# TECHNICAL SPECIFICATION FOR INTERIOR FIT OUT WORKS

中國人壽 CHINA LIFE 海外

Fitting out Works China Life Insurance
at International Commerce Centre (ICC) 51/F, Unit 5105 & and
International Gateway Centre (IGC) Tower 1, 21/F, Units 04-06

## 1.0.0 Preliminaries

### A) General Specification

The authorized local specification should be read in conjunction with this specification to meet local standard.

### B) Particular Specification

#### 1.1.1 Materials Generally

i) All materials shall be of an approved brand and type fixed and applied strictly in according with the manufacturer's instructions and to the Interior Designer's satisfaction. Materials shall be submitted to the Interior Designer for approval whenever required.

ii) The Main Contractor shall submit colour and tint cards and all colour schemes shall be approved by the Interior Designer before the Work is commenced.

#### 1.1.2 Workmanship

i) Workmanship shall be of the best quality, and shall be carried out by tradesman skilled in their particular trades and following the best of sound trade practice.

#### 1.1.3 Safe Custody of Materials

i) The Main Contractor will be responsible for the safe custody of any materials delivered on to the Site. Main Contractor will endorse receipt upon delivery to Site and provide suitable and adequate space and lock-up rooms for storage as required by other suppliers and specialist contractors. He will be required to reinstate at his own expense any such materials that may be lost or stolen.

ii) The Main Contractor will also be required to reinstate at his own expense any material or article damaged by careless handling or storage or interior workmanship by his workmen either in the original fixing or in the subsequent taking down and refixing thereof.

iii) All deliveries to the Site must be made through or by arrangement with Landlord.

1.1.4 Samples / Mock Up

i) The quality of materials and articles supplied for any purpose are to be submitted for consideration prior to their use in the Works. Wherever practicable samples are to be submitted for consideration before bulk supplies are delivered to the Site. Samples, and any packing of same, are to be provided free of charge by the Main Contractor.

ii) Mock up to be provided free of charge by the Main Contractor for items listed in Specification and/or mock up submission/approval schedule.

iii) Three sets of samples are to be submitted for Interior Designer and client's record once it is approved.

iv) Contractor is to provide the full size sample / mock-up as required for Interior Designer's approval:

1.1.5 Shop Drawings

i) Before commencing the fabrication of any items the Main Contractor shall provide the Interior Designer with shop drawings. Shop drawings shall be full size and shall show dimensions, details of construction, installation, relation to adjoining work, reinforcement, anchorage or mounting or any other information deemed by the Interior Designer as necessary to indicate that his design intensions are being faithfully interpreted.

ii) PDF format and CAD drawings of each drawing will be submitted for Interior Designer's approval.

END OF SECTION

1.2.0 Partitions and Associated Works

1.2.1 Steel framed Internal Partitions

i) Steel framed interior partitions

a) Studs

Steel studs, non-load bearing "C" type studs roll-formed from 0.6mm hot- dipped galvanized steel. Punch-outs, 25mm diameter, at 600mm centers are provided for installation of services. Flanges shall be knurled to prevent screw slippage.

b) Top and Bottom Tracks

Wall stud track, roll-formed from 0.6mm hot-dipped galvanized steel. Flanged shall be angled 80 to provide friction fit to hold studs in place until Plasterboard is fixed. Track shall be in long lengths, in widths to suit the range of wall studs.

Securely fix tracks to manufacturer's recommendations, at a maximum of 600 centres.

c) Deflection Head Channel

Ceiling channel for deflection head assembly, roll-formed from 0.6mm hot- dipped galvanized steel with 25mm x 19mm cut-outs spaced 6mm apart.

d) Deflection Head Angle

Ceiling angle for alternative deflection head assembly. Formed from 0.6mm hot-dipped galvanized steel.

e) Deflection Head Top Track

Wall stud top track, roll-formed from 0.6mm hot-dipped galvanized steel. Legs are extended to 50mm to accommodate anticipated slab deflection.

f) Expansion Joint Components

Double sided PVC Closed Cell Foam Sealant, 5.5mm diameter, to be removed before plaster sets.

g) Storage

All materials used in the construction of Plasterboard Steel Stud Drywall Partition systems must be carefully stored and protected on the construction site. Plasterboard shall be stacked flat and protected from moisture.

1.3.0 Partitions and Associated Works

1.4 Steel framed Internal Partitions

ii) Top Hat Rails

"Top Hat" rails for fixing benches, sinks, desks, etc. to walls where shown of 1.2mm thick galvanized steel bent to shapes and of lengths, all as shown, and welded at top and bottom of rail to each stud.

iii) Noggings

Noggings for fixing taps, and basins, shall be 100mm wide x 10mm thick galvanized M.S. flat of lengths required to and welded to each stud. Nogging for fixing grab rails shall be 100 x 38 K.D.H.W.

iv) Trimming

Trimming of partition walls shall be as detailed and where openings are shown on plan and wall elevations.

Trim for openings and form box studs at mullions and door jambs as shown.

At glazed screens fix 20 x 20 x 3mm natural anodized aluminium angle cover with mitred corners. Glass to be as specified in "Glazier".

v) Insulation - Internal Walls

Insulation shall be installed in the walls where scheduled :

Insulation shall be Fibreglass batts : 2.85Kg/m2; 38Kg/m3 for 75mm thickness; 2.5Kg/m2 for 50mm thickness; 60Kg/m3 acoustic grade; or approved equivalent.

Refer to 40 series drawings for details.

vi) Abutments to Masonry Walls

Abutments to masonry walls shall be made using full height stopping beads and full height silicone joint seals.

vii) Installation

a) Provide runner channels at raised floor as required. Align accurately. Secure at 400mm o.c. maximum.

b) Where partitions extend to ceilings only, fasten with approved fasteners.

c) Place studs vertically at 400mm o.c. or as shown on Drawings and not more than 50mm from abutting walls, and at each side of openings and corners. Position studs in tracks at op and bottom. Cross brace steel studs as required to provide rigid installation to manufacturer's instruction.

Cross brace partitions over 2,736mm high, bracing channels at third points. Securely brace low partitions to provide rigid installation.

d) Co-ordinate simultaneous erection of studs with installation of service lines. When erecting studs ensure we openings are aligned.

e) Provide double (boxed) studs extending full height at termination of walls, at change of line and generally at all openings and other locations shown on Drawings that are wider than the stud centres specified. Secure studs together 5mm apart using column clips or other approved means of fastening.

f) Provide anchor plates over face of studs (spanning minimum 2 studs and screwed in place) directly behind all fixing devices (screws, bolts) for attachment of fitments.

g) Install steel studs or furring channel between studs for attaching electrical and other boxes.

h) Maintain clearance under beams and structural slabs to avoid transmission of structural loads to studs. Use deep channel ceiling track as required to accommodate deflection.

i) In locations indicated, provide ceiling bulkhead consisting of metal studs, securely fastened in place. Space studs at 400mm o.c. and brace as required for stability. Use 92mm studs unless otherwise noted.

j) Brace ceiling height partitions with diagonal studs located in ceiling space as indicated on Drawings. Locate braces at 1200mm on centres and securely anchor to structure prior approved by landlord.

k) Provide metal stud bulkheads over partitions designated to have lead sound baffles in ceiling space. Space and install metal studs as specified for partitions. Co-ordinate with other Trades installing lead baffle.

l) Provide felt membranes to protect ceiling grid and floor carpet at top and bottom of partition.

1.3.3 Gypsum Wallboard

i) Gypsum Wallboard : Thickness as noted on Drawings. Sheets to be of sizes required to provide a minimum number of joints between sheets. Waterproof gypsum wallboard contractor to submit specification for designer approval.

j) Corner Bead : Galvanized sheet steel, minimum 0.59mm overall thickness, zinc coating Z275, minimum width of flanges 28.6mm for 12.7mm thick wallboard and 31.8mm for 15.9mm thick wallboard.

6.02.2 Gypsum Wallboard

iv) Casing Bead : Galvanized sheet steel, minimum 0.59mm overall thickness, zinc coating Z275, U-shaped designed for finishing with joint compound.

v) Resilient Sponge Tape : Self-sticking adhesive on one side, closed cell neoprene sponge tape, "Permastik" 122X by Jacobs and Thompson Ltd., or foamed vinyl "Arnofoam" by Arno Adhesive Tape Inc.

vi) Wallboard Screws : Self-drilling, self-tapping gypsum wallboard screws, 25.4mm long #6 for single layer application, 41.3mm long #7 for double layer application if required. Corrosion waterproof gypsum board.

vii) Joint Cement, Tape, Topping Compound and Accessories : As recommended by gypsum wallboard manufacturer.

viii) Acoustic Sealant : As manufactured by CGC, Tremco or Presstite Division of Interchemical Corporation for acoustic partitions.

ix) Acoustic Insulation : Sound attenuation blanket, unfaced and equal to CGC Red Top, 50mm thickness.

x) Before application of drywall commences, ensure that services have been installed, tested and approved by relevant Jurisdictional Authorities and Designer; that conduits pipes, cables and outlets are plugged, capped or covered; and that fastenings and supports installed by others are in place.

xi) Install work within 3.0mm of dimensioned location unless approved otherwise by Designer, and flat to tolerance of 3mm maximum in 5,750mm.

xii) a) Back all joints with a framing member.

b) Install wallboard in maximum lengths and widths to minimize joints. Stagger end joints where they are unavoidable. Locate joints in ceilings where least prominently discerned.

c) Form neat joints at mill ends and at field-cut edges of wallboard panels. Cut paper on face with a knife. Smooth by sanding and rubbing edges together.

d) Fasten wallboard to metal support members by sheet metal drywall screws at 150mm o.c, no closer than 12.5mm to and no further than 17mm from centre of joints. Do not force adjacent boards into place. Allow moderate contact. Provide extension clips where required. Drive screws to form a slight depression, but not so paper cover is broken.

6.02.2 Gypsum Wallboard

xiii) Joint Treatment

a) Fill joints, screwholes, and depressions on wallboard surfaces exposed to view to provide smooth, seamless surfaces, and square, neat corners. Use jointing compounds and reinforcing tapes in conformance with manufacturer's specifications. Ensure that wall board is tight against framing members, fasteners are properly depressed, and adhesives have sufficiently cured.

b) Fill joints by three coat tape and joint filler method.

c) At external corners, install corner beads secured to framing at 150mm o.c. on alternate flangers. Fill to nose of corner bead with joint filler and topping cement, as specified for beveled joints.

d) Provide casing beads at all edges of wallboard exposed to view, where wallboard butts against other materials with no trim to conceal junction, at control joints, at perimeter of ceiling surfaces, at top of partitions where they stop against continuous ceiling surfaces, and where otherwise shown on Drawings, secure casing beads to framing at 150mm o.c.

e) At screwheads, fill holes and depressions with a two-coat application of joint filler.

f) Vertical Joints
- Center joints on studs and ensure that joints on opposite sides of studs are staggered.
- For two layer boarding, stagger joints between layers.

g) Horizontal Joints

- Horizontal joints will not be permitted in surfaces exposed to view except where the height of partition/lining exceeds the maximum available length of board. Agree positions of joints where not specified.
- For two layer boarding, stagger joints between layers by at least 600 mm.
- Ensure that edges of boards are supported by additional framing. For two layers boarding framing must support the outer layer.

xiv) Sound Retardant Partitions

a) Carry sound retardant partitions through ceiling space and terminate immediately below the structural deck unless otherwise indicated or in locations where lead sound baffles indicated.

b) Provide approved impermeable sound insulation material to fill space between top of partition and structure to provide for deflection.

c) Provide sound seal in all locations where structural members, pipes, ducts, etc. penetrate acoustic partition.

d) Install sound retardant blanket, closely fit to stud framing and the like and extend full height of partition.

e) Seal full perimeter of cut-outs around electrical boxes, ducts etc. Seal openings in outlet boxes and the like.

f) Do not locate outlet boxes back to back.

