PULL HANDLES

1. Description:
2. Manufacturer: As clause P21/ 121A
3. Standard: To BS 8424.
4. Minimum classification grades:
 - Category of use: Grade 4
 - Durability: 2.
 - Door mass: - (no classification).
 - Suitability for use on fire/ smoke doors: Grade 1
 - Safety: 1.
 - Corrosion resistance: Grade 4
5. Shape: As shown on Ironmongery Schedule(s)
6. Diameter: As shown on Ironmongery Schedule(s)
7. Distance between centres: As shown on Ironmongery Schedule(s)
8. Material/ finish: As shown on Ironmongery Schedule(s)
9. Mounting: As shown on Ironmongery Schedule(s)
10. Additional requirements:
 - Solid bar handles
 - Passivated steel bolt fixings with pan head design to suit flush installation and anti-clockwise serrations to underside to prevent slackening

WINDOW FURNITURE - NOT USED

P31 HOLES/CHASES/COVERS/SUPPORTS FOR SERVICES

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

PRODUCTS

315 FLAT ROOF PENETRATION UPSTAND

1. Manufacturer: Roof-Pro Ltd, PO Box 505, Kempston, Bedfordshire, MK42 7LQ
 - Product reference: Roof-Nek II insulated spun aluminium penetration upstand
2. Service: Pipe(s)/ cable(s) of up to 50 mm diameter as shown on M & E Services Consultant's drawing(s)
3. Installation:
 - Secure flange of penetration upstand to roof slab/ metal profiled sheet decking, dress roofing membrane around upstand, seal at top and secure with jubilee clip.
 - Remove detachable clip-on lid to feed pipe(s)/ cable(s) through upstand.
 - Modify cradle pipe/ cable ports to accept pipe(s)/ cable(s) of 21-50 mm diameter.
 - Replace lid.
4. Space between service and upstand: Seal at roof level with: mineral wool compressed to completely fill space

317 FLAT ROOF PENETRATION BOX

1. Manufacturer: Roof-Pro Ltd, PO Box 505, Kempston, Bedfordshire, MK42 7LQ
 - Product reference: PP-3 powder coated galvanised steel penetration box upstand
2. Service: Pipe(s)/ cable(s)/ cable tray(s) as shown on M & E Services Consultant's drawing(s) and capable of passing through 755 mm wide x 180 mm high aperture (PP-3 1875)/ 400 mm wide x 300 mm high aperture (PP-3 3040)/ 200 mm wide x 200 mm high aperture (PP-3 2020)
3. Installation:
 - Secure flange of penetration box base to roof slab/ metal profiled sheet decking and surround with 80 mm thick rigid roof insulation as section J42/ 415 and preformed metal upstand so that mid-section flashing covers upstand by 50 mm.
 - Attach mid-section unit using bolts provided.
 - Remove pull-out aluminium panel and form holes tight around pipe(s)/ cable(s)/ cable tray(s).
 - Replace and secure lid.
4. Space between service and upstand: Seal at roof level with: Mineral wool compressed to completely fill space

EXECUTION

610 COORDINATION

1. Locations and dimensions of holes and chases for services: Submit details:

620 HOLES, RECESSES AND CHASES IN IN SITU CONCRETE

1. Cast in: Holes larger than 10 mm diameter, recesses and chases.
2. Cutting and drilling
 - Permitted for holes not larger than 10 mm diameter.
 - Not permitted for holes larger than 10 mm diameter except as indicated on drawings.

630 HOLES, RECESSES AND CHASES IN PRECAST CONCRETE

1. Cutting and drilling: Not permitted except as indicated on drawings.

640 HOLES IN STRUCTURAL STEELWORK

1. Cutting and drilling: Not permitted except as indicated on drawings.

650A HOLES, RECESSES AND CHASES IN MASONRY

1. Locations: To maintain integrity of strength, stability and sound resistance of construction.
2. Sizes: Minimum needed to accommodate services.
 - Holes (maximum): 300 x 300 mm.
3. Walls of hollow or cellular blocks: Do not chase.
4. Walls of other materials:
 - Vertical chases: No deeper than one third of single leaf thickness, excluding finishes.
 - Horizontal or raking chases: No longer than 1 m. No deeper than one sixth of the single leaf thickness, excluding finishes.
5. Chases and recesses: Do not set back to back. Offset by a clear distance at least equal to the wall thickness.
6. Cutting: Do not cut until mortar is fully set. Cut carefully and neatly. Avoid spalling, cracking and other damage to surrounding structure.

660 PREFORMED HOLES IN MASONRY

1. Width of holes without bridging over (maximum): 225 mm
 - Holes requiring bridging: Submit proposals.

690 INSTALLING PIPE SLEEVES

1. Sleeves: Fit to pipes passing through building fabric.
2. Material: Match pipeline.
3. Size: One or two sizes larger than pipe to allow clearance.
4. Finish: Install sleeves flush with building finish. In areas where floors are washed down, install protruding 100 mm above floor finish.
5. Masking plates: Fit at visible penetrations, including through false ceilings of occupied rooms.

Q10 KERBS/EDGINGS/CHANNELS/PAVING ACCESSORIES

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

TYPES OF KERBS/EDGINGS AND CHANNELS

110 CONCRETE KERBS HALF BATTERED KERB

1. Manufacturer: Marshalls plc
2. Contact details
 - Address: Landscape House
Premier Way
Lowfields Business Park
Elland
West Yorkshire
HX5 9HT
 - Telephone: +44 (0)330 0574472
 - Web: www.marshalls.co.uk
 - Email: info@marshalls.co.uk
3. Product reference: Half Battered Kerb
4. Standard: To BS EN 1340:2003.
5. Physical properties
 - Colour: Natural grey.
 - Finish: Textured.
 - Profile
 - o Designation: Half battered kerb.
 - Dimensions: 125 x 150 x 915 mm (HB3). HB to BN (LH), 125 x 255/ 150 mm. HB to BN (RH), 125 x 255/ 150 mm.
 - Radial units
 - o Radial face: Radius, convex (external). Radius, concave (internal).
 - o Radius: 1 m. 2 m. 3 m. 4 m. 5 m. 6 m. 7 m. 8 m. 9 m.
 - Weathering resistance: $\leq 1.0 \text{ kg/m}^2$ as a mean with no individual value $> 1.5 \text{ kg/m}^2$ (freeze thaw durability).
 - Abrasion resistance: $\leq 23 \text{ mm}$ (Wide Wheel Abrasion Test).
 - Bending strength: Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa.
 - Unpolished Slip Resistance Value (USRV) (minimum): > 45 .

110A CONCRETE KERBS BULL NOSE

1. Manufacturer: Marshalls plc
2. Contact details
 - Address: Landscape House
Premier Way
Lowfields Business Park
Elland
West Yorkshire
HX5 9HT
 - Telephone: +44 (0)330 0574472

- Web: www.marshalls.co.uk
 - Email: info@marshalls.co.uk
3. Product reference: Bullnosed Kerb
 4. Standard: To BS EN 1340:2003.
 5. Physical properties
 - Colour: Natural grey.
 - Finish: Textured.
 - Profile
 - o Designation: BN
 - Dimensions: 125 x 150 x 915 mm.
 - Radial units
 - o Radial face: Radius, convex (external). Radius, concave (internal).
 - o Radius: 1 m. 2 m. 3 m. 4 m. 5 m. 6 m. 8 m. 9 m.
 - Weathering resistance: $\leq 1.0 \text{ kg/m}^2$ as a mean with no individual value $> 1.5 \text{ kg/m}^2$ (freeze thaw durability).
 - Bending strength: Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa.
 - Unpolished Slip Resistance Value (USRV) (minimum): > 45 .
 6. Special shapes: Drop kerb 125 x 255/ 150 left hand. Drop kerb 125 x 255/ 150 right hand. Transition 125 x 255 left hand (HB to BN). Transition 125 x 255 right hand (BN to HB). Quadrant 455 x 255 QBN. Quadrant 305 x 255 QBN.

110C PROPRIETARY PRECAST CONCRETE

1. Description: Edgings
2. Standard: To BS EN 1340.
3. Manufacturer: Marshalls, Landscape House, Premier Way, Lowfields Business Park, Elland, West Yorkshire, HX5 9HT
4. - Product reference: BS EN 1340:2003 edgings
5. Recycled content: Manufacturer's standard
6. Designations: EF Edging, flat top
7. Size (width x height x length): 50 x 200 x 914 mm
8. Finish: As cast
9. Colour: Natural
10. Bedding: Cement mortar
11. Joints generally: Dry, 2-3 mm gap
12. Sealant movement joints: Not required
13. Accessories: None

115A CONCRETE SAFETY KERBS (A)

1. Manufacturer: Marshalls plc
 - Contact details
 - o Address: Landscape House
Premier Way
Lowfields Business Park
Elland
West Yorkshire
HX5 9HT
 - o Telephone: +44 (0)330 0574472

- o Web: www.marshalls.co.uk
 - o Email: info@marshalls.co.uk
 - Product reference: Titan Kerb
2. Physical properties
- Colour: Natural concrete.
 - Finish: Polyurethane paint.
 - Profile
 - o Designation: Drop kerb LH. Drop kerb RH.
 - Dimensions: 400 mm x 390 mm.
 - Weathering resistance: $\leq 1.0 \text{ kg/m}^2$ as a mean with no individual value $> 1.5 \text{ kg/m}^2$ (freeze thaw durability).
 - Abrasion resistance: $\leq 23 \text{ mm}$ (Wide Wheel Abrasion Test).

ROADS/PAVING ACCESSORIES/ MARKING/ DEMARCATION

395A ROAD MARKING (THERMOPLASTIC)

1. Standard: Road Safety Markings Association standard specification document for road marking and road studs (StanSpec).
2. Manufacturer: As Civil Engineer's details
 - Product reference: As Civil Engineer's details
3. Colour: As Civil Engineer's details
4. Retroreflectivity to BS EN 1436: As Civil Engineer's details

LAYING

510 LAYING KERBS, EDGINGS AND CHANNELS

1. Cutting: Neat, accurate and without spalling. Form neat junctions.
 - Long units (450 mm and over) minimum length after cutting: 300 mm.
 - 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.

530 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING

1. Standard: To BS 8500-2.
2. Designated mix: Not less than GEN0 or Standard mix ST1.
3. Workability: Very low.

600 RADIUS KERBS/ CHANNELS

1. Usage: Radii of 15 m or less.

610 ANGLE KERBS

1. Usage: Internal and external 90° changes of direction.

2. Cutting of mitres: Not permitted.

620 ACCURACY

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

625 REGULARITY OF PAVED SURFACES

1. Maximum undulation of (non-tactile) paving surface: 3 mm.
 - 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)
 - Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
 - Recessed, filled joints: 2 mm.
 - o Recess depth (maximum): 5 mm.
 - Unfilled joints: 2 mm.
3. Sudden irregularities: Not permitted.