6.2 Partitions and Associated Works

6.2.2 Gypsum Wallboard

xv) Fire Retardant Gypsum Board

a) Hour fire rating required non-combustible for BS476; Part 4 standard

b) All fixing installation as per manufacturers details to provide rating.

c) Product: Supalux or equivalent alternative to be proposed by main contractor

xvi) Preparation for Finish

a) Gypsum board to be properly prepared to accept surface finish. Approved gypsum board primer to be painted on walls.

6.2.3 Scope of Works

Work under this section includes providing all necessary materials, labour, plant, transportation and services for the completion of work shown on the drawings and in general includes the following:

Carpentry and joinery, suspended false ceiling works, glazing, painting.

6.2.4 Acoustic performance

Partition section and door schedule drawing as indicated is for design intent only. Main contractor shall review and advise if the indicated construction material and method not sufficient to achieve the specified acoustic performance. Should it be required, main contractor shall be counter proposed the proper method for interior designer / project manager's review and approval, to ensure specified acoustic performance is achieved.

Once the works are completed, main contractor shall be arranged an acoustic testing and provided a report indicated with data to show all rooms with acoustic requirement are properly completed and achieved.

**END OF SECTION**

## 6.3 Carpentry and Joinery

### 6.3.1 Carpentry and Joinery Generally

i) The rates for carpentry and joinery work are to include for all cutting and waste, notching, holes, housing ends, miters, ends and shaped ends, angles, junctions, heading joints, short lengths, etc. for all nails, spikes, pins or brads, for coating the backs of frames, backing fillets, etc., with two coats of approved wood preservative, and for all necessary templates or moulds for circular work states "plugged to walls, etc." the prices are to include for plugging and fixing with nails, spiles, etc. to brickwork, block-work or concrete work, and any hacking off and clearing away existing plaster as necessary. The rates shall also include for the provision of all samples and shop drawings.

ii) Joinery is to be prepared immediately after the placing of the Contract, framed up, bonded and wedged up. Any portions that wrap or develop shakes or other defects are to be replaced before wedging up. The whole of the work is to be framed and finished in a proper and workmanlike manner, in accordance with the detailed drawings, wrote where required and fitted with all necessary metal ties, straps, bolts, screws, glue, etc. Running bonded joints are to be crosstongued with teak tongues and where over 12mm thick, double crosstongued.

iii) Should joints in Joiner's work open, or other defects arise within the period stated for maintenance in the Contract, and the cause thereof be deemed by the Interior Designer to be due to unseasoned timber or faulty or bad workmanship, such defective joinery shall be taken down, refitted, redecorated and/or replaced if necessary and any work disturbed shall be made good at the Main Contractor's expense.

iv) Exposed Joinery shall have a high degree of finish and shall be of the best quality throughout.

v) Joinery shall comply with the detail drawings. Prepare joinery for stained or tinted finishes. Conceal all fastenings. Use the minimum of surface railing. Punch rail heads below surface and fill with putty coloured to match finish. Adhesive and jointing compounds shall be non staining and kept off visible surfaces. Surface screws where necessary shall, if visible, be Philips Heads, countersunk flush.

The Main Contractor shall provide all fixings, fastenings, anchors, plugs and the like of approved type to transmit the loads and stresses imposed and ensure the rigidity of the assembly.

vi) Carcass work, shelving and framework to built-in and freestanding units shall be generally constructed of plywood or MDF board as described and specified, properly housed, grooved, tongued, glued, blocked and screwed together as per manufacturers guidelines, and entirely to the satisfaction of the Designer.

vii) All exposed surfaces of joinery to be properly finished. All laminated surfaces to be finished on both sides of MDF or Plywood regardless of drawing.

6.3.2 Protection of Finished Work

i) The Main Contractor shall be responsible for providing and maintaining any boxing or other temporary coverings required for the protection of dressed or finished work that might be damaged during the progress of the work if left unprotected. He is to clean out all shavings, cut ends and other waste from all parts of the Works before coverings or infillings are constructed.

6.3.3 Timber

i) Timber generally shall be the best of its kind and of the species indicated on drawings and on the Materials and Finishes Specifications Chart. It is to be thoroughly seasoned and kiln dried, with moisture content not less than 12% and not more than 20%. It is to be free from worm holes, large loose or dead knots or other defects, sawn die square and without warping, splitting or other defects. Where exposed it is to be matched for colour and graining.

ii) Timber is to be cut to the required sizes and lengths as soon as practicable after the works are begun and stored under cover, so that the air will circulate freely around it.

iii) Unless otherwise stated all timber is to be wrote all round and all sizes shown on drawings or specified are finishes sizes.

6.3.4 Medium Density Fibreboard

i) Fabrication, Lamination and Finish of MDF to conform to National Particleboard Association technical guide "MDF From Start to Finish".

ii) MDF (Medium Density Fibreboard) to have the following properties (minimum) for 9, 12, 16, 18mm thickness.

| | "Lightboard" | Standard Density |
|---|---|---|
| Density | 600kg/m3 | 725kg/m3 |
| Internal bond | 700KPa | 850Kpa |
| Modulus of ruptur | 36.0MPa | 36.0Mpa |
| Modulus of elasticity | 2600MPa | 3000Mpa |
| Thickness Tolerance | | |
| 1 hour thickness swell : | +0.15mm | +0.15mm |
| -18mm | 1.5% | 1.5% |
| -12mm | 2.6% | 2.6% |
| 1 hour water absorption : | | |
| -18mm | 2.5% | 1.5% |
| -12mm | 3.5% | 2.4% |
| Moisture Content | 7.5% | 8.0% |

6.03 Carpentry and Joinery

6.03.4 Medium Density Fibreboard

iii) Screw Holding

Screw type : Parallel thread. Screws such as the Twinfast or particle board screws. Wood screws not to be used.

Maximum screw gauge is :

12mm board thickness - 6
16mm board thickness - 7
18mm board thickness - 8

Pilot Hole recommended to avoid splitting during edge screw fixing, drilled approximately 2.3mm beyond the expected depth of insertions of the screws.

Screw position should be decided in relation to board thickness and screw size and not less than 25mm from corners.

Screw must not be overtightened as further turning reduces the holding strength.

iv) Nails and Stapling

Add adhesive to joint prior to assembly. Nails to be either annular, groove or helical of 13 or 14 gauge.

v) Sanding and Finishing

Use 120 grit paper followed by 240 or 320 grit paper.

vi) Painting

Prior to priming for paint finishes all nail holes to be stopped with solvent based wood dough and lightly sanded. Solvent or turps based systems recommended.

vii) N/A

viii) Formaldehyde Emissions

a) MDF board manufactured to comply with industry's voluntary emission standard of 0.3ppm at a loading of 0.08 ft2 of product surface per cube foot of room space.

b) Sealing finish required to all exposed areas including edges, backs and underside of drawers, etc. Acceptable wet coatings are : oil wood primer and enamel top coat, latex-ammonia coatings plus two coats of latex water based wall paint.

6.00 Technical Specifications

6.3 Carpentry and Joinery

6.3.4 Medium Density Fibreboard

ix) Storage / Fabrication

MDF to be fabricated and stored according to manufacturers instructions. MDF must be stored and fabricated in controlled environment.

6.3.5 Plywood

i) Plywood shall be best quality close grained plywood suitable for veneering, painting or bonding plastic laminate. It is to be a resin bonded weatherproof brand, exposed edges will be finished with an edge strip of solid wood, tongued and grooved and glued, or as detailed.

6.3.6 Joints

i) Joints shall be as indicated on detail drawings. The contact surfaces of dowels, tenons, wedges, etc. shall be glued with a best quality cold setting, synthetic resin adhesive of moisture resistant, gap filling type or with best quality cold-setting case in glue. Where glued joinery is likely to come into contact with moisture the glue shall be waterproof. Animal glues are not to be used.

ii) Nails, spikes, bolts, etc. shall be of the best quality mild steel or wrought iron except in those places where brass headed nails are indicated on drawings. All screws are to be brass unless otherwise stated. Refer to item 5.02.04 (ii) & (iii) for MDF board.

6.3.7 Templates

i) Templates, boxes and moulds shall be accurately set out and rigidly constructed so as to remain accurate during the time they are in use.

6.3.8 Grounds

i) Grounds are to be clean sawn, free from large knots, splayed as required, plugged and fixed to walls, etc. at 450mm centres.

6.3.9 Plugs

i) Where joiners work is to be plugged to walls, etc. Raw plugs, Phili plugs or plugs of similar and approved pattern shall be used. The use of wooden plugs will not be permitted.

6.3.10 Preservative

i) All unexposed surfaces of timber, e.g. false ceilings, backing fillets, backs of door frames, cupboard framing, grounds, etc., are to be treated with two coats of an approved timber preservative or vacuum pressure impregnated with an approved water soluble timber preservative before fixing or bedding.

6.3.11 Door and Fixed Glazing Frames

i) Frames to doors fixed glazing etc. shall be of approved hardwood timber or MDF board as specified and will be constructed in full accordance with the detail drawings, to the required sizes and with all necessary mouldings and other labours, morticed and tenoned and put together in the method indicated using the materials and finishes specified.

6.3.12 Doors

i) Refer to door schedule and drawings for size type, thickness and hardware (ironmongery).

Unless otherwise shown on the contract drawings the door shall be constructed as follows :

ii) Hollow Core Doors
Hollow core doors are to be of 19mm plywood covered with paint grade, timber veneer or 1.6mm plastic laminate as required.
The doors are to be lipped on all edges with a 9mm timber twice splay rebated ending mitered at angles. Lippings to meeting stiles of doors are to be 25mm thick rebated or rounded as required.

iii) Solid Core Doors
Solid core doors are to be framed up with 50mm hardwood mitred edge and filled in with a core of 45mm MDF board to receive finish of paint, veneer or laminate or as per drawings.

iv) Fabrication

a) Fabricate doors in accordance with MDF manufacturers guidelines.

b) Hardwood edge to be one piece and same species as face veneer or birch timber veneer for paint or plastic laminate finish unless otherwise noted.

c) Stiles and rails to be of sufficient width to accommodate surface mounted or concealed hardware (min 100mm stile).

d) Undercut on rebate bottom rails as required.

e) Reinforce for locks and other hardware.

v) Finishing

a) Doors to be prefinished and delivered to site ready to be hung.

b) All exposed edges to be sealed prior to delivery to site.

vi) Fitting and Hanging

a) Hang full height doors on two pair butts, unless otherwise noted, to close fully in all cases.

b) Provide 1.5mm clearance at head and jambs, 7-9mm clearance over carpet and 6mm over thresholds.

c) Hang doors according to manufacturers instructions where prefabricated frames (i.e. Jeb System) are used.

vii) Installation of Finish Hardware

a) Make hardware cuts in timber finishes neat and true, fit and adjust hardware according to manufacturer printed instructions.

b) After installation, place wrappings on knobs pulls etc. (as protection until completion of contract).

c) Carefully safeguard keys to ensure that unauthorized personnel do not have access to them. On completion of work deliver keys to employer with suitable tag attached to each key indicating the door operated thereby.

6.3.12 Skirtings

i) Provide and fix MDF, or timber skirtings or Jeb aluminum skirting, where shown in the Schedule of Finishing, on hardwood grounds securely plugged to walls, scribed to floors and properly mitered at angles. All Skirting to be medium density fibreboard where specified.

All skirtings are to be accurately scribed to fit the contour of any irregular surface against which they should form a close butt connection.

6.3.13 Fire Protection Treatment

i) Timber materials above finished ceilings should be avoided. However, if necessary, timber ceilings and support materials above ceilings shall have fire retardant treatment. Main Contractor shall submit proposed treatment to Interior Designer for approval from Landlord before works.

Fixing of timber to concrete or brick work shall be by:

a) Hardened steel pins direct into concrete or brickwork for fixing small sections such as skirtings and architraves. The head shall be punched home and filled.

b) Preformed plugs such as "Rawplug" or similar approved in formed holes.

c) Plastic compounds such as "Rawplug Fixate" or similar approved in formed holes.

d) Expanding bolts such as "Rawlplug Fixrite" or similar approved in formed holes.

e) Cartridge operated hand tools such as "Ramset" or similar approved but shall not be used within 50mm of any edge.

i) Care must be taken to locate any buried pipes, cables, or other services when fixing timber to concrete or brickwork. If any hole hits reinforcement it must be repositioned.

ii) Fixing of timber to metal shall be by :

a) Self tapping screws in thin sheet.

b) Bolts in preformed holes (tapped as required).

c) Cartridge operated hand tools.

Main Contractor shall submit proposed fixings method to Interior Designer for approval.

iii) Boards and linings, other than tongued and grooved, and less than 180mm wide on face, shall be secured with 2 nails at each fixing position or joist. The nails shall be not less than 12mm nor more than 20mm from edges. Boards and linings other than tongued and grooved, and more than 175mm wide on face, shall be secured with 3 nails at each fixing position or joist. The outernails shall be not less than 12mm nor more than 20mm from the edge.

iv) Tongued and grooved boards and linings less than 100mm wide on face shall be secured with one nail at each fixing position or joist. Tongued and grooved boards and linings more than 100mm wide on face shall be secured with 2 nails at each fixing position or joist.

v) All nails shall have a length of not less than :

1. Plain boards and linings, 2-1/2 x thickness.

2. Tongued and grooved boards and linings, 2 x thickness.

vi) All boards and linings shall be secured with hammer driven nails unless specified to be fixed with screws. When screws are specified they shall be not less than No.8 and not shorter than 2 x thickness.

vii) All finished work shall be smooth, free from abrasion, tool marks, raised grain grade markings or similar defects on exposed surfaces.

viii) Foam padding, pressed moulded fiberglass and mineral wool shall be to the Interior Designer's approval.

ix) Protect finished and prefinished surfaces from work of other trades.

6.3.16 Wall Panelling

i) All wall panelling to be flush veneered, factory fabricated and finished. No exposed fixing or fabrication allowed.

ii) Solid timber core of narrow laminated spruce ships faced on both sides with high density chipboard or MDF construction.

iii) Edge lippings of minimum 10 mm thickness in matching timber applied to two long edges unless otherwise noted. Before veneering, lippings to be concealed other than edge and shaped in accordance with drawings. Matching jointing piece/ trims to be supplied in accordance with drawing reference.

iv) Veneers to be cut as per Specification and book matched as specified.

v) Panels to be concealed fixing by means of softwood battens, split battens or proprietary fixing method.

6.3.17 Plastic Laminate

i) Plastic decorative laminated sheeting will be of the brand, catalogue number, colour etc. indicated on the Materials and Finishes Chart. Unless otherwise shown or specified the laminate sheeting shall be 1.6mm thick on all flat surface and 0.8mm thick sheets shall be used on post formed surfaces as required. Laminates shall be veneered to mounting surface with an approved waterproof and heatproof area based cement, used in strict accordance with the manufacturer's instructions. Rubber based adhesive shall be not be used. Sheeting must not be applied to timber with a moisture content of more than 15% or at temperature of less15c(60F). The sheeting is to be applied only to close grained plywoods or medium density fibreboard to ensure a smooth ripple free surface; it is not to be applied to open grained plywoods such as Fir plywood.

Underside surface of counter tops and shelves which are faced with plastic laminate shall have corresponding 0.8mm backing sheet applied unless otherwise noted. Cabinet doors faced with plastic laminate shall have corresponding 0.8mm backing sheet applied unless otherwise noted. Cabinet doors faced with laminate shall receive the same laminate on all exposed surfaces (on the back side and edges). Top sheet shall be placed on and over finished edge unless otherwise noted. Edges not faced with laminate, as at field joins, shall be machined and sealed. Butt joining of laminates shall be minimized by using longest available lengths where required, and all butt joints shall be perfectly flush and sealed.

ii) No surface sanding of laminated plastics is permissible.

iii) Unless otherwise specified, all laminated plastics shall have the standard matte finish.

iv) Samples showing the surface texture and pattern are to be submitted to the Interior Designer for approval before fixing.

6.3.18 Scope of Work

i) Work under this section includes providing all necessary materials, labour, plant, transportation and services for the completion of work shown on the drawings and including the following :

Rough and finished carpentry, joinery, doors and frames.

END OF SECTION

6.4.1 Hardware Generally

i) The hardware throughout shall be of approved manufacture and supply, well made and equal in every respect to the samples to be deposited with the Interior Designer. All the ironmongery shall be provided by the Main Contractor and shall be of approved manufacture and obtained from nominated suppliers or other approved sources.

All ironmongery shall met with requirements of the following relevant standards unless otherwise stated : BS 1227, BS 5872, BS 4951, BS 5725, BS 4112, BS 1331, BS 2088.

ii) The rates for hardware are to include for supplying necessary screws to match and for the provision of keeps, striking plates, etc. as necessary. The rates for fixing hardware are to include for all fittings, cutting, sinking, forming, morticing, first fixing, removing for decoration, finally refixing after execution of the decoration, easing oiling, adjusting, making good and leaving in perfect working order to the satisfaction of the Interior Designer. Screws for fixing ironmongery items shall generally be in accordance with BS 1494 Part 2.

6.4.2 Hardware Finishes

i) Exposed hardware shall have the finish specified on the Hardware Schedule and it shall normally be assumed that all hardware on each item, if not specified otherwise shall have identical or similar non-staining, non-tarnishing finish.

ii) Screws are to match the finish of the article to be fixed and to be round or flat headed or countersunk as required.

iii) Chromium plating, where specified, is to be on a base material of copper or brass and is to accord with International and British Standards for chromium plating for normal outdoor conditions.

iv) Unless otherwise specified aluminum shall have an anodized finish and comply with samples approved by the Interior Designer.

v) All solid brass, brass sheeting or brass plating specified in polished finish shall be further finished with two pack clear polyurethane coating for non-staining, non-tarnish protection from discolouration unless otherwise specified.

6.4.3 Strength

i) All steel, brass, bronze, aluminum and stainless steel articles shall be submitted to a reasonable test for strength if so required by the Interior Designer at the Main Contractor's expense.

6.4.4 Protection

i) Brass and bronze surfaces are to be protected with a thick grease or other suitable protective material, i.e. clear lacquer coating. This protective coating is to be renewed as necessary and cleaned off at completion of the work.

6.4.5 Completion

Upon practical completion the Main Contractor shall ensure that the following requirements are carried out :

i) Remove all protective covering, clean all items of ironmongery and ensure that they are in proper working condition.

ii) Each set of keys shall be provided with an approved circular chromium plated brass plate 25mm dia. x 1.5mm thk. stabled with the identification of Floor/Unit/Door to which it belongs for handing over to Employer.

iii) Properly arrange wrenches, spare parts and lock spurner wrenches, spare parts and any other tools furnished by the manufacturers with the ironmongery for handing over to the Employer.

iv) Properly arrange in a file all guarantees and certificates etc. of the manufactures furnished with the ironmongery, if any, for handing over to the Employer.

6.4.6 Bolts

i) Provide all bolts, nuts, washers and other metal fittings required in the work where applicable.

6.4.7 Stainless Steel

i) Stainless steel to conform to BS 1449 Part 4. All Stainless steel shall be of polished mirror finish, hair-line finish or baked enamel as identified in finishes schedule.

ii) Gauge of material to be confirmed by Main Contractor. Main Contractor to submit sample to Interior Designer for Approval before fixing.

6.4.8 Mild Steel

i) Mild steel to conform to BS 1449 Part 1.

6.4.9 Wrought Iron

i) Wrought iron is to be selected tough metal with an even silky fibrous grain, formed clean and free from flaws and cracks, etc.

6.4.10 Aluminum

i) All aluminum shall either receive a polished bronze or gold colour anodic coating to the Designer's approval and to BS 1470 and BS 1474.

6.4.11 Decorative Metalwork

i) Brass/bronze, polished chrome, stainless steel, for trim, panels, frames, railings, fittings, etc., shall be solid first quality metal in sizes and thickness shown in detailing. All exposed joints will be welded and ground smooth and attachments shall be concealed. Finish shall be bright high mirror polished or hair line appearance and coated with an approved suitable clear sealer.

ii) Metal angles, retainer clips, support angles, etc. shall be in mild steel unless otherwise noted. They shall be primed and painted with two coats of semi-gloss enamel with color to match surface on which metal is fastened.

iii) Brass trim for all areas shown shall be standard .050 GA. or similar, prefinished brass plated steel*.

iv) Fabricate and assemble brasswork with true sharp profiles and minimum of joints. Necessary joints shall be hairline, tight butted. Use concealed fasteners throughout for securing brasswork to subtracts.

6.4.12 Cast Iron

i) Cast iron to be approved gray metal, sound, free from flaws, blow holes, etc. and have a clean smooth surface.

6.4.13 Protection of Metals

i) All galvanized metal shall be galvanized by hot dip process in accordance with BS 729 Part 1 chromatic passivated (to allow for immediate painting without the use of a mordant solution).

ii) All non-galvanized ferrous metal shall be coated with one shop coat or priming before delivery to site.

iii) All aluminum work in contact with dissimilar metals or with materials containing alkalies, e.g. concrete, cement and like mortar shall be painted with two coats bituminous paint on the contact surfaces.

iv) All decorative metalwork shall be protected with a suitable factory applied covering which shall not be removed without the approval of the Interior Designer.

6.4.14 Workmanship

i) The work shall be carried out in accordance with the requirements of the Local Building By-laws and to the satisfaction of the Local Building Authorities empowered to control the quality of the work in the district where the work is situated and the Main Contractor must acquaint himself of such requirements which may effect his price. The Main Contractor shall comply with all reasonable instructions and directions given from time to time by the Interior Designer and/or his Representative for the purpose of ensuring that the work shall be carried out in accordance with this Specification and completed at the proper time.

ii) All work shall be in accordance with the best practice and workmanship and materials shall be to the approval of the Interior Designer. Any defective work which does not comply with the Specification or Drawings shall be removed and replaced by the Main Contractor at his own expense.

6.4.15 Products

i) Hinges and magnetic catch for new cabinets, heavy duty (50 Kg) roller tracks for drawers to be supplied and install by Main Contractor. Full extension drawer runners to be Hafele soft roller 60 KTS or equivalent alternative.

6.4.16 Scope of Work

i) Work under this section includes providing all necessary materials, labour, plant, transportation and services for the completion of work shown on the drawings and include the following:

a) Sundry metal sections in fixing partitions to underside structural slab.

b) Sundry metal sections in framing and architectural detailing.

c) Hardware for all doors and furniture. All timber doors are to be provided with minimum three number hinges. Contractor is to ensure sufficient quantity of hinges be provided to suit the height and the weight of the door.

END OF SECTION

## 6.5 Plaster

### 6.5.1 Cement

i) Cement shall be ordinary Portland cement complying with BS 12.