Q22

COATED MACADAM/ ASPHALT ROADS/ PAVINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

TYPES OF PAVING

110 ASPHALT CONCRETE PAVING

1. Description: To vehicular areas
2. Standard: To BS EN 13108-1
3. Subgrade improvement layer: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
4. Geotextile: As Civil Engineer's details
 - Manufacturer: As Civil Engineer's details
 - o Product reference: As Civil Engineer's details
5. Granular sub-base: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
6. Base: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
7. Binder course: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
8. Surface course: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Slip/ Skid resistance: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
9. Reclaimed content
 - Standard: To BS EN 13108-8.
 - Value (maximum): As Civil Engineer's details
10. Surface treatment: White and Yellow Thermoplastic road markings as drawing HG0052-IBI-ED-XX-PL-L-700007. Applied slip resistant paint as manufacturer's recommendation / engineers details.
11. Other requirements: As Civil Engineer's details

115 ASPHALT CONCRETE PAVING

1. Description: To footpaths
2. Standard: To BS EN 13108-1
3. Subgrade improvement layer: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
4. Geotextile: As Civil Engineer's details
 - Manufacturer: As Civil Engineer's details
 - o Product reference: As Civil Engineer's details
5. Granular sub-base: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details

6. Binder course: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
7. Surface course: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Slip/ Skid resistance: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
8. Reclaimed content
 - Standard: To BS EN 13108-8.
 - Value (maximum): As Civil Engineer's details
9. Surface treatment: As Civil Engineer's details
10. Other requirements: As Civil Engineer's details

127A POROUS ASPHALT CONCRETE PAVING

1. Description: To vehicular areas
2. Standard: To BS EN 13108-7.
3. Geomembrane: As Civil Engineer's details
 - Manufacturer: As Civil Engineer's details
 - o Product reference: As Civil Engineer's details
4. Granular sub-base: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
5. Water collection: As Civil Engineer's details
6. Base: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
7. Binder course: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
8. Surface course
 - Manufacturer: As Civil Engineer's details
 - o Product reference: As Civil Engineer's details
 - Type: As Civil Engineer's details
 - Paving grade: As Civil Engineer's details
 - Slip/ Skid resistance: As Civil Engineer's details
 - Compacted thickness: As Civil Engineer's details
9. Reclaimed content
 - Standard: To BS EN 13108-8.
 - Value (maximum): As Civil Engineer's details
 - Surface treatment: White and Yellow Thermoplastic road markings as drawing HG0052-IBI-ED-XX-PL-L-700007. Applied slip resistant paint as manufacturer's recommendation / engineers details.

PREPARATORY WORK/ REQUIREMENTS

240 ACCEPTANCE OF SURFACES

1. Surface: Sound, clean and suitably close textured.
2. Level tolerances: To BS 594987.

3. Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

LAYING

310 LAYING GENERALLY

1. Preparation: Remove all loose material, rubbish and standing water.
2. Adjacent work: Form neat junctions. Do not damage.
3. Channels, kerbs, inspection covers etc: Keep clean.
4. New paving
 - Keep traffic free until it has cooled to prevailing atmospheric temperature.
 - Do not allow rollers to stand at any time.
 - Prevent damage.
 - Lines and levels: With regular falls to prevent ponding.
 - Overall texture: Smooth, even and free from dragging, tearing or segregation.
 - State on completion: Clean.

320 ADVERSE WEATHER

1. Frozen materials: Do not use.
2. Suspend laying
 - During freezing conditions
 - If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
 - Hot rolled asphalt: During periods of continuous or heavy rain or if there is standing water on the base.

330 LEVELS

1. Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

COMPLETION - NOT USED

Q25 SLAB/ BRICK/ SETT/ COBBLE PAVINGS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL - NOT USED

SYSTEM PERFORMANCE - NOT USED

PRODUCTS

315A CONCRETE PAVERS WITH NATURAL STONE TOP REF: P1

1. Description: Kellen paving
2. Standard: To BS EN 1339.
 - Manufacturer: Hardscape Products Ltd
 - o Contact details
 - Address: Eagley House
Deakins Business Park
Egerton
Bolton
Lancashire
United Kingdom
BL7 9RP
 - Telephone: +44 (0)1204 565500
 - Web: www.hardscape.co.uk
 - Email: enq@hardscape.co.uk
 - o Product reference: Kellen Breccia/ Lavarò/ Liscio/ CERO Paving (Breccia)
 - Standard: To BS EN 1338, BS EN 1339 and BS EN 1340.
 - Physical properties
 - o Colour: Rosso.
 - o Dimensions and associated tolerances
 - Nominal sizes: 600mm l x 200mm w x 80mm d
 - Accessories: Not required.
 - Type: 100% natural stone coating.
 - CO2Content: 8 kg/m² and ≤70% CO2 reduction over normal cement products.

315B CONCRETE PAVERS WITH NATURAL STONE TOP REF: P2A

1. Description: Kellen paving
2. Standard: To BS EN 1339.
 - Manufacturer: Hardscape Products Ltd
 - o Contact details
 - Address: Eagley House
Deakins Business Park
Egerton
Bolton
Lancashire
United Kingdom
BL7 9RP
 - Telephone: +44 (0)1204 565500

- Web: www.hardscape.co.uk
- Email: enq@hardscape.co.uk
- o Product reference: Kellen Breccia/ Lavarò/ Liscio/ CERO Paving (Breccia)
- Standard: To BS EN 1338, BS EN 1339 and BS EN 1340.
- Physical properties
 - o Colour: Tagenta E.
 - o Dimensions and associated tolerances
 - Nominal sizes: 500mm l x 500mm w x 80mm d
- Accessories: Not required.
- Type: 100% natural stone coating.
- CO2Content: 8 kg/m² and ≤70% CO2 reduction over normal cement products.

315C CONCRETE PAVERS WITH NATURAL STONE TOP REF: P2B

1. Description: Kellen paving
2. Standard: To BS EN 1339.
 - Manufacturer: Hardscape Products Ltd
 - o Contact details
 - Address: Eagley House
Deakins Business Park
Egerton
Bolton
Lancashire
United Kingdom
BL7 9RP
 - Telephone: +44 (0)1204 565500
 - Web: www.hardscape.co.uk
 - Email: enq@hardscape.co.uk
 - o Product reference: Kellen Breccia/ Lavarò/ Liscio/ CERO Paving (Breccia)
 - Standard: To BS EN 1338, BS EN 1339 and BS EN 1340.
 - Physical properties
 - o Colour: Tagenta E.
 - o Dimensions and associated tolerances
 - Nominal sizes: 500mm l x 500mm w x 100mm d
 - Accessories: Not required.
 - Type: 100% natural stone coating.
 - CO2Content: 8 kg/m² and ≤70% CO2 reduction over normal cement products.

315D CONCRETE PAVERS WITH NATURAL STONE TOP REF: P3

1. Description: Kellen paving
2. Standard: To BS EN 1339.
 - Manufacturer: Hardscape Products Ltd
 - o Contact details
 - Address: Eagley House
Deakins Business Park
Egerton
Bolton
Lancashire

United Kingdom
BL7 9RP

- Telephone: +44 (0)1204 565500
- Web: www.hardscape.co.uk
- Email: enq@hardscape.co.uk
- o Product reference: Kellen Breccia/ Lavarò/ Liscio/ CERO Paving (Breccia)
- Standard: To BS EN 1338, BS EN 1339 and BS EN 1340.
- Physical properties
 - o Colour: Tagenta B.
 - o Dimensions and associated tolerances
 - Nominal sizes: 210mm l x 105mm w x 80mm d
- Accessories: Not required.
- Type: 100% natural stone coating.
- CO2Content: 8 kg/m² and ≤70% CO2 reduction over normal cement products.

315E CONCRETE PAVERS WITH NATURAL STONE TOP REF: P5

1. Description: Kellen paving
2. Standard: To BS EN 1339.
 - Manufacturer: Hardscape Products Ltd
 - o Contact details
 - Address: Eagley House
Deakins Business Park
Egerton
Bolton
Lancashire
United Kingdom
BL7 9RP
 - Telephone: +44 (0)1204 565500
 - Web: www.hardscape.co.uk
 - Email: enq@hardscape.co.uk
 - o Product reference: Kellen Breccia/ Lavarò/ Liscio/ CERO Paving (Liscio)
 - Standard: To BS EN 1338, BS EN 1339 and BS EN 1340.
 - Physical properties
 - o Colour: Bianco
 - o Dimensions and associated tolerances
 - Nominal sizes: 100mm l x 100mm w x 80mm d
 - Accessories: Not required.
 - Type: 100% natural stone coating.
 - CO2Content: 8 kg/m² and ≤70% CO2 reduction over normal cement products.

315F CONCRETE PAVERS WITH NATURAL STONE TOP REF: SINGLE TRIM

1. Description: Kellen paving
2. Standard: To BS EN 1339.
 - Manufacturer: Hardscape Products Ltd
 - o Contact details
 - Address: Eagley House
Deakins Business Park

Egerton
Bolton
Lancashire
United Kingdom
BL7 9RP

- Telephone: +44 (0)1204 565500
- Web: www.hardscape.co.uk
- Email: enq@hardscape.co.uk
- o Product reference: Kellen Breccia/ Lavarò/ Liscio/ CERO Paving (Breccia)
- Standard: To BS EN 1338, BS EN 1339 and BS EN 1340.
- Physical properties
 - o Colour: Rosso.
 - o Dimensions and associated tolerances
 - Nominal sizes: 300mm l x 300mm w x 80mm d
- Accessories: Not required.
- Type: 100% natural stone coating.
- CO2Content: 8 kg/m² and ≤70% CO2 reduction over normal cement products.

320 TACTILE FLAGS AND SLABS REF:T1

1. Description: Crossing points
2. Standard: To DD CEN/TS 15209.
3. Material: Precast concrete
 - Manufacturer: Marshalls, Landscape House, Premier Way, Lowfields Business Park, Elland, West Yorkshire, HX5 9HT
 - o Product reference: Tactile Blister paving
4. Recycled content: Manufacturer's standard
5. Nominal sizes: 400 x 400 x 50mm
6. Colour: Natural
7. Type of surface: Blister – type B1

320A TACTILE FLAGS AND SLABS REF:T2

1. Description: External steps
2. Standard: To DD CEN/TS 15209.
3. Material: Precast concrete
 - Manufacturer: Marshalls, Landscape House, Premier Way, Lowfields Business Park, Elland, West Yorkshire, HX5 9HT
 - o Product reference: Tactile Corduroy paving
4. Recycled content: Manufacturer's standard
5. Nominal sizes: 400 x 400 x 50mm
6. Colour: Natural
7. Type of surface: Rib – type R1

350 HEAVY DUTY PAVERS

1. Description: Heavy Duty Pavers with Exopave Brick Inserts
2. Paving units
 - Manufacturer: Geosynthetics Limited, Fleming Road, Harrowbrook Ind Est, Hinckley Leicestershire, LE10 3DU.
 - o Product reference: Total Traffic Exopave [TTE]

- o Paving System:: Heavy Duty interlocking pavers
 - o Brick Insert colour:: Anthracite
3. Size: As manufacturer details

365 GEOTEXTILE SHEET TYPE A

1. Description: - BELOW LAYING COURSE
2. Manufacturer: To Engineers details
 - Product reference: To engineers details
3. Recycled content: Manufacturer's standard

EXECUTION

615 CONTROL SAMPLES

1. Sample areas: Complete as part of the finished work.
 - Types of paving: All paving
 - Location: To be agreed
 - Size (minimum): 3.0 x 3.0 m
 - Included features: none
2. Approval of appearance and surface: Obtain before proceeding.

620 ADVERSE WEATHER

1. General
 - 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.
 - Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
2. Paving with mortar joints and/ or bedding
 - Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand/ fine aggregate
 - Stockpiled laying course sand/ fine aggregate: Protect from saturation.
 - Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.
 - Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.
 - 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.

625 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.
 - 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.

630 LEVELS OF PAVING

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

637 REGULARITY OF PAVED SURFACES

1. Maximum undulations in the surface of pavings (except tactile paving surfaces) under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface): 3 mm.
2. Joints between paving units or utility access covers
 - Joints flush with the surface: Difference in level between adjacent units to be no more than twice the joint width (with a 5 mm max difference in level).
 - Recessed, filled joints: Difference in level between adjacent units to be no greater than 2 mm; the recess to be no deeper than 5 mm.
 - Unfilled joints: Difference in level between adjacent units to be no greater than 2 mm.
3. Sudden irregularities: Not permitted.

640 COLOUR BANDING

1. General: Unless premixed by manufacturer, select from at least 3 separate packs in rotation to avoid colour banding.

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:
 - Pedestrian traffic (minimum): 5 days
 - Vehicular traffic (minimum): 10 days
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

655 CONDITION OF SUB-BASES/ BASES BEFORE SPREADING LAYING COURSE

1. Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
2. Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.
3. Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
4. Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
5. Levels and falls: Accurate and within the specified tolerances.
6. Drainage outlets: Within 0-10 mm of the required finished level.
7. Features in unbound paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
8. Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

675 LAYING GEOTEXTILE SHEET EDGING STRIPS

1. Location: Immediately below the laying course, abutting features which interrupt the laying course, including:
 - Perimeters/ Edge restraints/ Kerbs.
 - Other types of paving.
 - 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: 1000 mm
4. Jointing: Lap by 300 mm.