### 6.5.2 Sand

i) Sand for plastering, etc. shall comply with the requirements of BS 1198 and 1199 and shall be clean, sharp naturally occurring sand or shall consist of crushed rock or gravel. It should be clean, hard, free from adherent coatings and vegetable matter. It shall not contain soft, porous or flaky grains or crushed dust, alkali, loam, clay or any deleterious organic matter.

ii) Samples shall be submitted to and be approved by the Interior Designer before commencement of work. The sand shall be kept clean and be re-washed if necessary.

### 6.5.3 Water

i) Water to be clean, free from acids, alkalis and other harmful matter.

### 6.5.4 Plastering

i) All plastering, unless otherwise described, shall be applied in two coats to walls to a total thickness of 12mm finished with a steel trowel. Plastering to ceilings and soffits shall be similar. All arises shall be slightly rounded.

ii) All plastering with cement and sand (1:6) mix shall be with plasticiser and shall comply with BS.

iii) Provide drips where shown on the drawings.

iv) All brickwork shall be thoroughly cleaned, the joints raked out and well wetted before and kept damp during rendering. Concrete surfaces to be hacked for key before rendering.

v) The Main Contractor shall protect all plastering work in accordance with usual trade practices and he shall replace any damage work at his own expense.

vi) The Main Contractor shall obtain the Interior Designer's approval of the plastering works prior to removing his workmen and equipment off the site.

vii) All wall and ceiling plaster shall be properly made good around all pipes, brackets, gratings and similar intrusions.

viii) Plaster shall be continued into grooves and rebates in door and window frames and finished against metal windows with slightly cover internal angles

END OF SECTION

## 6.6 Glazing

### 6.6.1 Glass

i) All glass is to be of best quality of approved manufacture, and be free from bubbles, smoke wanes, air holes and other defects. It is to accord with the indications given on the Material Selection Schedule.

ii) Plate or float glass shall be clear, of selected glazing quality. Glass generally to conform to BS 952 and glazing to be CP 152.

iii) Tempered glass shall have structural integrity and shall not contain any harmful scratches, pinholes, unevenness, sharp angled or field edge.

iv) Georgian wired polished glass to be of a brand approved by the Interior Designer.

v) Putty for glazing in wood sashes shall be an approved tropical putty. For glazing to metal, an approved patent mastic shall be used or otherwise noted..

vi) The glass shall be well bedded and carefully back puttied, sprigged in and fixed with beads. The glass shall be neatly cut to fit the rebates with 3mm clearance all round and the rebates shall be primed before glazing.

vii) "Plexi-glass" shall be to the Interior Designer's approval.

viii) Mirrors shall be of glazing quality polished plate, with electrodeposited copper and silver backing, guaranteed for five (5) years, by LOF P.P.G. or equal, 8mm thick, light bronze, dark bronze or grey tinted or clear, adhered to backing. Type to be as shown on the drawings. Exposed edges and butt joint edges shall be ground smooth and squared. Mirror shall have bevelled edges where indicated as such in the drawings. Bevelled glass shall be individual and polished smooth. Bevelled mirror panels shall be individual units, applied to backing as recommended by mirror manufacturer and as shown.

ix) Where mirror within cabinet or interior works is required, it shall be as far as possible, cut off site.

x) Mirrors shall be fixed with approved glue and wood beading to plywood backing and excess glue to be carefully cleaned off prior to completion.

xi) On completion, all glass and mirror shall be cleaned both sides and any broken, cracked or defective panes shall be replaced at Main Contractor's own expense.

xii) Etched glass to conform to industry standard and pattern, size and detail to material selection schedule and drawings. Etched glass to be protected and sealed by approved method such as product supplied by Glass Brain Ltd.

6.6.2 Mirror Glass

i) Mirror glass shall be 6mm float glass of silvering quality backed with a reflective surface layer of chrome silver or other metal, a protective layer of copper, a coat of protective mirror backing paint and a coat of moisture sealer.

6.6.3 Colourback Glass

Colourback* glass is manufactured in accordance with specifications as follow:

i) Glass

Types: Soda-lime float glass.
Low iron float glass.
Types: Clear, green, bronze, grey.

ii) Physical Properties

Mass: Panel weight 2.5kg/square metre/millimeter of substance.

Example: 2.4mx1.25mx8mmx2.5kg = 60kg

Co-efficient of linear expansion: 80x10°C

Thermal conductivity: 1.05W/m°C

a) Sound insulation
Depends on substance, configuration and other environmental factors. As a guide a 6mm panel reduces sound transmission by 28 dB.

b) Mechanical shock
Toughened Colourback panels exceed Australian Standards AS.2208 for mechanical shock which is defined as equivalent to the impact of a child running into a glass panel. A toughened glass panel is approximately 5 times stronger than an annealed glass panel.

c) Thermal characteristics
Toughened Colourback panels are stable over the range of minus 70° to plus 280°C. Panels will withstand a temperature differential of up to 250°C.

iii) Tolerances

| Dimension | 250-999mm | 1000-1999mm | 2000-3000mm |
|---|---|---|---|
| Substance | | | |
| 3-6mm | ±1mm | ±2mm | ±2mm |
| 8-12mm | ±2mm | ±2mm | ±4mm |

a) Squareness
The squareness of rectangular panels shall be such that no point around the periphery of the panel falls inside a minimum size true rectangle or outside a maximum size rectangle.

iv) Toughening

The toughening process is conducted in a Roller Heath Furnace by heating the glass to near its softening temperature then cooling quickly with jets of cold air.

The toughening process instills the mechanical and thermal shock properties while firing in the ceramic decoration. Toughening does not affect the other properties of the glass.

Incidents of breakage of toughened panels are rare. Should this occur, the glass fractures into granular fragments with blunt edges. These fragments are harmless if handled carefully.

v) Printing

a) Material
All paints used are ceramic based and fired into the surface during the firing process, becoming part of the permanent abrasive resistant Colourback panel.

vi) Opacity

A full range of light transmission from clear to virtually zero is available.
Light transmission values:

| | |
|---|---|
| Transparent | 60% and upwards. |
| Frost | 25% to 70% |
| Solid colour | Up to 10% |

By using any of these finishes with a pattern such as stripes or dots any Degree of visibility can be achieved.

6.00 Technical Specifications

6.06 Glazing

6.06.3 Colourback Glass

vii) Defects

a) Visual
Normal standard or otherwise noted. When the Colourback panel is mounted in its final position/ lighting, no defect should be visible from a distance of 1.5m or over.

b) No flaw which is likely to lead to failure in service of the panel is acceptance.

viii) Weathering

The ceramic decoration is reasonably resistant to handling and cleaning, may be affected by acids and other pollutants in the atmosphere.

Colourback panels should not be glazed in an open air environment with the ceramic coating outermost. When glazing with the ceramic coating inward adequate sealing, to prevent the entry of pollutants, is necessary. There is no restriction on the internal glazing of Colourback.

ix) Colourback Types And Sizes

Final dimensions of the panel depends on the thickness, shape and required processing. Colourback of building applications can be produced up to 3000mmx1500mm. Thicknesses of 5, 6, 8, 10 and 12mm are available in toughened safety glass, with 6 and 8mm available in heat strengthened glass.

Clear float glass is normally specified. Grey, bronze or green are available on request. Maximum length to width ratio 7:1.

| Thickness Nominal | Range mm | Maximum Sizes Rectangle mm | Circle mm(dia) | Mass Unit Area kg/sm |
|---|---|---|---|---|
| 5 | 4.8-5.2 | 3000x1500 | 1500 | 12.5 |
| 6 | 5.8-6.2 | 3000x1500 | 1500 | 15.8 |
| 8 | 7.8-8.2 | 3000X1500 | 1500 | 25.0 |
| 12 | 11-7-12-3 | 3000X1500 | 1500 | 30.0 |

6.6.3 Colour back Glass

a) Edge working

A guide for the edgework available for Colour back is set out below.

Colourback glasses up to and including 12mm thickness is an arrissed edge.

| Type of edgework | Description | Recommended Application |
|---|---|---|
| Rough Arrissed | This is the simplest type of edgework whereby the sharp edges from "as cut" glass are removed. | Concealed |
| Flat Smoothed | This is a machine edge of flat form with chamfered sides. | Butt joined edges with silicon seal or exposed edges |
| Flat Polished | This is a machine edge of flat form with chamfered sides which have been polished. | Exposed edges |
| Mitred | This is a machined edge of flat form at a 45◦ or otherwise noted to the face of the panel. The minimum thickness of glass remaining at the edge is 3mm. | Butt jointed edges with silicone seal |

6.6.4 Delivery

i) Glazing to be delivered to site in cut sizes, in packages bearing the manufacturer's name and/or trademark. The type, quality, thickness or weight of the glazing is to be clearly marked on the package.

6.6.5 Cutting of Glass and Mirror

i) In cutting glass, proper allowance shall be made for expansion. Each square of glazing to be as large as possible. Glazing is to comply with requirements of BS Code of Practice 152. All glass edges to be properly machine ground and polished.

6.6.6 On Completion

i) On completion, clean all glazing, replace all cracked, scratched or broken sections and leave in good condition to the satisfaction of the Designer.

6.6.7 Gaskets

i) Gaskets for glazing shall be preformed rubber gaskets to BS 4255 part 1 on approved neoprene gaskets, to be used strictly in accordance with the manufacturer's printed instructions.

6.6.8 Scope of Works

i) Work under this section includes providing all necessary materials, labour, plant, transportation and services for the completion of work shown on the drawings and in general includes the following :

Glazed partitions, windows, doors and other glazing works.

END OF SECTION

## 6.7 Vinyl Tile, Sheet Vinyl

### 6.7.1 General

i) The vinyl flooring to be installed is to be in accordance with the details on Tender Drawing set.

ii) The sub floor is to be completely clean and dry before laying. Tiles are to be set out from the centre of all rooms and passages to that any cutting required takes place at the extremities until otherwise stated. The tiles are to be glued to the sub floor with an approved glue. All marks of the glue are to be removed from the surface of the tiles and the tiles are to be polished waxed before handover.

iii) Sheet vinyl to be installed as per manufacturers guidelines. Seams to be properly sealed.

### 6.7.2 Scope of Works

i) Refer to the Drawings for details of required vinyl floor tiling works.

ii) The Main Contractor shall check on site and allow for any making good work to existing floor for vinyl tiling in tendering.

END OF SECTION

## 6.8 Carpet

### 6.8.1 Broadloom / wall to wall carpet (where it is applicable)

i) All carpet is to be supplied and installed by the Main Contractor as specified in drawings and schedules, including underlay, fixings and accessories, until otherwise stated.

ii) The underlay shall be deluxe type. Polypropylene not permitted.

iii) Carpet is to be fastened to floors with double fastening strips to prevent pulling away from walls due to frequent shampooing and shrinkage, such strips shall be securely anchored to concrete floors by means of concrete nails.

iv) Free edges of carpet at other than walls shall be turned and tacked and shall be installed in a non-trip manner.

v) All seams shall be free of puckering and shall lie flat. Carpet must be stretched properly so that all surfaces are smooth, unwrinkled, and without twist in the seamed work. All cut edges must be free of fraying. Pattern design in weave to be matched and lined up.

vi) Where carpet meets ceramic tile, marble, or wood flooring, carpet pile height should be approximately 3mm higher than wood or ceramic material. This may require elimination of padding or feathering of padding.

### 6.8.2 Carpet Tile (Modular Type)

i) Carpet tile to be supplied and installed by the Main Contractor as specified in drawings and schedules, including fixings and accessories.

ii) Floor and room temperature should be maintained at 65F for 24 hours before installation. Relative humidity should not exceed 65%.

iii) Floor to be level and free of grease, oil, paint, dirt, wax etc. All holes, cracks depressions must be filled with latex patching compound.

iv) Concrete floors to be sealed.

v) Carpet tile to be installed as per manufacturers instructions. Only release adhesive to be used if required.

vi) Carpet tile to be installed from the center of the room.

6.8.3 After the installation of the work is completed, the carpeted area shall be cleared of excess materials, the carpet vacuumed thoroughly, and left in a manner ready for occupancy. Carpet shall be protected prior to occupancy.

6.8.4 All work shall be done under the direction of the carpet installer's capable superintendent, who shall have long experience in this type of work and with projects of comparable scope. The superintendent in the field shall give direction for installation and inspect the work, as it is being done and after it is completed. Without waiting for orders to do so, he shall direct correction of all faulty workmanship he may encounter.

6.8.5 The colour and pattern of the carpet is to be as per the approved samples held by the Interior Designer.

6.8.6 Scope of Works

Work under this section includes providing all necessary materials labour, plant, transportation and services for the completion of the work shown on the drawings.

END OF SECTION

## 6.9 Stone, Ceramic Tile

### 6.9.1 General

i) Stone shall be in the colors, types, sizes, finishes, and thickness and the Manufacturers as shown by the drawings and specified herein, or an approved equivalent.

ii) Unless otherwise shown on drawings or specifications, stone shall have a polished finish on all exposed surfaces; concealed surfaces may be sawn.

iii) Visual: All examinations, selections and approvals shall be for the purpose of achieving a final appearance of Stone with greatest possible uniformity and will be based upon the following criteria.

a) All Stone shall be of sound stock and uniform texture and shall be free from holes, seams, shakes, clay pockets, spalls, stains, starts and other defects which would impair the strength, durability and appearance of the work, as determined by the Interior Designer.

b) Inherent variations characteristic of the Stone and the quarry from which the Stone is to be obtained shall be brought to the attention of the Interior Designer at the time the samples are submitted for approval and shall be subject to approval of the Interior Designer. Stone provided at time of installation shall be of same quarry, color, veining and other characteristics as that approved by Interior Designer.

c) All Stone shall be selected for background color, veining, marking and matching shall run in even shades and shall be set accordingly.

iv) All engineering calculations and design shall be based on the mechanical and physical properties of the selected Stone.

### 6.9.2 Accessory Materials for Stonework

i) Mortar materials shall be as recommended by the Manufacturer for each Stone type, size and application. Mortar color shall be as selected by Interior Designer.

ii) For colored pointing mortar, furnish matching Stone ground down to meet grading requirements for sand.

### 6.9.3 Stone Support

i) Manufacturer and General:

Where required, Stone support systems, anchors and accessories shall be manufactured by a company specializing in the design and fabrication of Stone

approved by the Interior Designer. Provide all fastening devices, support angles, relieving angles, anchors, coping anchors, dowels, cramps, bolts, nuts, shims, expansion shields, flashing etc., necessary to properly secure Stone to the structure as required.

6.9.4 Fabrication

i) Stone shall be accurately cut to sizes, shapes, profiles and dimensions. There shall be no deviation from jointing.

ii) Exposed surfaces and edges of Stone units shall be free from cracks, broken corners, chipped arises, scratches or other defects affecting appearance. Patching or filling not permitted.

iii) Cut Stone units full and true on faces, reveals, beds, joint and top, to the full dimensions required by shop drawings submitted by the Main Contractor. All edges shall be straight and true with sharp and true arises. All Stone shall fit together accurately.

iv) Make faces of Stone Units in same plane flush at joints. All finished surfaces shall be true in line and face.

v) Sawn surfaces and edges shall be cleaned of all rust stains and iron particles.

vi) No patching or use of Stone with chipped edges or faces shall be permitted.

vii) Provide holes and sinkages required for anchors, dowels, other devices required to support and/or suspend Stone, and to accommodate other items which connect to or penetrate the Stone.

viii) Include all cutting, drilling and fitting of Stonework required to accommodate the work of other trades. In cutting and fitting carefully cut and grind edges to a neat tight fit. Do cutting in such a manner so as not to impair strength or appearance of Stone. Use physical templates for all cutting and drilling; obtain required templates from proper trades.

Viv) All stones shall be pre-treated with proper impregnator / sealer to all surfaces (6 sides) prior to the installation. Impregnator/ sealer shall be applied in accordance to the recommendation from stone manufacturer's requirement.

6.9.5 Inspection

i) Inspection of actual stone pieces shall be arranged at the stone manufacturer prior to the stone installation. All stone pieces shall be laid out in an open area for Interior Designer's review and approval prior to its delivery and transportation to

site. Any cost including travelling and other related expenses for the stone piece inspection shall be included.

ii) Main Contractor to advise requirements relating to his placement of any inserts which are to be used for anchoring and supporting stonework.

6.9.6 Installation

i) Erection Tolerances :

The work shall be designed to accommodate all permitted tolerances and anticipated dead and live load movement, creep, sway and torsion of the structure without any harmful effects.

ii) Patching or hiding defects in Stone will not be permitted.

iii) Clean Stone before setting as recommended by Stone Manufacturer. Follow all Manufacturer directions during installation.

iv) Connections :

a) Anti-galvanized Action : Isolate dissimilar metal surfaces to prevent galvanic action.

b) Metal-to-metal contract : Separate metal surfaces in such a manner that metal does not move on metal. Materials used for this purpose shall be low friction components, sealants or gaskets.

6.9.7 Setting Stone

i) Mortar and grout shall be as recommended by Stone Manufacturer for size, weight, location and use of Stone Color as selected by Interior Designer.

ii) Mixing :

a) Mix mortar for setting Stone on anchor plates and for spotting back of Stone. Mix approved non-shrinking cement for filing of anchor holes in accordance with Manufacturer's directions.

b) Mix mortar in small batches to make a stiff plastic mass; mix until thoroughly homogenous; retimbering with water is prohibited.

iii) Set Stone in accordance with drawings and final shop drawings for Stonework. Provide anchors, supports, fasteners and other attachments shown or necessary to secure stonework in place. Shim and adjust accessories as required for proper setting of Stone. Completely fill holes, slots and other sinkages for anchors, dowels, fasteners and supports with non-shrink grout during setting of Stones.

iv) Maintain even joints between units, 1mm maximum unless noted otherwise on drawings.

v) Grout joints full and flush with face of Stone. Where metal inset strips are indicated, butt Stone flush and tight against strips with no gaps exceeding 0.8mm.

vi) Cleaning : After final cleaning of Stone, repoint any open joints with grout.

6.9.8 Repair and Cleaning (After Erection)

i) Remove and replace Stone units which are broken, chipped, stained or otherwise damaged. Where directed, remove and replace units which do not match adjoining stonework. Patching or hiding defects in stonework will not be permitted. Provide new matching units, install as specified and reseal joints to eliminate evidence of replacement. Reseal defective and unsatisfactory joints to provide a neat, uniform appearance.

ii) Clean vertical stonework after completion of work, using clean water and stiff-bristle brushes. Do not use wire brushes, acid type cleaning agents or other cleaning compounds with caustic or harsh fillers.

6.9.9 Protection

i) After installation and cleaning, protect stonework from damage during subsequent construction activities.

ii) At completion of construction work, remove all temporary protection from the work of this Section.

iii) Examine all work and repair all damage. Clean soiled or stained surfaces. In the event damage is irrepairable or soiled or stained surface cannot be cleaned, then remove and replace such items at not additional cost.

END OF SECTION

6.10 Paint

6.10.1 Products

' For Types and Locations of Paint Finishes refer to Finish Schedule and Finish Plans.

6.10.2 Primer Sealer

i) Manufacturer: DULUX Trade Primer Sealer or similar and approved by the interior designer.

ii) Surface(s): solvent-based sealer suitable for highly porous, dry, powdery and friable interior surfaces. Also for preparing all GRG surfaces.

iii) Preparation: ensure surfaces are clean and in good repair. Where necessary surfaces should be rubbed down using a suitable abrasive paper and then dusted off (refer to your COSHH Assessment). Avoid the inhalation of dust. Wear a suitable face mask if dry sanding.

iv) Application Brush only. For Health and Safety reasons related to all solvent-based paints, spray application is not recommended until otherwise specified.

v) Initial coat(s): 1No coat

vi) Finishing coats: n/a: apply specified finishing coat

vii) Thinning is not usually necessary but if required add up to 1 part of Dulux Trade Thinner Number 41 or white spirit to 10 parts of paint.

viii) Other : As a solvent based paint due care and attention should be paid to the manufacturer's recommendations with regard to the handling, applying and disposal of the material from a Health, Safety and Environmental perspective

6.10.3 Emulsion

i) Manufacturer : DULUX Trade or similar and approved by the architect

ii) Surface(s): plasterboard, plaster

iii) Preparation: Ensure surfaces are clean and in good repair. Where necessary surfaces should be rubbed down using a suitable abrasive paper and then dusted off (refer to your COSHH Assessment). Avoid the inhalation of dust. Wear a suitable face mask if dry sanding.

iv) Initial coat(s): 1No mist coat

v) Finishing coats: 2No coats

6.10.4 Eggshell

i) Manufacturer: DULUX Trade or similar and approved by the employer

ii) Surface(s): Softwood, MDF, general sheet material and plasterboard

iii) Preparation: Ensure surfaces are clean and in good repair. Where necessary surfaces should be rubbed down using a suitable abrasive paper and then dusted off (refer to your COSHH Assessment). Avoid the inhalation of dust. Wear a suitable face mask if dry sanding.

iv) Application Brush only. For Health and Safety reasons related to all solvent-based paints, spray application is not recommended.

v) Initial coat(s): 1 No primer

vi) Finishing coats: 2 No coats

vii) Other : As a solvent based paint due care and attention should be paid to the manufacturer's recommendations with regard to the handling, applying and disposal of the material from a Health, Safety and Environmental perspective

6.10.5 Acrylic Emulsion – Stone finish

i) Manufacturer: Nippon Paint

ii) Brand: Nippe Jikitone Cera TR

iii) Surface(s): MDF dimensional joinery

iv) Preparation: Mix well before use. Dilution is with tap water if necessary. Application Method: Spray (Lithin Gun*) Dilution Ratio (%): 4 – 6, Coverage (kg/m2/coat) 0.8 – 1.2 (*Chip: 5 – 6mm, Air Pressure: 5 – 6 kg/cm2)

v) Initial coat(s): 1No mist coat

vi) Finishing coats: 2No coats

vii) Note:Avoid painting when the temperature is below 5° C or the humidity is over 85%. Make surface dry completely. (Water content below 6% or 19% detect by protimeter, pH value below 10) Avoid naked flame while painting or handling. Ventilation is advisable.

6.10.6 Material Quality:

i) Use lead free materials only.

ii) Match the stated specular gloss levels in accordance with BS 3900 Part D5:1995 'Measurement of specular gloss of non-metallic films'.

iii) Use materials that in the finished work comply with the minimum requirements of the BS 3900: Part E2 scratch test.

iv) Life expectancy to first maintenance: minimum 4-5 years.

v) Once applied the finish should not slump, flow, crack, flake, split, sag, pit, bubble, blister, float, effloresce, craze, shrink, break, wrinkle, crinkle, yellow, chalk, fade, discolor, powder, stain, bleed or lose its finish or gloss in any way.

vi) Take full account of the extremes of all atmospheric and environmental conditions.

vii) All surface finishes should be dry to handle.

viii) Do not over thin paint sealant, unless otherwise specified, so as to change in any way its surface color, gloss, opacity or finish and add nothing to paint to change in any way its consistency or constitution.

ix) There should be no variation of final surface finish.

x) All paints should be anti-mould and stable in humid conditions and suitable to climate exposure.