685 LAYING GEOTEXTILE SHEET OVERLAYS

1. Location: Immediately below the laying course.
2. Laying: Fit neatly at edge restraints and other features that interrupt the laying course, e.g. drainage fittings, channels, manholes and kerbs.
3. Edge detail: Turn sheet up to form an upstand against features, height not less than thickness of the laying course.
4. Width: 1000 mm
5. Jointing: Lap by 300 mm.

695 SITE MIXED MORTAR

1. Description: Laying course for concrete flag paving
2. Mix: 1:3 cement:sand
3. Consistency: Stiff plastic
4. Admixtures: None

715 LAYING FLAG AND SLAB PAVING – MORTAR LAYING COURSE AND JOINTING

1. Standard generally: In accordance with BS 7533-4.
2. Flag installation and cutting: To Interpave 'Concrete flag paving'.
3. Laying course
 - Nominal thickness: To engineers details
4. Laying and jointing: Contractor's choice
5. Joint width (nominal): 2-4 mm

COMPLETION - NOT USED

Q28 TOPSOILING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

SYSTEM OUTLINE

115 TOPSOIL SYSTEM FOR TURFING AND SEEDING

1. Description: For all grassed areas
2. Composition
 - Soil: Imported topsoil to BS 3882
 - Ameliorants: None
 - Accessories: None

135 PLANTING BED TOPSOIL SYSTEM

1. Description: For external planting
2. Composition
 - Topsoil: Imported topsoil to BS 3882
 - Ameliorants: Organic materials
 - Accessories: None

145 PLANTING PIT BACKFILLING TOPSOIL SYSTEM

1. Description: For tree pits
2. Composition
 - Topsoil: Imported topsoil to BS 3882
 - Ameliorants: Organic materials
 - Accessories: Mycorrhizal inoculant

155 MULCHING AND TOP DRESSING SYSTEM

1. Description: For flowering shrubs
2. Composition
 - Material: Bark Mulch

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

1. Purity: Free of pests and disease.
2. Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
3. Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
4. Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
5. Objectionable odour: None.

6. Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

305 PERMITTED MATERIALS

1. Materials: Bark and composted green waste
2. Give notice: before ordering or using.
3. Declaration of compliance in accordance with BS EN 13650: Required

310 MATERIALS NOT PERMITTED

1. Materials:
 - Peat
 - Products containing peat
 - River and canal dredgings

315 IMPORTED TOPSOIL TO BS 3882

1. Description: For planting beds and tree pits
2. Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
3. Standard: To BS 3882.
4. Classification: Multi-purpose
 - Soil textural class to BS 3882, Figure 1: Sandy loam
5. Source: Contractor's choice
 - Product reference: Contractor's choice

EXECUTION

610 TOPSOIL ANALYSIS

1. Soil to be analysed: Imported topsoil
2. Soil analyst: Contractor's choice
3. Samples: Collect in accordance with BS 3882.
4. Submit
 - Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
 - Additional analysis: Not required
 - Report detailing soil analyst's recommendations.

620 IMPORTING TOPSOIL

1. Give notice: Before stripping topsoil for transfer to site.
 - Notice period: 5 days

625 SAMPLE LOADS

1. Description: For imported topsoil
2. Deliver to site a sample load: of 5 kg
3. Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
 - Notice period: 5 days

630 DOCUMENTATION FOR IMPORTED TOPSOIL

1. Description: All areas
2. Timing: Submit at handover.

3. Contents
 - Full description of all soil components.
 - Record of source for all soil components.
 - Record drawings showing the location and depth of all soils by type and grade.
 - Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
4. Number of copies: Two

650 NOTICE

1. Give notice before
 - Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer.
 - Visiting site during maintenance period.
2. Period of notice: One week

655 MECHANICAL TOOLS

1. Restrictions: Do not use within 100 mm of tree and plant stems.

665 SUBSOIL SURFACE PREPARATION FOR:

1. Description: Amenity planting areas
2. Standard: In accordance with BS 3882.
3. General: Excavate and/ or place fill to required profiles and levels, as section D20.
4. Loosening
 - When ground conditions are sufficiently dry to allow breaking up of soils, loosen thoroughly to specified depth
 - o Light and noncohesive subsoils: 300 mm
 - o Stiff clay and cohesive subsoils: 450 mm
 - o Rock and chalk subgrades: Lightly scarify to promote free drainage.
 - Wet conditions: Do not loosen subsoils.
5. Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
6. Remove from site: Arisings, contaminants and debris and builder's rubble

670 INSPECTING FORMATIONS

1. Give notice: Before spreading topsoil for lawn areas and planting beds.
2. Notice period: 7 days

685 SURPLUS MATERIALS TO BE REMOVED

1. Topsoil removal from site: Topsoil remaining after completion of all landscaping work
2. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

690 TOPSOIL STORAGE HEAPS

1. Location: Contractor's choice
2. Height (maximum): 1.0 m
3. Width (maximum): 2.0 m
 - Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.

4. Protection
 - Do not place any other material on top of storage heaps.
 - Do not allow construction plant to pass over storage heaps.
 - Prevent compaction and contamination, by fencing and covering as appropriate.

700 GRADING OF TOPSOIL

1. Topsoil condition: Reasonably dry and workable.
2. Contours: Smooth and flowing, with falls for adequate drainage.
 - Hollows and ridges: Not permitted.
3. Give notice: If required levels cannot be achieved by movement of existing soil.

705 HANDLING TOPSOIL

1. Standard: In accordance with BS 3882.
2. Aggressive weeds: Give notice and obtain instructions before moving topsoil.
3. Plant: Select and use plant to minimize disturbance, trafficking and compaction.
4. Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Other grades of topsoil.
5. Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
6. Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall, or when the moisture content is greater than the plastic limit.

710 SPREADING TOPSOIL ON:

1. Description: Grassed areas and amenity planting areas
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
 - Depth (maximum): 150 mm.
 - Gently firm each layer before spreading the next.
5. Depth after firming and settlement:
 - Grassed areas: 150 mm
 - Planted areas: 450 mm
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 LOOSE TIPPING OF TOPSOIL

1. Standard: In accordance with BS 3882.
2. General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 FINAL CULTIVATION

1. Description: For planting beds
2. Compacted topsoil: Break up to full depth.
3. Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
4. Depth: 450 mm
5. Particle size (maximum): 2-8 mm
6. Timing: Within a few days before planting
7. Weather and ground conditions: Suitably dry.

8. Surface: Leave regular and even.
9. Levels:
 - 25 mm above adjoining paving or kerbs
 - 50 mm above adjoining lawns
 - Minimum 150 mm below dpc of adjoining buildings
10. Undesirable material brought to the surface
 - Remove visible weeds.
 - Remove roots and large stones with any dimension exceeding 50 mm.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

1. In relation to adjoining paving, kerbs or hard surfaces: 50 mm below
2. In relation to dpc of adjoining buildings: Not less than 150 mm below.
3. In relation to adjacent grass areas: 25 mm above
4. Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
5. Sportsfields: To even levels and within the following permitted deviations:
 - From levels or gradients shown on drawings: ± 75 mm.
 - From line between boning rods 30 m apart: ± 25 mm.
6. Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
7. Adjoining soil areas: Marry in.
8. Thickness of turf or mulch: Included.

845 APPLYING LOOSE MULCH

1. Description: For planting beds
2. Timing: Immediately after planting
3. Preparation: Ensure that soil is thoroughly moistened, applying water where necessary
4. Coverage of mulch (minimum)
 - Planting beds (depth): 50 mm depth
 - Trees: 50 mm depth
5. Finished level of mulch: 30 mm below adjacent grassed or paved areas

COMPLETION

920 APPLYING MULCH

1. Timing: At end of the maintenance period
2. Watering: Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
3. Planting beds: Re-mulch.
 - Depth (minimum): 50 mm
4. Trees: Remulch.
 - Depth (minimum): 50 mm

Q30 SEEDING/TURFING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL INFORMATION/REQUIREMENTS

115 SEEDED AND TURFED AREAS

1. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
2. Appearance: A closely knit, continuous ground cover of even density, height and colour.

120 CLIMATIC CONDITIONS

1. General: Carry out the work while soil and weather conditions are suitable.

145 WATERING

1. Quantity: Wet full depth of topsoil.
2. Application: Even and without displacing seed, seedlings or soil.
3. Frequency: As necessary to ensure the establishment and continued thriving of all seeding/ turfing.

150 WATER RESTRICTIONS

1. Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/ turfing until instructed. If seeding/ turfing has been carried out, obtain instructions on watering.

160 NOTICE

1. Give notice before
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Preparing seed bed.
 - Seeding or turfing.
 - Visiting site during maintenance period.
2. Period of notice: 3 working days

170 SETTING OUT

1. Boundaries: Mark clearly.
2. Delineation: In straight lines or smoothly flowing curves as shown on drawings.

PREPARATION

250 SOIL REQUIREMENTS

1. Type
 - Seeded areas: Soil for grass swards, as section Q28
 - Turfed areas: Soil for grass swards, as section Q28
 - Reinforced grass areas: n/a

SEEDING

311A GRASS SEED

1. Description: Seeded areas under canopies of existing trees
2. Supplier: Germinal, Camp Road, Witham St Hughs, Lincoln, LN6 9QJ
 - Mixture reference: A6
3. Application rate: 35 g/ m²

319 QUALITY OF SEED

1. Description: Seeded areas
2. Freshness: Produced for the current growing season.
3. Certification: Blue label certified varieties.
 - Standard: EC purity and germination regulations.
 - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
4. Samples of mixtures: Submit when requested.

330 SOWING

1. General: Establish good seed contact with the root zone.
2. Method: To suit soil type, proposed usage, location and weather conditions during and after sowing
 - Distribution: 2 equal sowings at right angles to each other and diagonally to main axis

335 GRASS SOWING SEASON

1. Grass seed generally: April to June or August to October

352 EDGES TO SEEDED AREAS

1. Description: Adjacent to planting beds and tree pits
2. Timing: After seeded areas are well established.
3. Edges: Clean straight lines or smooth curves.
 - Mulch and soil: Draw back to permit edging.
4. Arisings: Remove.
5. Completion: Respread soil and mulch.

TURFING - NOT USED

PROTECTING/CUTTING

510 PROTECTIVE FENCING

1. Fencing type: Chestnut pale fencing to BS 1722-4
 - Height: 1.1 m
2. Erection: On completion of seeding/ turfing.
3. Removal: After grass is well established. Fencing will remain the property of the Contractor

530 FIRST CUT OF GRASSED AREAS

1. Timing: When grass is reasonably dry.
 - Height of initial growth: 75 mm
2. Preparation
 - Debris and litter: Remove.

- Stones and earth clods larger than 25 mm in any dimension: Remove
3. Height of first cut: 40 mm
 4. Mower type: Rotary
 5. Arisings: Remove from site

590 CLEANLINESS

1. Soil and arisings: Remove from hard surfaces.
2. General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

MAINTENANCE

610 FAILURES OF SEEDING/ TURFING

1. Duration: Carry out the following operations from completion of seeding/ turfing until: TBC.
2. Defective materials or workmanship: Areas that have failed to thrive.
 - Exclusions: Theft or malicious damage.
3. Method of making good: Recultivation and reseeding/ returfing.
4. Timing of making good: Next suitable planting season

620 MAINTAINING

1. Description: General grassed areas
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the Defects Liability Period.
3. Maximum height of growth at any time: 50 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 25 mm.
 - Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
 - Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
 - Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
 - Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: Contractor's choice

Q31 EXTERNAL PLANTING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

GENERAL INFORMATION/ REQUIREMENTS

112 SITE CLEARANCE GENERALLY

1. General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
2. Stones: Remove those with any dimension exceeding 50 mm.
3. Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
4. Vegetation: Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings
5. Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
6. Additional requirements: n/a

118 SOIL CONDITIONS

1. Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
2. Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

120 CLIMATIC CONDITIONS

1. General: Carry out the work while soil and weather conditions are suitable.
 - Strong winds: Do not plant.

125 TIMES OF YEAR FOR PLANTING

1. Deciduous trees and shrubs: Late October to late March.
2. Conifers and evergreens: September/ October or April/ May.
3. Herbaceous plants (including marginal): September/ October or March/ April.
4. Container grown plants: At any time if ground and weather conditions are favourable.
 - Watering and weed control: Provide as necessary.
5. Dried bulbs, corms and tubers: September/ October.
6. Colchicum (crocus): July/ August.
7. Green bulbs: After flowering in spring.
8. Wildflower plugs: Late August to mid November or March/ April.
9. Aquatic plants: May/ June or September/ October.