6.10.7 Handling and Storage:

i) Coating materials must be delivered in sealed containers, each clearly labeled with the brand name, type of material and manufacturer's batch number.

ii) Wherever possible materials must be from one manufacturing batch. If materials from more than one batch must be used, store separately and allocate to distinct parts or areas of the work such that no difference is discernible on inspection.

iii) Store materials in accordance with manufacturer's recommendations. Use in order of delivery and before expiry of any shelf life date.

6.10.8 Compatibility:

i) Check that all materials to be used are recommended by their manufacturers for the particular surface and conditions of exposure, and that they are compatible with each other.

ii) Where surfaces have been treated with preservatives or fire retardants, check with treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance.

iii) Inform the Employer’s representative of any discrepancy in specification of coatings and obtain instructions before proceeding with application.

6.10.9 Ancillary Surfaces: The descriptions of areas to be coated given here or in schedules, etc. are of necessity simplified. All ancillary exposed surfaces and features are to be coated to match similar or adjacent materials or areas except where a fair faced natural finish is required or items are completely pre-finished. In cases of doubt obtain confirmation before proceeding.

6.10.10 Off Site Works:

i) All off site preparation and coating to be carried out under cover in a suitable environment with adequate lighting.

ii) Store all items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked with spaces to permit air circulation and prevent sticking of surfaces.

6.10.11 Protection:

i) Adequately protect internal and external surfaces, fixtures and fittings that are not to be coated, by covering with dust sheets, masking or other suitable materials.

ii) Exhibit 'Wet paint' signs and provide barriers where necessary to protect other operatives and the general public, and to prevent damage to freshly applied coatings.

6.10.12 Testing of Viscosity, etc: The Interior Designer may, with discretion, take samples of materials from each manufacturing batch as follows:

i) Unopened containers, or samples from previously unopened containers, for submission to manufacturer for comparison with manufacturer's own retained samples from the same batch.

ii) Unopened containers, or samples from previously unopened containers, as a control sample for assessment of samples taken from painters' kettles.

iii) Samples from painters' kettles for submission with control sample to manufacturer and/or independent testing laboratory for comparative testing.

6.10.13 Inspection of Works: Permit coating manufacturers to inspect the work in progress and take samples of their products from site if requested.

6.10.14 Preparation Generally:

i) To BS 6150, Section 4.

ii) Materials used in preparation must be types recommended by their manufacturers and the coating manufacturer for the situation and surfaces being prepared.

iii) Prevent or control exposure of operatives to dust, vapor and fumes exceeding occupational exposure standards set in the current Health and Safety Executive (HSE) document EH40.

iv) Substrates must be sufficiently dry in depth to suit the coating to be applied.

v) Remove efflorescence salts from surfaces. Repeat removal if efflorescence recurs.

vi) Clean off dirt, grease and oil from surfaces. If contamination of surfaces/substrates has occurred, obtain paint/coating manufacturer's recommendations before proceeding.

vii) Smooth surface irregularities. Fill joints, cracks, holes and other depressions with stoppers/fillers worked well in and finished off flush with surface. Abrade to a smooth finish.

viii) Apply oil based stoppers/fillers after priming and water based stoppers/fillers before priming unless recommended otherwise by manufacturer. Patch prime water based stoppers/fillers when applied after priming.

ix) Remove dust and particles from dry abrasive preparation of surfaces.

x) Remove residues from wet preparation of surfaces by rinsing with clean water, wiping and allowing to dry.

xi) Ensure that doors, opening windows, etc, are 'eased' as necessary before coating. Prime any resulting bare areas.

6.10.15 Suitability of Surfaces and Conditions: Application of coatings will be taken as acceptance by the Contractor of the suitability of surfaces and conditions within any given area to receive the specified coatings.

6.10.16 Fixtures: Before commencing work, remove fixtures and fittings, set aside and replace on completion.

6.10.17 Previously coated Surfaces generally:

i) Prepare in accordance with BS 6150, Section 6.

ii) When removing or partially removing coatings, use methods which will not damage the substrate or adjacent surfaces or adversely affect subsequent coatings.

iii) Carefully remove all loose, flaking or otherwise defective areas to a firm edge.

iv) Completely remove alkali affected coatings.

v) Where coatings are suspected of containing lead, obtain instructions before proceeding.

vi) Where substrates containing asbestos are revealed, obtain instructions before proceeding.

vii) Where significant rot, corrosion or other degradation of substrates is revealed, obtain instructions before proceeding.

viii) Thoroughly clean retained coatings with appropriate detergent solutions or solvents to remove all dirt, grease and contaminants. Abrade gloss coated surfaces when still wet to provide a key.

ix) Apply additional preparatory coats to areas of partial removal to restore original coating thicknesses. Abrade junctions to give a flush surface.

x) Where coatings are completely removed, prepare surfaces as specified for uncoated surfaces.

6.10.18 Previously Coated Surfaces – Blast Cleaning: If any, to be carried out by specialists using abrasives and pressures appropriate to the substrate. Take all necessary precautions to minimise dust and nuisance.

6.10.19 STRIPE COATS: Where required, brush apply an additional strips coat to all external angles, nuts and heads, rough weld seams and areas which are difficult to coat.

6.10.20 PREVIOUSLY COATED TIMBER:

i) Remove any degraded or weathered surface timber by abrading.

ii) Ensure that repairs to degraded substrate timber have been carried out with sound timber of the same species.

iii) Apply two coats of knotting to exposed resinous areas and knots and allow to dry.

6.10.21 PREPRIMED TIMBER: Abrade chalking, powdery and other defective primer back to bare timber, remove dust and re-prime resulting bare areas.

6.10.22 UNCOATED TIMBER:

i) Abrade to a smooth, even finish with arises and molding edges lightly rounded or eased.

ii) Ensure that heads of fasteners are countersunk sufficiently to hold stoppers/fillers.

iii) Apply two coats of knotting to resinous areas and knots and allow to dry.

6.10.23 PREVIOUSLY COATED STEEL:

i) Abrade corrosion and loose scale back to bare metal.

ii) Treat any residual rust with a proprietary removal solution. Prime as soon as possible.

6.10.24 PREPRIMED STEEL: Abrade defective primer, corrosion and loose scale back to bare metal, remove dust and re-prime resulting bare areas.

6.10.25 GALVANIZED, SHERARDIZED AND ELECTROPLATED STEEL: to receive lead free primer: Pre-treat with 'T wash'/mordant solution to achieve blackening of the whole surface or apply pre-treatment etching primer where recommended by the coating system manufacturer.

6.10.26 UNCOATED STEEL - MANUAL CLEANING (WHERE APPLICABLE):

i) Remove oil and grease.

ii) Abrade to remove corrosion, loose scale, welding slag and spatter.

iii) Treat any residual rust with a proprietary removal solution. Prime as soon as possible.

6.10.27 UNCOATED STEEL - BLAST CLEANING (WHERE APPLICABLE):

i) Remove oil and grease.

ii) Blast clean in dry atmospheric conditions using abrasive of suitable type and size, free from fines, moisture and oil. Continue blasting until surface complies with BS 7079: Part A1, preparation grade to structural engineer's recommendation.

Prime surface as soon as possible after blast cleaning and in any case within four hours to prevent rust

6.10.28 CONCRETE, SCREEDS, RENDER AND PLASTER: Scrape off nibs, trowel marks and plaster splashes. Abrade lightly any over trowelled 'polished' areas. Thoroughly clean surface of loose particles, excess latence, efflorescence, grease and dirt that will adversely affect the adhesion or appearance of the finish. Remove protrusions and patch holes and cracks flush with adjoining surfaces with filler approved by the paint manufacturer.

6.10.29 PLASTERBOARD: Cut out and fill cracks, holes and similar defects with an approved filler and sand down flush with adjoining surfaces. Clean down surfaces to remove grease, dust, particles and loose materials, and lightly sand hard and glossy surfaces to provide adequate key. Spot prime plaster trim, filled surfaces and areas of high suction as per manufacturer's recommendations.

6.10.30 TREATMENT OF ORGANIC GROWTHS:

i) Remove all loose growths and infected coatings/decorations.
Apply appropriate biocide solution to growth areas and surrounding surfaces.

ii) Scrape or brush off all dead growth. Remove infected materials immediately to ensure that no other areas become infected.

iii) Apply appropriate residual effect biocide solution to inhibit re-establishment of growths.

iv) Biocides must be approved and registered by the Health and Safety Executive

(HSE) and listed in the current 'Reference Book 500', Part B, as surface biocides.

6.10.31 APPLICATION - UNSUITABLE CONDITIONS:

i) Take all necessary precautions including restrictions on working hours, providing temporary protection and allowing extra drying time, to ensure that coatings are not adversely affected by climatic conditions during and after application

ii) Prevent or control exposure of operatives to solvent vapor levels exceeding occupational exposure standards set in the current Health and Safety Executive (HSE) document EH40

iii) Unless it is specifically permitted by the coating manufacturer, do not apply coatings:

iv) To surfaces affect by moisture, frost or airborne dust.

v) When the air or substrate temperature is below 5 °C.

vi) When the relative humidity is above 80%.

vii) When heat is likely to cause blistering or wrinkling.

6.10.32 COATING GENERALLY:

i) To BS 6150, Section 5.

ii) Do not use materials which show any bittiness or other defects when applied. Do not thin or intermix unless specified or recommended otherwise.

iii) Apply priming coats as soon as possible on the same day as preparation is completed. They must be of adequate thickness and suit surface porosity.

iv) Apply coatings by brush or roller unless otherwise specified or approved.

v) Keep brushes and equipment in a clean condition. Dispose safely of cleaning and waste materials; do not pour into sanitary appliances or drains.

vi) Subsequent coats of the same pigmented material must be of a different tint to ensure that each coat provides complete coverage.

vii) Apply coatings to clean, dry surfaces in accordance with the manufacturer's recommended intervals between coats.

viii) Apply coatings evenly to give a smooth finish of uniform color, free from brush marks, sags, runs and other defects defined in BS2015 ‘Glossary of Paint and Related Terms’. Cut in neatly and cleanly. Do not splash or mark adjacent surfaces.

ix) Adequately protect drying and completed work from damage.

x) Allow for 2 coats typical

6.10.33 PRIMING JOINERY:

i) Before priming preservative treated timber ensure that any cut surfaces have been retreated and that all preservatives are completely dry.

ii) Liberally coat all end grain, allow soaking in and then recoating.

6.10.34 CONCEALED JOINERY SURFACES: Where one or more additional coats are specified to be applied in the factory, they must be applied to all surfaces, including those that will be concealed when components are fixed in place.

6.10.35 CONCEALED JOINERY SURFACES: After priming, apply initial/undercoats specified for the exposed work to all surfaces of joinery components that will be concealed when fixed in place.

6.10.36 CONCEALED METAL SURFACES: Apply system specified for exposed work to all surfaces of components which will be concealed when fixed in place, omitting top coats.

6.10.37 STAINING TIMBER:

i) Apply primer where recommended by the stain manufacturer.

ii) Apply stain in flowing coats. Brush out excess stain before set to produce uniform depth of colour.

6.10.38 EXTERNAL DOORS: Prime and coat bottom edges before hanging.

6.10.39 BEAD GLAZING: Joinery that is to be stained must have the first two coats of the staining system applied to rebates and beads before glazing.

6.10.40 BEAD GLAZING: Joinery that is to be varnished must have the first two coats of varnish applied to rebates and beads before glazing.

6.10.41 BEAD GLAZING: Joinery that is to be painted must have the primer and one undercoat applied to rebates and beads before glazing.