130 MECHANICAL TOOLS

1. Restrictions: Do not use within 100 mm of tree and plant stems.

145 WATERING

1. Quantity: Wet full depth of topsoil.
2. Application: Even and without damaging or displacing plants or soil.
3. Frequency: As necessary to ensure establishment and continued thriving of planting.

150 WATER RESTRICTIONS

1. General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.

160 NOTICE

1. Give notice before
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Delivery of plants/ trees.
 - Planting shrubs.
 - Planting trees into previously dug pits.
 - Watering.
 - Visiting site during maintenance period.
2. Period of notice: Three working days

170 SOIL REQUIREMENTS

1. Type
 - Planted beds: Planting bed soil system, as section Q28
 - Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28
 - Mulch applied after planting: Mulching and top dressing system, as section Q28

200 PLANTS/ TREES – GENERAL

1. Condition: Materially undamaged, sturdy, healthy and vigorous.
2. Appearance: Of good shape and without elongated shoots.
3. Hardiness: Grown in a suitable environment and hardened off.
4. Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
5. Budded or grafted plants: Bottom worked.
6. Root system and condition: Balanced with branch system.
 - Standard: The relevant parts of BS 3936
7. Species: True to name.
8. Origin/ Provenance: Grown in the United Kingdom for at least one growing season, unless otherwise approved
9. Definition: Origin and Provenance have the meaning given in the National Plant Specification.

215 PLANTS/ TREES – SPECIFICATION CRITERIA

1. Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification (available on CS Design Software Limited's website).

225 BULBS/ CORMS/ TUBERS

1. Condition: Firm, entire, not dried out or shrivelled.
2. Health: Free from pests, diseases and fungus.
3. Handling: Remove from packaging immediately.
4. Storage: Permitted only when necessary.
 - Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
 - Duration: Minimum period.

- Temperature: 18-21°C.

235 CONTAINER GROWN PLANTS/ TREES

1. Growing medium: With adequate nutrients for plants to thrive until permanently planted.
2. Plants: Centred in containers, firmed and well watered.
3. Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
4. Hardiness: Grown in the open for at least two months before being supplied.
5. Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

245 LABELLING AND INFORMATION

1. General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
 - Full botanical name.
 - Total number.
 - Number of bundles.
 - Part bundles.
 - Supplier's name.
 - Employer's name and project reference.
 - Plant specification, in accordance with scheduled National Plant Specification categories.
2. Additional information: Submit on request: Country of origin and Type of container.

260 PLANT/ TREE SUBSTITUTION

1. Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
 - Price.
 - Difference from specified plants/ trees.
2. Approval: Obtain before making any substitution.

265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

1. Standard: To CPSE 'Handling and establishing landscape plants'.
2. Frost: Protect plants from frost.
3. Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
4. Plant packaging: Black polyethylene bags
5. Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped
6. Planting: Upright or well balanced with best side to front.

280 TREATMENT OF TREE WOUNDS

1. Cutting: Keep wounds as small as possible.
 - Cut cleanly back to sound wood using sharp, clean tools.
 - Leave branch collars. Do not cut flush with stem or trunk.
 - Set cuts so that water will not collect on cut area.
2. Fungicide/ Sealant: Do not apply unless instructed.

285 PROTECTION OF EXISTING GRASS

1. General: Protect areas affected by planting operations using boards/ tarpaulins.

- Excavated or imported material: Do not place directly on grass.
- Duration: Minimum period.

290 SURPLUS MATERIAL

1. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

PLANT CONTAINERS - NOT USED

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

300 HERBICIDE

1. Description: To clear existing vegetation
2. Locations: All planting areas
3. Type: Suitable for suppressing perennial weeds.
4. Timing: Allow fallow period before cultivation.
 - Duration (minimum): One week

305 WEED CONTROL

1. Description: FOR INVASIVE NON-NATIVE WEEDS
2. Locations: All planting areas
3. General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding or hoeing depending on what is most appropriate.

PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

405 SHRUB PLANTING PITS

1. Timing: Excavate 1-2 days (maximum) before planting.
2. Sizes: 150 mm wider than roots when fully spread and 450 mm deep
3. Pit bottom improvement Break up to a depth of 150 mm, incorporating 25 g of slow release fertilizer per planting pit.

445 PLANTING BULBS/ CORMS/ TUBERS

1. Depth: Top of bulb/ corm/ tuber at a depth of approximately twice its height, base in contact with bottom of hole.
2. Backfilling: Finely broken soil. Lightly firm to existing ground level.
3. Naturalized planting in existing grassed areas
 - Scattering: Random. Plant bulbs/ corms/ tubers where they fall.
 - Planting: Neatly remove a plug of turf and replace after planting.

470 FORMAL HEDGES

1. Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
2. Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

480 AFTER PLANTING

1. Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
2. Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
3. Top dressing: Not required
 - Depth: Not applicable

PLANTING TREES

500 TREE PLANTING

1. Standard: Prepare trees and transplant in accordance with BS 8545

505 TREE PITS

1. Sizes: Please refer to drawing HG0052-IBI-ED-XX-DT-L-700003
2. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
3. Excavated material: Separate topsoil and subsoil material and stockpile for backfilling
4. Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 175 mm.
 - Treatment: Soil ameliorant worked into pit bottoms
5. Pit sides: Scarify.
6. Backfilling material: Proprietary tree backfilling material, as section Q28

510 TREE PIT ROOT BARRIERS

1. Locations: To all tree pits
2. Manufacturer: GreenBlue Urban
 - Product reference: Re-root 1000
3. Thickness: As manufactured
4. Barrier depth: As manufactured
5. Foil liner: Not required
6. Top of root barrier in relation to finished topsoil level: 50 mm below ground level
7. Installation: With sides vertical. Remove all sharp objects adjacent to barrier.

512 ROOTBALL SECURING FRAMES TYPE A

1. Locations: To all tree pits
2. Manufacturer: GreenBlue Urban Ltd
 - Contact details
 - o Address: Northpoint
Compass Park
Junction Road
Bodiam
East Sussex
TN32 5BS
 - o Telephone: +44 (0)1580 830800
 - o Web: www.greenblue.com
 - o Email: hello@greenblueurban.com
 - Product reference: RootRainUrban. Size to be to manufacturers recommendations
3. Hose
 - Material: Polypropylene.
 - Colour: Black.
 - Dimensions: To manufacturers recommendations
4. Filling tube: Grille inlet, PE-HD moulded grid top.
5. Inlet: 80 mm diameter.
6. Accessories: None.

512 TREE IRRIGATION RINGS TYPE B

1. Manufacturer: GreenBlue Urban Ltd
 - Contact details
 - o Address: Northpoint
Compass Park
Junction Road
Bodiam
East Sussex
TN32 5BS
 - o Telephone: +44 (0)1580 830800
 - o Web: www.greenblue.com
 - o Email: hello@greenblueurban.com
 - Product reference: RootRain Urban (RootRain Urban RRURB1A)
2. Hose
 - Material: Polypropylene.
 - Colour: Black.
 - Dimensions: To manufacturers recommendations
3. Filling tube: Grille inlet, PE-HD moulded grid top.
4. Inlet: 80 mm diameter.
5. Accessories: None.

515 TREE PIT DRAINAGE

1. Locations: To all tree pits
2. Depth of excavation: Increase from specified size to allow for aggregate layer, with base slightly falling to outlet.
3. Aggregate layer: Clean gravel or broken stone, with no fines, graded 40 to 20 mm.
 - Depth: 175mm
4. Geotextile filter
 - Manufacturer: Contractor's choice
 - o Product reference: Contractor's choice
 - Position: Lay over aggregate before installing tree or backfill.
5. Completed pits: Test for free drainage before planting.

535 TREE STAKES

1. Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
 - Preservative treatment: To provide a 20 year service life
2. Stake size (minimum): 60 mm diameter
3. Stake length (minimum): 1200 mm to 1500 mm dependant on tree pit detail

550 DOUBLE STAKING FOR

1. Description: All trees
2. Staking
 - Position: Either side of tree position and perpendicular to wind direction.
 - Driving: Vertically at least 300 mm into bottom of pit before planting.
 - Backfilling: Consolidate material around stake.
 - Firming: Sufficiently firm to prevent movement of the rootball/ rootstock.

3. Height of stakes: Cut off at approximately one third of the height of the clear stem of tree
4. Horizontal bracing: Timber cross bar, 75 mm x 38 mm x 900 - 1000 mm [tree pit size dependant]
 - Fixing: Firmly fix using nails on windward side of tree and as close as possible to the stem without making contact with the bark. Position cross bar horizontally and 25 mm from top of stakes
5. Ties: Adjustable butyl
6. Tying: Secure tree firmly but not rigidly to cross bar. Prevent tree from touching cross bar using spacer blocks or cushions if required
7. Nails for fixing ties, belts and webbing: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
8. Nails for fixing cross bars: To BS 1202-1, galvanized round wire, minimum 75 mm long and 3.75 mm gauge

566 TREE PROTECTION

1. Manufacturer: Contractor's choice
 - Product reference: Contractor's choice
2. Type: Round
3. Material: Contractor's choice
4. Size: Contractor's choice
5. Colour: Contractor's choice
6. Support: Two timber stakes
7. General: Ensure that protection methods do not impede natural movement of trees or restrict growth.

576 TREE PIT SURFACING – LOOSE FILL

1. Surfacing material: Mulch, as section Q28
2. Area: 300 mm radius circle
3. Depth: 50 mm
4. Watering: Water soil thoroughly before laying.
5. Installation: Ensure the base of the tree stem is kept free from loose filled material.

WOODLAND/ MATRIX/ BUFFER ZONE PLANTING - NOT USED

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

1. Duration: Carry out the operations in the following clauses from completion of planting until the end of the defects liability period.
2. Frequency of maintenance visits: Monthly during growing season

720 FAILURES OF PLANTING

1. Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
 - Exclusions: Theft or malicious damage after completion.
 - Rectification: Replace with equivalent plants/ trees/ shrubs.
2. Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
3. Timing of making good: During the next suitable planting season

730 PROTECTIVE FENCING

1. Fencing type: Contractor's choice
2. Erection: On completion of planting.
3. Removal: After planting is well established

740 CLEANLINESS

1. Soil and arisings: Remove from hard surfaces and grassed areas.
2. General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

750 PLANTING MAINTENANCE GENERALLY

1. Weed control: Maintain weed free area around each tree and shrub.
 - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
 - Keep planting beds clear of weeds: By use of approved non-residual herbicides
2. Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
3. Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
4. Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
5. Trees: Spray crown when in leaf during warm weather.
 - Timing: After dusk.
6. Tree accessories: Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
 - Broken or missing items: Replace.
 - Loose stakes: Re-firm in the ground or replace as necessary to provide support to the tree.
 - Loose guys: Re-firm anchor points and adjust as necessary to provide support to the tree.
 - Ties: Adjust to accommodate growth and prevent constriction or abrasion.
 - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
 - Frequency of checks: Every month
7. Watering: As required for healthy establishment, depending on weather conditions

760 PLANTING MAINTENANCE – PRUNING

1. General: Prune to promote healthy growth and natural shape.
 - Dead, dying, diseased wood and suckers: Remove.
 - Timing: As appropriate to the species
 - Trees: Favour a single central leading shoot.
2. Arisings: Remove.