6.10.42 PUTTY GLAZING: Allow putty to set for 7 days then, within a further 14 days, seal with an oil based primer. Ensure that putty is fully protected by coating system as soon as it is sufficiently hard. Extend finishing coats on to glass up to sight line.

6.10.43 GLAZING: Protect etched, sand blasted and ground glass from contamination by oily constituents of coating materials by:

i) Treating or marking edges before coating.

ii) Cleaning surfaces after coating.

6.10.44 REMEDIAL WORK: Ensure that early degradation of coatings by blistering, peeling, flaking, cracking, lack of adhesion, mechanical damage etc, is made good by complete removal, preparation and reapplication of all coats to leave a neat, continuous and flat finish.

6.10.44 COMPLETION: Ensure that opening lights and other moving parts move freely. Remove all masking tape and temporary coverings.

i) Ensure that the work is consistent in colour, shows no signs of fading, cracking, pitting and other defects when viewed from a distance of 2m in normal light with normal eyesight.

APPENDIX 1

- All products are to be installed in strict accordance with the manufacturer's instructions. The manufacturer is to visit site to confirm this and proof of this is to be provided by the Trade Contractor.
- The Trade contractor is to make allowance for everything within the Decorations package which using their past experience could 'reasonably' be expected to have been foreseen.
- Once the Trade Contractor has continued to proceed with the application of their finishes they have deemed the background to be acceptable. Any issues with suitability of substrates are to be raised immediately with the Main Contractor.
- Allow for decorations to all base build core walls, unless otherwise noted
- Allow for decorations to all new drylined partitions where not covered by other finishes.
- Allow for decoration of all skirtings and door jambs as indicated on the design drawings.
- The Trade Contractor is to provide a benchmark of every decoration finish for comment by the architect prior to proceeding.

END OF SECTION

## 6.11 Wallcovering

| DATE | REV | PURPOSE | REMARKS |
|---|---|---|---|
| 15 JAN 2016 | - | TENDER | |
| 01 FEB 2016 | 1 | TENDER | |

### 6.11.1 General

i) The Contractor will make good all holes and indentation, touch up including hair cracks rub and sand down to a smooth and level surface for the existing walls before the application of the wallcovering.

ii) The Contractor will apply an approved alkali resisting primer to seal all walls to receive wallcovering.

iii) The Contractor will first install on single layer of approved lining paper (to be hung horizontally) using an approved adhesive.

iv) The Contractor will install all wallcoverings with the manufacturers specified pre-mixed adhesive which is to be applied thoroughly and evenly to the back of the wallcovering.

v) All joints are to be perfectly met with both ends wiped clean of surplus adhesive. A clean roller or brush is to be used to drive out all air bubbles.

vi) Where applicable pattern matching must be perfect.

### 6.11.2 Clean Up

i) When the Contractor has completed the installation all areas are to be cleared of excess materials. All left over rolls or half rolls are to be turned over to the Employer.

### 6.11.3 Supervisor

i) All work on site shall be done under the direction of a capable supervisor who has had a minimum of 12 years experience in this type of work.

### 6.11.4 Scope of Work

i) Work under this Section includes providing all necessary materials, labour, plant, transportation and services for the completion of work shown on the drawings including the following :

Partitions and Doors.

END OF SECTION

## 6.12 Suspended False Ceiling Works

| DATE | REV | PURPOSE | REMARKS |
|---|---|---|---|
| 15 JAN 2016 | - | TENDER | |
| 01 FEB 2016 | 1 | TENDER | |

### 6.12.1 General Requirements on Construction and Installation

i) The Contractor shall provide complete suspension system and related accessories for each and every panel of the suspended ceilings independently. Where in areas the suspension system cannot be suspended directly from the soffits of concrete slabs due to the presence of services pipings or ducting, the Contractor shall provide all necessary straps, hangers and brackets to form independent support for the suspension system.

ii) All suspension system, unless otherwise stated, shall be fabricated from corrosion resistant material. If they are of such materials that react with aluminium they shall be separated from the aluminium by materials that do not react with it advisedly.

iii) Fixing of suspension straps or hangers to concrete or brickwork with cartridge fired fasteners shall be carried out by means of an automatic cartridge operated hand tool, used in accordance with the manufacturer's instruction. Alternatively, the fixing may be carried out by morticing and inserting fibrous inserts or other approved fixing materials and using suitable nails or screws.

iv) Natural anodized finished to exposed aluminium members shall be in accordance with BS 1615 : 1972. The anodic coating shall have a minimum average thickness of 0.0004" (10 Microns).

v) All openings in the ceilings to accommodate installation of light fittings, sprinkler heads, air-conditioning grilles, return air slots, speakers, smoke detectors, etc. shall be provided by the Contractor. The Contractor shall allow in his tender for all necessary cutting, framing, suspension system and additional edge trims and hangers in connection with the provision of such openings.

vi) The ceilings shall be installed to patterns shown on the reflected ceiling plans and the Contractor shall allow herein all the necessary cuttings, wastage, etc. to obtain the pattern as shown on the reflected ceiling plans.

vii) Ceiling boards should be installed after all wet work are completed and dried and after all mechanical and electrical work in the pleunum space are installed.

viii) The edges of all the ceilings shall be properly cut to fit neatly against the curved walls, beams or any other structural members and the Contractor shall provide for all the necessary edge trimming angles bent to fit the profile.

ix) All ceiling components shall be aligned true with level surfaces and straight lines. Deflection of any component must not exceed 1/360 of the span between supports.

x) On completion of installation, no dirt, spots or marks shall appear on the exposed surfaces.

xi) All damaged or improperly installed units shall be removed and replaced at the Contractor's own expenses.

6.12.2 Nominated Contractor's Design Recommendation and Other Information

i) For the complete assessment of the Contractor's design solutions, the Contractor must submit together with his tender the following :

a) Contractor's Design Recommendation and Calculations.

b) Preliminary Shop Drawings showing salient details, in particular, suspension details of all types of suspended ceilings.

c) Brochures and descriptive literature of the materials and goods offered.

d) Sample of ceiling panels, aluminium suspension tees, etc. and certificates from the Director of Fire Services.

ii) These documents (2.1.1) to (2.1.4) after its approval by the Designer shall form part of this Contract.

6.12.3 Approval of Director of Fire Services

i) All suspension systems and ceiling boards must comply with the flame spread classification and fire resistant requirements laid down hereinafter to the satisfaction of the Designer and the Director of Fire Services. The specialist Contractor shall produce certificates from the Director of Fire Services and manufacturer's tests certificates to substantiate compliance with the said stipulations of the ceilings to be supplied and installed. If the approval of the Director of Fire Services of any ceiling installed is not substantiated to the satisfaction of the Designer, it shall be removed from the site at the Contractor's own expenses.

ii) The Contractor shall be deemed to have included in his rates for everything, whether specified herein or otherwise, to comply with the above.

6.12.4 Suspended Ceilings

Fibrous Plasterboard Ceilings or Drywall

i) Fibrous plasterboard ceilings or drywall shall be Brady's "Fibroceil" or other approved equivalent.

ii) All fibrous plasterboard ceilings shall be installed in strict accordance with the manufacturer's written instructions.

iii) Fibrous plasterboard to be 2400mm approx. length of 1200mm width and 12mm thickness, to have 2 opposing edges rebated and are to be reinforced across the width of the panels with 20 gauge (0.07mm) galvanized mild steel angles at 450mm centres.

6.12 Suspended False Ceiling Works

iv) Suspension system shall be of the concealed type and consist of aluminium tee sections 44mm x 28mm x width with 25mm x 22 gauge (0.07mm) galvanized metal hangers at maximum 100mm centres along length of tee bar. Tee sections shall be joined longitudinally by 76mm x 25mm galvanized strips double riveted to each tee section. All angle sections, edge trims etc. to primeter of ceilings, columns, etc. shall be secured by nailing or "shure set" fixing device.

v) Fibrous plasterboard are to be laid onto the aluminium suspension and a fibreglass bandage impregnated with gypsum plaster applied over to at "T" bars. Flush up all joints with super fine gypsum plaster and leave smooth for application of paint.

vi) Fibrous plasterboard ceilings to all areas shall be of smooth finish except where the fibrous plasterboard ceiling is textured and of overall board thickness of 18mm.

vii) Access panels to be printed where required. Contractor to submit detail and location for designers approval.

6.12.5 Timber Ceilings

i) Lattice ceilings shall be fixed to pattern as shown in the drawings.

ii) Lattice ceilings shall consist of 38mm x 9mm slats and fixed to sawn timber framing which shall be of approved sizes and installed at approved centres.

iii) Tongue and groove ceilings shall be fixed to pattern as shown on the drawings.

iv) Tongue and groove ceiling shall consist 76mm x 20mm boards and fixed to sawn timber framing which shall be of approved sizes and installed at approved centres.

6.12.6 Scope of Work

i) Work under this section includes providing all necessary materials, labour, plant, transportation and services for the completion of work shown on drawings.

ii) Number, location and size of A/C transfer air louvre, return air louvre to be designed by A/C direct sub-contractor.

iii) Alternative items in the Schedule of Rates to be selected by the Designer.

iv) Check existing false ceiling system, ensure stabilizer bars are installed at each hanger wire.

v) Leveling splints shall be installed between tiles supported by cross members.

END OF SECTION

## 6.13 Windows Treatment

### 6.13.1 General Requirements

This section of the Specification shall be read in conjunction with the Drawings, other contract documents and other sections of this specification which shall be doomed to be complimentary with one another. The Contractor carrying out this work shall be responsible for providing all plant, tools, materials and all items necessary for the proper execution, completion and maintenance of these works.

### 6.13.2 Fabrics

Fabrics generally shall be to B.S.3121: 1959 - Performance requirements of fabrics described as low flammability, and to B.S.5867: 1980 Parts 1 and 2 - Specification for fabric for curtains and drapes, unless otherwise approved.

### 6.13.3 Dimensions

Figured dimensions shall be taken in preference to scaled dimensions in all cases. Before commencing any work the Contractor shall verify all measurements on the Site.

### 6.13.4 Fire Regulations

All materials shall conform to local fire regulations as previously specified.

### 6.13.5 Operating Hardware

i) Generally -
The curtain hardware, unless otherwise indicated on Drawings or otherwise specified, shall be fully rigged GRABER, KIRSCH or equivalent heavy duty double traverse rod or track sets, complete with hooks, headings, lead-weighted cord tape, tension pulleys and all other accessories necessary for an approved installation. The make of the track shall be approved prior to fabrication and installation. When a curtain box or pelmet (valance) is not required, the curtain box or pelmet (valance) is not required, the curtain rods or tracks shall be screwed flat to the ceiling without end brackets. Panel glides shall be cord operated and weighted and shall be as manufactured by SILENT GLISS, London, England. Special window and stage treatments may require heavy duty hardware and the Main Contractor shall verify with the Interior Designer its suitability for any such installation. All operating shall be subject to approval.

ii) Templates -
The locations for fasteners shall be accurately marked by template and pilot holes of the proper size for the secure engagement of fastener neatly drilled into

structure or backings. All tracks and rods shall be in single lengths, joined track will not be accepted.

6.13.5 Operating Hardware

iii) Tracks

a) All tracks, fittings, screws and the like shall have a rustproof finish. The face of the track or the channel in which the carriers operate shall not damaged in fabrication or fixing. All damaged track shall be replaced.

b) Tracks and rods shall be of hand traverse operation and for centre close curtains.

c) Tracks shall be fixed in the position and at the heights indicated on drawings and with fixings at the manufacturer's recommended centres either directly through the track or by means of approved proprietary brackets.

d) Tracks and rods shall be fixed in accordance with manufacturers' instructions using the manufacturers' recommend carriers, with a minimum of four carriers per 1'10" length of track.

iv) Cords and Pulleys

a) The traverse cord shall be held into the rod with a tension pulley attached to the baseboard (skirting) or to the sill, in the case of sill length draperies, or as dimensioned on drawings.

b) If tension pulleys are not available, a continuous cord with a KIRSCH type weight attached to a ring holding the bottom of the cord loop in position shall be used. Where it is impractical to use a traverse cord a short cord is to be attached to the track, behind drapery. The cord shall not be attached to the curtain fabric.