780 MAINTENANCE INSTRUCTIONS

1. General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide a schedule of any ongoing maintenance problems experienced during the defects liability period.

790 FINAL MULCHING

1. Timing: At end of the maintenance period.
2. Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.

3. Planting beds: Remulch.
4. Depth (minimum): 50 mm
5. Trees: Remulch.
6. Depth (minimum): 50 mm

Q35 LANDSCAPE MAINTENANCE

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERALLY

110 NOTICE

1. Give notice before
 - Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
2. Period of notice: 7 days

130 REINSTATEMENT

1. Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstate to original condition.

155 WATERING

1. Supply: Submit proposals
2. Quantity: Wet full depth of topsoil
3. Application: Do not damage or loosen plants.
4. Compacted soil: Loosen or scoop out, to direct water to rootzone.
5. Frequency: As necessary for the continued thriving of all planting.

160 WATER RESTRICTIONS

1. General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

170 DISPOSAL OF ARISING

1. General: Unless specified otherwise, dispose of arisings as follows:
 - Biodegradable arisings: Remove to recycling facility
 - Grass cuttings: Remove to recycling facility
 - Tree roots and stumps: Remove from site
 - Shrub and tree prunings: Remove to recycling facility
 - Litter and nonbiodegradable arisings: Remove from site

181 MECHANICAL EQUIPMENT

1. General: Minimize.
2. Prohibited equipment: TBC
3. Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only

190 LITTER

1. Extraneous rubbish not arising from the contract work: Collect and remove from site.

195 PROTECTION OF EXISTING GRASS

1. General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

197 CLEANLINESS

1. Soil and arisings: Remove from hard surfaces.
2. General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

GRASSED AREAS

210 MAINTENANCE OF GRASSED AREAS

1. General: Maintain turf in a manner appropriate to the intended use.
2. Soil and grass
 - Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
 - Waterlogging and compaction: Prevent.
 - Damage: Repair trampling, abrasion or scalping.
3. Ornamental lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills.
 - Edges: Neat and well defined, in clean straight lines or smooth flowing curves.
4. Litter and fallen leaves: Remove regularly to maintain a neat appearance.

220 GRASS CUTTING GENERALLY

1. Before mowing: Remove litter, rubbish and debris.
2. Finish: Neat and even, without surface rutting, compaction or damage to grass.
3. Edges: Leave neat and well defined. Neatly trim around obstructions.
4. Adjoining hard areas: Sweep clear and remove arisings.
5. Drought or wet conditions: Obtain instructions.

225 TREE STEMS

1. Precautions: Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

235 BULBS AND CORMS IN GRASSED AREAS

1. Before flowering: Do not cut.
2. Interval between end of flowering and start of grass cutting (minimum): As agreed in the maintenance manual

250 LEAF REMOVAL

1. Operations: Collect fallen leaves.
2. Special requirements: None
3. Disposal: Remove from site for recycling

255 FIRST CUT OF TYPE A

1. Description: ALL GRASSED AREAS
2. Height of initial growth: 75 mm
3. Preparation
 - Debris and litter: Remove.

- Stones and earth clods larger than 25 mm in any dimension: Remove
4. Height of first cut: 40 mm
 5. Mower type: Contractor's choice
 6. Arisings: Remove

260 MOWING LAWNS

1. Grass height: Maintain between 25 and 50 mm
2. Arisings: Remove

310 RE-FORMING GRASS EDGES

1. Location: All edges where damage occurs
2. Method: Draw back soil and re-form edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.

320 LEVELLING HOLLOWES AND BUMPS IN TURF

1. Standard: To BS 7370-3, clauses 12.4 and 12.5.

381 REINSTATEMENT OF WORN OR DAMAGED LAWNS

1. Worn or damaged areas: Make good by turfing or reseeding:
 - Returfing standard: To BS 7370-3, Clause 12.2.
 - Reseeding standard: To BS 7370-3, Clause 12.6.
2. Turf or seed: To match existing in appearance and quality.
3. Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

FLOWER BEDS/ SEASONAL BEDDINGS

460 BEDS OF PERENNIALS OR PERENNIALS AND ANNUALS

1. Plant supports: Stake and tie plants using submit proposals bamboo canes.
 - Length: To suit plant height
 - Maintain throughout the growing season.
2. Gaps in planting: Refill by replanting.
3. Watering
 - New plants: Before and after planting out.
 - Ongoing: As necessary for the continued thriving of all planting.
4. Operations at end of growing season
 - Trim: Older flowering stems of herbaceous perennials.
 - Remove: Redundant plant supports, litter, debris and arisings.
 - Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
 - Top dress: Apply sanitized and stabilized compost top dressing.

470 FLOWER BEDS GENERALLY

1. Operations
 - Remove: Dead flower heads, fallen leaves, litter and debris.
 - Weeds: Thoroughly hand weed.
 - Cultivate: Lightly hoe.
 - Trim: Clip grass edges.
2. Fungicide: Contractor's choice

3. Insecticide: Contractor's choice

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

1. Duration: For length of maintenance contract
2. Weed control
 - Method: Keep planting beds clear of weeds by maintaining full thickness of mulch.
 - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
3. Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
4. Watering: As appropriate to determine good establishment

502 ESTABLISHMENT OF NEW PLANTING – FERTILIZER

1. Time of year: March or April.
2. Type: Organic
3. Spreading: Spread evenly. Carefully lift and replace any mulch materials.
 - Application rate: As manufacturer's recommendations

510 TREE STAKES AND TIES

1. Inspection/ Maintenance times: As scheduled and immediately after strong winds
2. Stakes
 - Replace loose, broken or decayed stakes to original specification.
 - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
3. Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
 - Where chafing has occurred, reposition or replace ties to prevent further chafing.
4. Removal of stakes and ties: When instructed
 - Fill stake holes with lightly compacted soil.

520 REFIRMING OF TREES AND SHRUBS

1. Timing: After strong winds, frost heave and other disturbances.
2. Refirming: Tread around the base until firmly bedded.
3. Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

537 NESTING WILD BIRDS

1. Survey: Before starting hedge or tree work during the period of February to August (inclusive), carry out a survey by a qualified ecologist and submit report
2. Accidental disturbance: Report immediately.

540 PRUNING GENERALLY

1. Pruning: In accordance with good horticultural and arboricultural practice.
 - Removing branches: Do not damage or tear the stem or bark.
 - Wounds: Keep as small as possible and cut cleanly back to sound wood.
 - Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.

- Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
2. Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
 3. Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
 4. Disease or infection: Give notice if detected.
 5. Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

545 PRUNING OF EXCESSIVE OVERHANG

1. Timing: As instructed
2. Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
3. Special requirements: None

570 FORMATIVE PRUNING OF YOUNG TREES

1. Standard: Type and timing of pruning operations to suit the plant species.
2. Time of year: Do not prune during the late winter/ early spring sap flow period.
3. Young trees up to 4 m high
 - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
 - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
4. Whips or feathered trees: Do not prune.
5. Operatives: Member of the Arboricultural Association

575 PRUNING ORNAMENTAL SHRUBS

1. General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
2. Suckers: Remove by cutting back level with the source stem or root.

580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES

1. Time of year
 - Winter flowering shrubs: Spring.
 - Shrubs flowering between March and July: Immediately after the flowering period.
 - Shrubs flowering between July and October: Back to old wood in winter.

600 TRIMMING RAPIDLY ESTABLISHING HEDGES

1. General: Allow to reach planned height as rapidly as possible.
 - Form: Trim back lateral branches moderately.

605 TRIMMING SLOWLY ESTABLISHING HEDGES

1. Operations
 - Timing: Cut back hard in June and September to encourage bushy growth down to ground level.
 - Form: Allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit.

620 REMOVAL OF DEAD PLANT MATERIAL

1. Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

630 DEAD AND DISEASED PLANTS

1. Removal: As soon as possible
2. Replacement: In the next suitable planting season

635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

1. Dead and damaged plants: Remove.
2. Mulch/ matting materials
 - Carefully move to one side and dig over the soil, leaving it fit for replanting.
3. Do not disturb roots of adjacent plants.
4. Replacement plants
 - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Additional requirements: None
5. Dressing: Slow release fertilizer:
 - Type: Contractor's choice
 - Application rate: As manufacturer's recommendations

645 WEED CONTROL GENERALLY

1. Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high
2. Adjacent plants, trees and grass: Do not damage.

650 HAND WEEDING

1. General: Remove weeds entirely, including roots.
2. Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
3. Completion: Rake area to a neat, clean condition.
4. Mulch: Reinstate to original depth.

655 WEED CUTTING BY HAND OR MACHINE

1. Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 25 mm.
2. Herbicides: Do not use

657 HERBICIDE TO KILL REGROWTH

1. Type: Suitable foliar acting herbicide to kill regrowth.
2. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

675 DIGGING OVER

1. General: Dig over beds. Do not damage existing plants, bulbs and roots.
 - Depth of dig (minimum): 100 mm

680 SOIL AERATION

1. Compacted soil surfaces
 - Prick up: To aerate the soil of root areas and break surface crust.
 - Size of lumps: Reduce to crumb and level off.

- Damage: Do not damage plants and their roots.

685 SOIL LEVEL ADJUSTMENT

1. Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
 - Arisings (if any): Spread evenly over the bed.

690 MAINTENANCE OF LOOSE MULCH

1. Thickness (minimum): 50 mm
 - Top up: Twice per year or as required to maintain depth
2. Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
3. Weeding: Remove weeds growing on or in mulch by hand weeding.

700 SNOW REMOVAL FROM SHRUBS/ TREES

1. Standard: To BS 7370-4.
2. Plants subject to snow removal: As instructed
3. Timing: Within 24 hours of snowfall

705 WINTER LEAF REMOVAL

1. Operations: Take down temporary leaf fences. Collect accumulations of drifted leaves from the vicinity and from planting beds.
2. Arisings: Remove to recycling facility

TREE WORK

810 TREE WORK GENERALLY

1. Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
2. Protection: Avoid damage to neighbouring trees, plants and property
3. Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
4. Removing branches: Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
5. Appearance: Leave trees with a well balanced natural appearance.
6. Chain saw work: Operatives must hold a Certificate of Competence.
7. Tree work: To be carried out by an approved member of the Arboricultural Association.

815 ADDITIONAL WORK

1. Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 PREVENTION OF WOUND BLEEDING

1. Standard: To BS 3998.

825 PREVENTION OF DISEASE TRANSMISSION

1. Standard: To BS 3998.

830 CLEANING OUT AND DEADWOODING

1. Remove
 - Dead, dying, or diseased wood, broken branches and stubs.
 - Fungal growths and fruiting bodies.
 - Rubbish, windblown or accumulated in branch forks.

- Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
- Other unwanted objects, e.g. tree houses, swings.
- Climbing plants as schedule ???.

835 CUTTING AND PRUNING GENERALLY

1. Tools: Appropriate, well maintained and sharp.
2. Final pruning cuts
 - Chainsaws: Do not use on branches of less than 50 mm diameter.
 - Hand saws: Form a smooth cut surface.
 - Anvil type secateurs: Do not use.
3. Removing branches: Do not damage or tear the stem.
4. Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
5. Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
6. Large branches: Remove only with prior approval
 - Remove in small sections and lower to ground with ropes and slings.
7. Dead branches and stubs: When removing, do not cut into live wood.
8. Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
9. Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 CROWN REDUCTION/ SHAPING

1. General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
2. Operations: with prior approval

845 CROWN LIFTING

1. Clearances: Remove branch systems to give clearance.
 - Height: with prior approval
2. Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

850 CROWN THINNING

1. Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
2. Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.
 - Quantity: TBC
3. Cutting: Make no cuts of more than 50 mm diameter.
 - Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.
4. Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 CUTTING TREE ROOTS

1. Excavating: Use hand tools only.
2. Protected area: Do not cut roots within an area which is the larger of:
 - The branch spread of the tree.
 - An area with a radius of half the tree's height, measured from the trunk.

3. Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
4. Cutting
 - Cutting: Make clean smooth cuts with a hand saw.
 - Wounds: Minimize. Avoid ragged edges.
 - Finishing: Pare cut surfaces smooth with a sharp knife.
5. Backfilling
 - Protection: Cover cut roots with clean sharp sand.
 - Material: Backfill with original topsoil.

860 REMOVING TREES, SHRUBS AND HEDGES

1. Standards: To BS 3998 and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
2. Existing services: Check for below and above ground services. Give notice if they may be affected.
3. Shrubs and smaller trees: Cut down and grub up roots.
4. Tree stumps
 - Treatment: Cut as close to ground as possible and kill by applying ammonium sulfamate into drilled holes immediately after felling
 - Removal by winching: Give notice. Do not use other trees as supports or anchors.
5. Protection: Avoid damage to neighbouring trees, plants and property
6. Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
7. Filling holes
 - Material: Use as-dug material and/ or imported soil as required.
 - Finishing: Consolidate and grade to marry in with surrounding ground level.

865 BARK DAMAGE

1. Wounds
 - Do not attempt to stop sap bleeding.
 - Bark: Remove ragged edges using a sharp knife.
 - Wood: Remove splintered wood from deep wounds.
 - Size: Keep wounds as small as possible.
2. Liquid or flux oozing from apparently healthy bark: Give notice.

870 CAVITIES IN TREES

1. Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
2. Water filled cavities: Do not drain.
3. Sound wood inside cavities: Do not remove.
4. Cavity openings: Do not cover

WATER AREAS - NOT USED

HARD LANDSCAPE AREAS/FENCING

900 SNOW CLEARANCE

1. Clearance: When instructed

2. Deicing: To roads and footpaths
 - Material: Grit
 - Timing: When freezing precipitation is forecast
 - Application rate: Spread evenly at a rate of: As manufacturer's recommendations

910 HARD SURFACES AND GRAVEL AREAS

1. Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
2. Hard surfaces: Remove litter, leaves and other debris.
3. Surface gutters and channels: Remove mud, silt and debris.
4. Drainage gullies: Empty traps and flush clean.
5. Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.
6. Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370-2, clause 4.12.
7. Stain removal: In accordance with BS 7370-2, table 4.

920 FENCING

1. Fences: Inspect and repair to maintain protection against intruders.

930 GRAFFITI REMOVAL

1. Method: submit proposals
2. Subsequent treatment: Not required

Q40 FENCING

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

FENCING SYSTEMS

170 WOOD CLOSE BOARDED FENCING SYSTEMS TYPE A

1. Manufacturer: Jacksons Fencing
 - Product reference: Jakoustic Acoustic Barriers (Jakoustic Reflective Barrier System)REF: F1
2. Manufacturer: Jacksons Fencing
 - Contact details
 - o Address: 209 Stowting Common
Ashford
Kent
TN25 6BN
 - o Telephone: 0800 408 4757
 - o Web: www.jacksons-security.co.uk
 - o Email: sales@jacksons-fencing.co.uk
3. Posts: Timber tuning fork posts with steel spur posts.
4. Post foundations: Set in concrete.
5. Rails: Completely flat face (with no horizontal rails).
6. Pales or boards: Interlocking V-tongue and groove boards, 34 x 145 x 4800 mm.
7. Fence topping: Not required.
8. System accessories: Timber capping and counter rail.
9. Gates: Manual.
10. Height: 2.4m
11. Finish/ Colour: Manufacturer's standard.
12. Other requirements: None
13. Worked finish: Pressure-treated.

170A WOOD CLOSE BOARDED FENCING SYSTEMS TYPE B

1. Manufacturer: Jacksons Fencing
 - Product reference: Jakoustic Acoustic Barriers (Jakoustic Reflective Barrier System) REF: F4
2. Manufacturer: Jacksons Fencing
 - Contact details
 - o Address: 209 Stowting Common
Ashford
Kent
TN25 6BN
 - o Telephone: 0800 408 4757
 - o Web: www.jacksons-security.co.uk
 - o Email: sales@jacksons-fencing.co.uk
3. Posts: Fencing fixed to top of existing brick wall
4. Post foundations: Fixed to top of wall to engineers details

5. Rails: Completely flat face (with no horizontal rails).
6. Pales or boards: Interlocking V-tongue and groove boards, 34 x 145 x 4800 mm.
7. Fence topping: Not required.
8. System accessories: Timber capping and counter rail.
9. Height: Overall height 2.4m. Contractor to confirm height of timber fencing above brick wall
10. Finish/ Colour: Manufacturer's standard.
11. Other requirements: None
12. Worked finish: Pressure-treated.

350A STEEL PALISADE FENCING

1. Fence type F2
2. Manufacturer: Contractor's Choice
 - Product reference: Contractor's Choice
3. Height: 1800mm
4. Pales: To match existing
5. Pale tops: To match existing
 - Finish: To match existing
 - o Colour: To match existing
6. Fixings: Bolted
7. Centres of posts (maximum): Small lengths required. Refer to dwg HG0052-IBI-ED-XX-PL-L-700001
8. Method of setting posts
 - Holes: Submit proposals
 - Embedded length: As per Engineer's recommendations.
 - Completely filled to ground level with concrete.
9. Bottom of fencing: To match existing.
10. Accessories: None
11. Conformity: Submit manufacturer's and installer's certificates, to BS 1722-12.

GATES, POSTS AND STILES

550 TIMBER GATE

1. Description: Double Leaf Maintenance gate to fence type F1
2. Manufacturer: Jacksons Fencing
3. Standard: To BS 5709.
4. Wood: To match timber used for fencing type F1 - NBS Q40/170
5. Treatment: As manufacturers details
 - Type: As manufacturers details
 - Finish: As manufacturers details
6. Fittings: As manufacturers details
 - Finish: As manufacturers details
7. Method of fixing: As manufacturers details
8. Accessories: As employers requirements

570 GATES

1. Manufacturer: Palisade Gate [REF: M] to match Q40/350A
 - Product reference: Contractors Choice

2. Sizes: 1200mm wide/1800mm high Single leaf
3. Posts: As manufactured
4. Finish as delivered: As manufactured
5. Fittings: As manufactured
 - Finish: To match fence Q40/350A
6. Method of fixing: To Engineer's Detail
7. Accessories: Lockable to client's requirements

ACCESSORIES - NOT USED

EXECUTION

710 INSTALLATION GENERALLY

1. Set out and erect
 - Alignment: Straight lines or smoothly flowing curves.
 - Tops of posts: Following profile of the ground.
 - Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
 - Fixings: All components securely fixed.

720 SETTING POSTS IN CONCRETE

1. Standard: To BS 8500-2.
2. Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
3. Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
4. Admixtures: Do not use.
5. Holes: Excavate neatly and with vertical sides.
6. Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
7. Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

COMPLETION

910 CLEANING

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.

920 FIXINGS

1. All components: Tighten.
 - Timing: Before handover.

930 GATES

1. Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
 - Timing: Before handover.

Q41 BARRIERS/ GUARDRAILS

CLAUSES - NOT USED

TYPES OF BARRIERS/ GUARDRAILS - NOT USED

PERFORMANCE/ INSPECTION/ TESTING - NOT USED

INSTALLATION - NOT USED

COMPLETION - NOT USED

Q50 SITE/ STREET FURNITURE/ EQUIPMENT

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GATES, BARRIERS AND PARKING CONTROLS

190A BOLLARDS

1. Description: Semi Domed Bollard REF: BL
2. Manufacturer: Broxap Ltd, Rowhurst Industrial Estate, Chesterton, Newcastle-under-Lyme, ST5 6BD
 - Product reference: BX47 0101 00-RT
3. Material: Stainless steel
 - Finish as delivered: 240 grit satin polished
 - Colour: None
4. Height above ground: 1000 mm
5. Special features: 101mm diam.
6. Method of fixing: Root, 300 mm below ground, set in concrete base

SITE AND STREET FURNITURE

220A BENCHES

1. Description: To entrance area
2. Manufacturer: Bailey Street Furniture Group
 - Product reference: Hyde Bench
3. Material: Steel and Wood
 - Finish: Hot-dip galvanized to BS EN ISO 1461. Timber to be Sapele hardwood
 - Colour: None
4. Size: As drawing HG0052-IBI-ED-XX-DT-L-700007
5. Accessories/ Special requirements: Armrests to each end and centre. Backrest to part
6. Method of fixing: Root, 300 mm below ground, set in concrete base

340A BESPOKE SCULPTURE/ LANDSCAPE ART

1. To main entrance
2. Artist: TBC
3. Material: TBC
4. Approximate weight: TBC
5. Approximate size: TBC
6. Delivery/ Handling/ Storage requirements: TBC
7. Method of fixing: TBC

INSTALLATION

510 CONCRETE FOUNDATIONS GENERALLY

1. Standard: To BS 8500-2.
2. Concrete: To engineers details
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.

515 SETTING COMPONENTS IN CONCRETE

1. Holes: To engineers details
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Fully compacted as filling proceeds.
4. Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

550 DAMAGE TO GALVANIZED SURFACES

1. Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
 - Material: Low melting point zinc alloy repair rods or powders made for this purpose or at least two coats of zinc-rich paint to BS 4652.
 - Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

R10 RAINWATER DRAINAGE SYSTEMS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL - NOT USED

SYSTEM PERFORMANCE

221 COLLECTION AND DISTRIBUTION OF RAINWATER

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

251 CO-ORDINATION OF RAINWATER PIPEWORK WITH FOUL AND WASTE VENTILATION PIPEWORK WITHIN SUSPENDED CEILING VOIDS

1. Levels: Rainwater pipework generally to have priority for higher zoning where clashes would otherwise occur.

PRODUCTS

311B ALUMINIUM GUTTERS

1. Standard: To BS 2997
2. Manufacturer: Contractor's choice
 - Product reference: Submit proposals
3. Profile: Box
4. Type: Extruded
5. Nominal size: 350 mm x 175 mm
6. Finish: Polyester powder coated internally and externally to BS EN 12206-1:2004
7. Colour: To Architect's requirements from manufacturer's full range
8. Brackets: Aluminium brackets coated as gutters at maximum 900 mm centres and at each fitting
9. Accessories:
 - Stop ends
 - Tapered outlets with conical leaf grate
 - 200 mm diameter inlet tapered to 100 mm outlet connection over 200 mm length
 - Polyester powder coated rainwater pipes 100 mm diameter

325 COMPOSITE GUTTERS

1. Manufacturer: Contractor's choice
 - Product reference: Submit proposals
2. Profile: Box
3. Construction: Upper and lower skin of galvanized steel with polyisocyanurate rigid foam core
4. Insulation thickness: To provide 0.25W/m²K
5. Nominal size: 325 x 250 mm
6. Upper layer finish: Prebonded single ply membrane
7. Underside finish: Polyester powder coated
8. Fixings: In accordance with manufacturer's recommendations
9. Accessories:
 - Stop ends
 - Weir overflow outlets

- Tapered outlets with conical leaf grate
- 200 mm diameter inlet tapered to 100 mm outlet connection over 200 mm length

330 COMPOSITE GUTTERS TO COURTYARD ROOF

1. Manufacturer: Contractor's choice
 - Product reference: Submit proposals and design for size of gutter
2. Profile: Box
3. Construction: Upper and lower skin of galvanized steel with polyisocyanurate rigid foam core
4. Insulation thickness: To provide 0.25W/m2K
5. Nominal size: Minimum 450 x 250 mm
6. Upper layer finish: Prebonded single ply membrane (Trocal)
7. Underside finish: Polyester powder coated
8. Fixings: In accordance with manufacturer's recommendations
9. Accessories:
 - Stop ends
 - Weir overflow outlets
 - Tapered outlets with conical leaf grate
 - 200 mm diameter inlet tapered to 100 mm outlet connection over 200 mm length

365A PROPRIETARY RAINWATER OUTLETS

1. Inverted roof
2. Manufacturer: Alumasc Water Management Solutions, Harmer Building Drainage, Station Rd, Burton Latimer, Kettering NN15 5JP
 - Product reference: Harmer AV400
3. Roof construction: Inverted
 - Roof insulation thickness: 205 mm
4. Type of grate/ Fittings: Domatical grate
5. Outlet: Type and direction to suit pipework with suitable adaptors and connections.
6. Accessories:
 - Grate Extension Piece ref: 4/6EP
 - Gravel Guard ref: C6/GG/30

365B PROPRIETARY RAINWATER OUTLETS

1. Single ply roof
2. Manufacturer: Alumasc Water Management Solutions, Harmer Building Drainage, Station Rd, Burton Latimer, Kettering NN15 5JP
 - Product reference: Harmer AV400
3. Roof construction: Mechanically fixed single ply
 - Roof insulation thickness: 100 mm
4. Type of grate/ Fittings: Domatical grate
5. Outlet: Type and direction to suit pipework with suitable adaptors and connections.
6. Accessories: Not required

365C PROPRIETARY RAINWATER OUTLETS

1. Single ply roof to courtyard
2. Manufacturer: Alumasc Water Management Solutions, Harmer Building Drainage, Station Rd, Burton Latimer, Kettering NN15 5JP
 - Product reference: Harmer AV445

3. Roof construction: Mechanically fixed single ply
 - Roof insulation thickness: 140 mm
4. Type of grate/ Fittings: Domical grate
5. Outlet: Type and direction to suit pipework with suitable adaptors and connections.
6. Accessories: Not required

CUSTOM MADE PRODUCTS - NOT USED

EXECUTION

600 PREPARATION

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

605 INSTALLATION GENERALLY

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

630 INSTALLING RAINWATER OUTLETS

1. Fixing: Secure. Fix before connecting pipework.
 - Method: In accordance with manufacturer's recommendations
2. Junctions between outlets and pipework: Accommodate movement in structure and pipework.

650 JOINTING PIPEWORK AND GUTTERS

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

675 CUTTING COATED PIPEWORK AND GUTTERS

1. Cutting: Recoat bare metal.

680 FIXING INSULATION TO INTERNAL PIPELINES AND GUTTERS

1. Fixing: Secure and neat. Provide continuity at supports and leave no gaps. Fix split pipe insulation with the split on 'blind' side of pipeline.
 - Method: Contractor's choice
2. Timing: Do not fit insulation until completion of pipe airtightness or leakage testing.

685 IDENTIFICATION OF INTERNAL RAINWATER PIPEWORK

1. Standard: In accordance with Water Regulations Advisory Scheme (WRAS) Information and guidance note 9-02-05 and BS 8515.

690 ELECTRICAL CONTINUITY - PIPEWORK

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

695 ELECTRICAL CONTINUITY - GUTTERS

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

700 ACCESS FOR TESTING AND MAINTENANCE

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

COMPLETION

900 TESTING GENERALLY

1. Dates for testing: Give notice.
 - Period of notice (minimum): 5 days
2. Preparation
 - Pipework: Complete, securely fixed, free from defects, obstruction and debris before testing.
3. Testing
 - Supply clean water, assistance and apparatus.
 - Do not use smoke to trace leaks.
4. Records: Submit a record of tests.

905 INTERNAL PIPEWORK TEST - ENGLAND, WALES, IRELAND AND NORTHERN IRELAND

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

910 GUTTER TEST

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

915 MAINTENANCE INSTRUCTIONS

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

920 IMMEDIATELY BEFORE HANDOVER

1. Construction rubbish, debris, swarf, temporary caps and fine dust which may enter the rainwater system: Remove. Do not sweep or flush into the rainwater system.

2. Access covers, rodding eyes, outlet gratings and the like: Secure complete with fixings.

R11 ABOVE GROUND FOUL DRAINAGE SYSTEMS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

GENERAL - NOT USED

SYSTEM PERFORMANCE - NOT USED

PRODUCTS

310 FLOOR CHANNELS

1. Description: In showers
2. Manufacturer: Alumasc Water Management Solutions, Station Road, Burton Latimer, Kettering, Northamptonshire, NN15 5JP
 - Product reference: Wade ref SVF linear drainage channel with single end outlet
3. Floor finish: Flexible sheet
4. Body type: Vinyl lock
 - Material: Grade 304 stainless steel
5. Type of fall: Built in fall
6. Grating/ cover
 - Product reference:: Ref SS40135A1 Perforated channel grating
 - Loading: Pedestrian
 - Material: Stainless steel, screw fixed

FABRICATION - NOT USED

EXECUTION - NOT USED

COMPLETION - NOT USED

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.
 - 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.
 - Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
 - Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
6. Adhesives: Compatible with wood preservatives applied and end uses of timber.

120 CROSS SECTION DIMENSIONS OF TIMBER

1. General: Dimensions on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes
 - Softwood sections: To BS EN 1313-1:-
 - o Clause 6 for sawn sections.
 - Hardwood sections: To BS EN 1313-2:-
 - o Clause 6 for sawn sections.
 - o 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.

210A LAMINATED PLASTICS VENEERED BOARDS/ PANELS

1. Fabrication: To British Laminated Plastics Fabricators Association Ltd (BLF) fabricating standards.
2. Decorative laminate: To CA's requirements from the following ranges:

Egger (UK) Ltd:

- "Uni Decors" range
- "Woodgrains" range
- "Fantasy" range

Formica Group:

- "Collection Colours" range

- "Collection Woods" range
- "Collection Patterns" range

Polyrey UK:

- "Papago Color" range
 - "Origine" range
 - "Patterns" range
3. Balancing veneer: From decorative laminate manufacturer and of similar composition. Applied to reverse side of core.
 4. Finished components: Free from defects, including bow, twist, scratches, chipping, cracks, pimpling, indentations, glue marks, staining and variations in colour and pattern.
 5. Joints visible in completed work: Tight butted, true and flush.

220 WOOD VENEERED BOARDS/ PANELS

1. Core material and veneers: Conditioned before bonding.
2. Setting out: Veneer features and grain pattern aligned regularly and symmetrically unless instructed otherwise.
3. Balancing veneer: Applied to reverse side of core material.
 - Moisture and temperature movement characteristics: As facing veneer.
4. Veneer edges: Tight butted and flush, with no gaps.
5. Tolerance of veneer thickness (maximum): ± 0.5 mm.
6. Finished components: Free from defects, including bow, twist, scratches, chipping, splits, blebs, indentations, glue marks and staining.
7. Surface finish: Fine, smooth, free from sanding marks.

250 FINISHING

1. Surfaces: Smooth, even and suitable to receive finishes.
 - 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.

Z11 PURPOSE MADE METALWORK

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.

320 STEEL LONG AND FLAT PRODUCTS

1. Hot rolled structural steels (excluding structural hollow sections and tubes): To BS EN 10025-1.
2. Fine grain steels, including special steels: To BS EN 10025-3 and -4.
3. Steels with improved atmospheric corrosion resistance: To BS EN 10025-5.

330 STEEL PLATE, SHEET AND STRIP

1. Plates and wide flats, high yield strength steel: To BS EN 10025-6.

340 HOT ROLLED STEEL PLATE, SHEET AND STRIP

1. Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
2. Carbon steel sheet and strip for cold forming: To BS EN 10111.
3. Narrow strip, formable steel and steel for general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

350 COLD ROLLED STEEL PLATE, SHEET AND STRIP

1. Steel sections: To BS EN 10162.
2. Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
3. Carbon steel flat products for cold forming: To BS EN 10130 and BS EN 10131.
4. Uncoated carbon steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
5. Narrow strip steel for general engineering purposes: To BS EN 10132-1, -2, and -3.
6. Carbon steel flat products for vitreous enamelling: To BS EN 10209.

360 COATED STEEL FLAT PRODUCTS

1. Hot dip zinc coated carbon steel sheet and strip for cold forming: To BS EN 10346 and BS EN 10143.
2. Hot dip zinc coated structural steel sheet and strip: To BS EN 10143 and BS EN 10346.
3. Hot dip zinc-aluminium (za) coated sheet and strip: To BS EN 10346.
4. Hot dip aluminium-zinc (az) coated sheet and strip: To BS EN 10346.
5. Organic coated flat products: To BS EN 10169.

370 STEEL STRUCTURAL HOLLOW SECTIONS (SHS)

1. Non alloy and fine grain steels, hot finished: To BS EN 10210-1 and -2.
2. Non-alloy and fine grain steels, cold formed welded: To BS EN 10219-2.
3. Weather resistant steels, hot finished: To BS 7668.

380 OTHER STEEL SECTIONS

1. Equal flange tees: To BS EN 10055.

2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
 - Seamless circular: To BS EN 10297-1.
 - Seamless cold drawn: To BS EN 10305-1.
 - Welded and cold sized square and rectangular: To BS EN 10305-5.
 - Welded circular: To BS EN 10296-1.
 - Welded cold drawn: To BS EN 10305-2.
 - Welded cold sized: To BS EN 10305-3.

400 STAINLESS STEEL PRODUCTS

1. Chemical composition and physical properties: To BS EN 10088-1.
2. Sheet, strip and plate: To BS EN 10088-2.
3. Semi-finished products bars, rods and sections: To BS EN 10088-3.
4. Wire: To BS EN 1088-3.
5. Tubes
 - Welded circular: To BS EN 10296-2.
 - Seamless circular: To BS EN 10297-2.

410 ALUMINIUM ALLOY PRODUCTS

1. Designations
 - Designation system, chemical composition and forms: To BS EN 573-1, -2, -3 and -5.
 - Temper designations: To BS EN 515.
2. Sheet, strip and plate: To BS EN 485-1 to -4.
3. Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
4. Extruded rods, bars, tubes and profiles: To BS EN 755-1 and -2.
5. Drawn wire: To BS EN 1301-1, -2 and -3.
6. Rivet, bolt and screw stock: To BS 1473.
7. Structural sections: To BS 1161.

420 COPPER ALLOY PRODUCTS

1. Sheet, strip, plate and circles for general purposes: To BS EN 1652.
2. Sheet and strip for building purposes: To BS EN 1172.
3. Rods: To BS EN 12163.
4. Profiles and rectangular bars: To BS EN 12167.
5. Wire: To BS EN 12166.
6. Tubes: To BS EN 12449.

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.
 - Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 COLD FORMED WORK

1. Profiles: Accurate, with straight arrises.

525 ADHESIVE BONDING

1. Preparation of surfaces of metals to receive adhesives
 - Degrease.
 - Abrade mechanically or chemically etch.
 - Prime: To suit adhesive.
2. Adhesive bond: Form under pressure.

527 WELDING

1. Description:
2. Welding procedures
 - Method and standard: - Steel: Metal arc welding to BS EN 1011-1 and -2. - Stainless steel: TIG welding to BS EN 1011-3
 - Welding Procedure Specification (WPS): Not required
3. Preparation
 - Joint preparation: Clean thoroughly.
 - Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
4. Jointing
 - Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
 - Dissimilar metals: Welding not permitted
 - Strength requirements: Welds to achieve design loads.
 - Heat straightening: Not permitted
 - Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds
 - Tack welds: Use only for temporary attachment.
 - Jigs: Provide to support and restrain members during welding.
 - Filler plates: Not permitted
 - Lap joints: Minimum 5 x metal thickness or 25 mm, which ever is greater.
 - Weld terminations: Clean and sound.

530 STAINLESS STEEL FABRICATION

1. Guillotining or punching: Do not use for metal thicknesses greater that 10 mm.
2. Thermal cutting
 - Carbonation in the heat affected zone: Remove, after cutting.
3. Bending
 - Plates or bars: Cold ending radius not less than material thickness.
 - Tubes: Cold bending radius not less than 2 x tube diameter.
4. Welding: In addition to general welding requirements:
 - Protect adjacent surfaces from weld spatter.
 - Pickle all welds before post fabrication treatments.
5. Protection: Provide protection to fabricated components during transit and on site.

555 BRAZING

1. Standard: To BS EN 14324.
2. Testing
 - Destructive testing: To BS EN 12797.
 - Nondestructive testing: To BS EN 12799.

FINISHING

710 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK

1. Standard: To BS EN ISO 8501-3.
 - Preparation grade: P2
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.

750 LIQUID ORGANIC COATING FOR ALUMINIUM ALLOY COMPONENTS

1. Standard: To BS 4842.

760 ZINC AND CADMIUM PLATING OF IRON AND STEEL SURFACES

1. Zinc plating: To BS EN ISO 2081.
2. Cadmium plating: To BS EN ISO 2082.

770 CHROMIUM PLATING

1. Standard: To BS EN ISO 1456.

780 GALVANIZING

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

790 VITREOUS ENAMELLING

1. Standard: To BS EN ISO 28722.
2. Substrate metal: Steel to BS EN 10209.

COMPLETION

910 DOCUMENTATION

1. Submit
 - Manufacturer's maintenance instructions.
 - Guarantees, warranties, test certificates, record schedules and log books.

920 COMPLETION

1. Protection: Remove.
2. Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

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.
 - Operatives: Preferably WPA trained
3. 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.

140A COPPER-ORGANIC PRESERVATIVE TREATMENT TO WOOD FOR EXTERNAL BUILDING AND LANDSCAPE USES

1. Use Classes: - 3.2: Above ground (above dpc), external, exposed to frequent wetting, uncoated.- 4: In permanent contact with ground or fresh water
2. Solution:
 - Manufacturer: Arch Timber Protection, Wheldon Road, Castleford, West Yorkshire, WF10 2JT
 - o Product reference: Tanalith E water borne preservative treatment
 - Colour: Green
 - Application: High pressure impregnation.
3. Moisture content of wood:
 - At time of treatment: Not more than 28%.
 - After treatment: Timber to be surface dry before using.

160A ORGANIC SOLVENT PRESERVATIVE TREATMENT

1. Use Classes: - 1: Above ground (above dpc), internal, dry.- 2: Above ground (above dpc), Internal, occasional risk of wetting.- 3.1: Above ground (above dpc), external, exposed to frequent wetting, coated
2. Solution:
 - Manufacturer: Arch Timber Protection, Wheldon Road, Castleford, West Yorkshire, WF10 2JT
 - o Product reference: Vacsol Aqua water based and organic solvent free timber preservative
 - Application: Double vacuum + low pressure impregnation, or immersion.
3. Moisture content of wood:
 - At time of treatment: As specified for the timber/ component at time of fixing.
 - After treatment: Timber to be surface dry before use.

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.

Z20 FIXINGS AND ADHESIVES

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

PRODUCTS

310 FASTENERS GENERALLY

1. Materials: To have:
 - Bimetallic corrosion resistance appropriate to items being fixed.
 - 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.

330 NAILED TIMBER FASTENERS

1. Nails
 - Steel: To BS 1202-1 or BS EN 10230-1.
 - Copper: To BS EN 1202-2.
 - Aluminium: To BS 1202-3.

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.

360 ANCHORS

1. Types
 - Expansion: For use in substrate strong enough to resist forces generated by expansion of anchor.
 - Adhesive or chemical
 - o For use in substrate where expansion of anchor would fracture substrate.
 - o For use in irregular substrate where expansion anchors cannot transfer load on anchor.
 - Cavity: For use where the anchor is retained by toggles of the plug locking onto the inside face of the cavity.

370A WOOD SCREWS

1. Type:
2. Wood screws (traditional pattern).
 - Standard: To BS 1210.
3. Wood screws.
 - Pattern: Parallel, fully threaded shank or twin thread types.

4. Washers and screw cups: Do not use cup and screw fixings or plastic screw caps except where specified otherwise. Where required, metal screw cups to be of same material as screw.

380A MISCELLANEOUS SCREWS

1. Type: To suit the fixing requirement of the components and substrate.
 - Pattern: Self-tapping, metallic drive screws, or power driven screws.
2. Washers and screw cups: Do not use cup and screw fixings or plastic screw caps except where specified otherwise. Where required, metal screw cups to be of same material as screw.

390 ADHESIVES

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

410 POWDER ACTUATED FIXING SYSTEMS

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

EXECUTION

610A 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 fully concealed wherever possible. Do not use cup and screw fixings or plastic screw caps except where specified otherwise.
 - 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.

650 NAILED TIMBER FIXING

1. Penetration: Drive fully in without splitting or crushing timber.
2. Surfaces visible in completed work: Punch nail heads below wrot surfaces.
3. Nailed timber joints: Two nails per joint (minimum), opposed skew driven.

660 SCREW FIXING

1. Finished level of countersunk screw heads
 - Exposed: Flush with timber surface.
 - Concealed (holes filled or stopped): Sink minimum 2 mm below surface.

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.

Z21 MORTARS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

CEMENT GAUGED MORTARS

110 CEMENT GAUGED MORTAR MIXES

1. Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

120 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS

1. Standard: To BS EN 13139.
2. Grading: 0/2 (FP or MP).
 - Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
 - o Lower proportion of sand: Use category 3 fines.
 - o Higher proportion of sand: Use category 2 fines.
3. Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

131 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS

1. Standard: To BS EN 998-2.
2. Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
3. Pigments for coloured mortars: To BS EN 12878.

135 SITE MADE LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS

1. Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
2. Lime: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
3. Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

160 CEMENTS FOR MORTARS

1. Cement: To BS EN 197-1 and CE marked.
 - Types: Portland cement, CEM I.
 - o Portland limestone cement, CEM II/A-L or CEM II/A-LL.
 - o Portland slag cement, CEM II/B-S.
 - o Portland fly ash cement, CEM II/B-V.
 - Strength class: 32.5, 42.5 or 52.5.
2. Portland slag cement, CEM II/B-S.
3. Portland fly ash cement, CEM II/B-V.
 - Strength class:
4. White cement: To BS EN 197-1 and CE marked.
 - Type: Portland cement, CEM I.
 - Strength class: 52.5.

5. Sulfate resisting Portland cement
 - Type: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
 - o To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - Strength class: 32.5, 42.5 or 52.5.
6. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
 - Strength class:
7. Masonry cement: To BS EN 413-1 and CE marked.
 - Class: MC 12.5.

180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS

1. Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
2. Other admixtures: Submit proposals.
3. Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

190 RETARDED READY TO USE CEMENT GAUGED MORTAR

1. Standard: To BS EN 998-2.
2. Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
 - Type: CL 90S.
3. Pigments for coloured mortars: To BS EN 12878.
4. Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
 - Retempering: Restore workability with water only within prescribed time limits.

200 STORAGE OF CEMENT GAUGED MORTAR MATERIALS

1. Sands and aggregates: Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. Factory made ready-mixed lime:sand/ ready to use retarded mortars: Keep in covered containers to prevent drying out or wetting.
3. Bagged cement/ hydrated lime: Store off the ground in dry conditions.

210 MAKING CEMENT GAUGED MORTARS

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
 - Mix proportions: Based on dry sand. Allow for bulking of damp sand.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
 - Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
3. Working time (maximum): Two hours at normal temperatures.
4. Contamination: Prevent intermixing with other materials.

LIME:SAND MORTARS - NOT USED

Z22 SEALANTS

CLAUSES

2 TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.

PRODUCTS

310 JOINTS

1. Description:
2. Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

EXECUTION

610 SUITABILITY OF JOINTS

1. Presealing checks
 - Joint dimensions: Within limits specified for the sealant.
 - Substrate quality: Surfaces regular, undamaged and stable.
2. Joints not fit to receive sealant: Submit proposals for rectification

620 PREPARING JOINTS

1. Surfaces to which sealant must adhere
 - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
 - 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
 - Butt and lap joints: Slightly concave.
 - Fillet joints: Flat or slightly convex.
5. Protection: Protect finished joints from contamination or damage until sealant has cured.

Z31 POWDER COATINGS

TO BE READ WITH PRELIMINARIES/ GENERAL CONDITIONS.

120 POWDER COATING MATERIALS

1. Manufacturer: Obtain from one only of the following:
 - H B Fuller Coatings Ltd, 95 Aston Church Road, Nechells, Birmingham, B7 5RQ
 - Akzo Nobel Powder Coatings Ltd, Stoneygate Lane, Felling, Gateshead, Tyne & Wear, NE10 0JY
2. Selected manufacturer: Submit details before commencement of powder coating including:
 - Name and contact details.
 - Details of accreditation schemes.
 - Technical data of product including current Agrément certificates.

120A POWDER COATING MATERIALS

1. Manufacturer: Obtain from one only of the following:
 - H B Fuller Coatings Ltd, 95 Aston Church Road, Nechells, Birmingham, B7 5RQ
 - Akzo Nobel Powder Coatings Ltd, Stoneygate Lane, Felling, Gateshead, Tyne & Wear, NE10 0JY
2. Selected manufacturer: Submit details before commencement of powder coating including:
 - Name and contact details.
 - Details of accreditation schemes.
 - Technical data of product including current Agrément certificates.

210 WORKING PROCEDURES

1. Comply with the follow following standards.
 - Aluminium components: To BS 6496 or BS EN 12206-1.
 - Steel components: To BS EN 13438.
 - Safety standards: Powder coating. Application of coating powders by electrostatic spraying'.
 - 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
 - Approved by powder coating manufacturer.
 - Currently certified to BS EN ISO 9001.
 - Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
 - Selected applicator: Submit details before commencement of powder coating including:
 - o Name and contact details.
 - o Details of accreditation schemes.

225 GUARANTEES

1. Powder coating manufacturer and applicator guarantees
 - Submit sample copies before commencement of powder coating.
 - 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:
 - Powder coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
 - Fabrication samples: Showing joint assembly, how powder coating is affected and how any cut metal edges are finished and protected.
 - Where manual application is required, controlled samples should be coated and inspected for colour and gloss stability.
2. Samples to include the following information
 - Product reference.
 - Colour.
 - Reference number.
 - Name.
 - Gloss level.

240 QUALICOAT QUALITY ASSURANCE SYSTEM

1. Requirement: Powder and coating application to the following designated components is to be tested and approved in accordance with the Qualicoat system.
 - Designated components: All

250 COMPONENT DESIGN

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

310 PRETREATMENT OF ALUMINIUM COMPONENTS

1. Condition of components to be pretreated
 - Free from corrosion and damage.
 - All welding and jointing completed and finish off as specified.
 - Free from impurities including soil, grease and oil.
 - Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements
 - Chromate system: To BS 6496 or BS EN 12206-1.
 - Chromate-free system: To BS EN 12206-1. Submit details before using.
3. Rinsing requirements: Use demineralized water. Drain and dry.

320 PRETREATMENT OF STEEL COMPONENTS

1. Condition of components to be pretreated
 - Free from corrosion and damage.
 - All welding and jointing completed and finish off as specified.
 - Free from impurities including soil, grease and oil.
 - 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.

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
 - Standard: To BS 6496 or BS EN 12206-1.
2. For steel components
 - 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.

450 ALUMINIUM ALLOY FABRICATIONS

1. Units may be assembled
 - Before powder coating.
 - From components powder coated after cutting to size.
 - Where approved, from components powder coated before cutting to size.
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.

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
 - Resistant to weather conditions.
 - Partially removable to suit building in and access to fixing points.
3. Protective tapes in contact with powder coatings must be
 - Low tack, self adhesive and light in colour.
 - 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.

535 DOCUMENTATION

1. Submit the following information for each batch of powder coated components
 - Supplier.
 - Trade name.
 - Colour.
 - Type of powder.
 - Method of application.
 - Batch and reference number.
 - Statutory requirements.
 - Test certificates.
 - 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.



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