6.13.6 Making of Scrims, Drapery and Linings

i) Fullness -
Unless otherwise indicated all draperies except sheer curtains shall be of at least double fullness. Sheer curtains (glass type) shall be a minimum of two and a half fullness or as indicated on drawings.

ii) Selvedges - All selvedges shall be cut off before making.

iii) Pressing -

Fabric which shows bolt fold marks or other creases shall be ironed before cutting.

iv) Cutting - All cutting shall be to straight edges established by pulling a thread.

v) Seams

a) Unless shown on the Drawings and schedules seams shall be "French type". Double serged seams may be used subject to approval.

b) If a single needle serger machine is used the seam shall be sewn with a straight-stitch machine approximately 3 mm to 6 mm from the serged seam. Alternatively, the seams shall be joined by double sewing at 12 mm and 6 mm in from the edge of the cut selvedge.

c) Thread tensions and machine pressures shall be adjusted to a minimum to prevent fabrics puckering. The stitch shall be adjusted to 8 to 10 stitches per inch. (32-40 stitches per 100 mm)

vi) Side hems -
Side hems for unlined curtains shall be stitched by hand unless machine stitching is approved. Side hems for lined curtains may be machine stitched. The right sides of the fabrics shall be stitched (from the inside and turned) so that the stitching does not show. The lining edge shall be 30 mm in from the edge of the drapery. Side hems shall not be pressed.

vii) Bottom hems -
Bottom hems shall be triple folded with an average depth of 90 mm and weights shall be inserted in the corners. Unless machine hemming is approved, the hems shall be stitched by hand. Silk or loosely constructed type fabrics shall be hand hemmed, unless otherwise approved. Loosely woven and changeable fabrics shall be hand hemmed on the site after they have been hanging for several days. Lining fabrics shall be hemmed separately. The bottom hems shall not be pressed. Bottom hems should clear the floor finish by 25 mm. If carpet is not yet installed 50 mm shall be allowed above the floor screed; 6 mm clearance should be allowed above window sills.

viii) Headings -
Headings shall be 100 mm wide with a 37 mm deep French pleat and stiffened with an interlining of crinoline or washable plastic coated fabric unless otherwise indicated. Horizontal machine stitching shall be on the reverse side and shall not show on the heading and at the top of the heading before it is doubled over. Unlined curtains of sheer fabric shall have the stiffening to match the curtain fabric as closely as possible.

ix) Hooks -
Nylon tape hook holders shall be used unless sewn-on hooks are approved. Sewn-on hooks are not to be used on Washable fabrics.

x) Thread -

Mercerized cotton thread shall be used on all fabrics which are not synthetic or fibreglass. Synthetic fibres shall be sewn with nylon thread to avoid gathering.

xi) Pressing and delivery

a) Finished draperies are to be pressed to remove creases and wrinkles except for hems, which shall not be pressed.

b) After pressing draperies shall be long folded at each pleat, tied at each end and at the centre and folded over a padded hanger.

c) After delivery of draperies the top and centre ties shall be removed and the bottom tie left to prevent the bottom hem from soiling or damage on site.

xii) Patterned fabric -

Pattern fabric shall be matched and the quantity that the Contractor shall purchase shall be sufficient to allow the patterns to be on the same level (line) on all panels and to ensure that matched patterns repeat.

6.13.7 Sliding Panel Drapes

Fabric for sliding panel drapes shall be matched and the quantity that the Contractor shall purchase shall be sufficient to allow the patterns to be on the same level (line) on all panels and to ensure that matched panels repeat.

6.13.8 Louvre Blinds

i) Generally -

Vertical and horizontal louvre blinds shall be by LUXAFLEX or similar manufacturer approved by the Interior Designer. Louvres shall be in plastic, aluminum alloy, wood or other material as shown on the drawings. Blinds shall be manufactured to an approved sample. Louvres are to be straight, true and tree from kinks, twists, scratches nicks or other flemishes.

ii) Accessories -

Metal accessories shall be in rust-proof alloy to approved finish and colour. Cords and pulls shall be in nylon, terylene or similar artificial fibre. Rods are to be in nylon, timber as approved.

iii) Existing blinds -

Where the installation is to match existing blinds they are to be taken down,

checked repaired and thoroughly cleaned prior to reerection.

6.13.9 Protection

The Contractor shall be responsible for protecting all drapes and track in those areas of work forming part of this contract. The Contractor shall make good or replace at his own expense any damaged work caused through lack of adequate protection or case in installation.

The Contractor shall make his own investigation to guard against local sources of attack and damage and take all necessary precautions for protection.

6.13.10 Completion

On completion of the installation of drapes and track the Contractor shall leave all work clean and perfect.

END OF SECTION

## 6.14 Specialist Item – Operable Partition (where it is applicable)

### 6.14.1 General

i) Operable partitions system shall be provided by others. Material as specified on the surface of operable partitions shall be supplied and installed by main contractor.

ii) Complete shop drawings are to be provided by Main Contractor prior to fabrication indicating construction and installation details. Shop drawings must be submitted with 15 days after receipt of a signed contract.

### 6.14.2 N/A

### 6.14.3 Product Delivery, Storage and Handling

i) Proper storage of partition before installation and continued protection during and after installation will be the responsibility of the Main Contractor.

### 6.14.4 Related Work by Others

i) Paint or otherwise finishing all trim and other materials adjoining head and jamb of operable partitions.

ii) All headed blocking, support structure, jambs, track enclosures, surrounding insulation, and sound baffles as required in quality assurance.

iii) Prepunching of support structure in accordance with approved shop drawings.

iv) Preparation of opening will be by Main Contractor. Any deviation of site conditions contrary to approved shop drawings must be called to the attention of the architect.

### 6.14.5 Warranty

i) Installation shall be guaranteed for a period of no less than one (1) year against defects in material and workmanship.

END OF SECTION

6.15 Specialist Item – Lockers / Toilet Partitions

6.15.1 Lockers / Toilet Partitions ( where it is applicable )

i) Specification:

Hermeta Herbolock Wate Resistance Phenolic Lockers.
(Type : 4 columns : 6 rows)

1850mm (H), 830mm (W) x 225mm (D), doors made of 13mm phenolic (Colour E3-22), back panels to be 4mm phenolic in white and divider panels to be 8mm phenolic in white, hardwares included springloaded stainless steel hingers with door opening limiter. Each locker door will have a cylindrical dead lock, and can be operated by staff with master key.

ii) Installation:
Follow manufacturers instructions for both Lockers and Toilet Partition.

END OF SECTION

Fire Rated Glass Door Specification for Hong Kong Standard
(If it is for other country outside Hong Kong, the supply of fire rated glass door required to fulfill local Fire Service Authority standard and the Main Contractor should apply the certificate from related Authority)

6.16.1 Fire Resistance Performance Requirement of Modified Glazed Doorsets

i) Introduction

a) This report presents 2 considered opinion regarding the fire resistance performance of glazed steel doorset similar in construction to a previously fire tested single-acting double-leaf glazed steel doorset but modified as proposed in Section 3 of this report.

b) The modified doorsets are required to satisfy the performance requirements of BS 476: Part 22: 1987, Clause 8, for a period of 240 minutes.

c) For the purpose of this report the information summarized in Appendix 1 of this report has been considered.

ii) Assumptions

a) It is assumed that the supporting structure is composed of masonry or concrete and that it is capable of effectively supporting the proposed constructions for the required period.

b) This appraisal also assumes that the door leaves are in the closed and latched position.

iii) Proposals

a) It is proposed to provide doorsets similar in construction to that previously fire tested under reference Warres No 59590 but modified to include the following single-acting doorsets :

- Double-leaf “A” Series doorsets (standard rail/stiles)
- Double-leaf “AN” Series doorsets (narrow rail/stiles)
- Single-leaf “A” Series doorsets (standard rail/stiles)
- Single-leaf “AN” Series doorsets (narrow rail/stiles)

b) The double-leaf doorsets will have a maximum size of 2435mm high by 2134mm wide and the single-leaf doorset will have a maximum size of 2435mm high by 1067mm wide. Each of the proposed door leaves may be glazed with either one, two or three panes of glass.

6.16.1 Fire Resistance Performance Requirement of Modified Glazed Doorsets

iv) With regard to appraisal of single-leaf doorsets using performance data based on double-leaf doorsets it is important to ensure the observed level of leaf deflection along the leading edges is not likely to create through gaps at the leaf to frame junction if the leaf is latched at mid-height.

v) Observations recorded during test Warres No. 59590 show minimal deflection at the head of either of the leaves with no recorded deflection at mid-height of the leaves due to the restraint provided by the latch.

vi) The test evidence is considered to show suitability of either “A” or “AN” series door leaves to be included in single-leaf doorsets incorporating one, two or three panes of glass due to the observed levels of distortion.

6.16.2 Alternative Glass Types

i) It is proposed that the glazed doorset assembly as described and tested in Warres No. 59590 and modified as discussed previously in this report may be glazed with alternative types of glass. The test specimen was glazed with nominally 6mm thick Firelite glass, the proposed alternative glass types are :

a) Georgian Wired Polished Plate (GWPP) glass of nominal thickness 6mm by Pilkington Glass Limited.

b) Pyran borosillcate glass of nominal thickness 6mm supplied by Schott Glass Limited.

c) Pyroswiss glass of nominal thickness 6mm supplied by Colebrand Limited.

ii) In case ( i ) and ( ii ) above, the maximum pane area is to be similar to that as tested in the relevant tests, with the height and width not exceeding that tested to provide 60 minutes integrity.

iii) In the case of ( iii ) above, the maximum pane size is not to exceed 1.7m2, as tested in Warres No. 59590 to provide 30 minutes integrity.

iv) The tested glazing system,, normining 6mm thick Firelite, is shown in Figure 1. The glazing system need not be modified to accept the alternative glasses above.

6.16.3 The Framing System

i) The proposed door framing system, as described in Warres No. 59590, has been proven by test capable of satisfactorily supporting 6mm thick Firelite in pane sizes of up to 1.7m2 for 240 minutes.

END OF SECTION

6.17 Specialist Item – Cemboard (where it is applicable)

6.17.1 Installation Instruction

i) Detail drawings for Tiling onto Cemboard

a) For board fixing, please use the same installation drawings as for "Cemboard External Cladding Application".

b) Use Compatible flexible tiling adhesive. (The method of application should be referred to the tiling adhesive manufacturer).

c) Preferably, do not tile over the Cemboard joint. (refer drawing No. 1)

d) An approximately 3mm gap to be provided between the tiles. (Refer to tiles manufacturer instruction) - refer to drawing No.2).

ii) Gap

a) The joint gap should be sealed with flexible acrylic gap sealant. The application of sealant will minimise the water / moisture ingress from the tiles surface through the board edge. Thus, it would reduce the expansion of the Cemboard.

END OF SECTION

## 6.18 FIXING / ADHESIVES:

Provide all necessary and appropriate fixings fasteners bearing brackets etc, necessary for the safe and proper installation of all components and assemblies, plus associated flashings and closures.

### 6.18.1 FIXINGS GENERALLY:

Use fixing, adhesive and jointing methods and types, sizes, quantities and spacings of fasteners which are suitable having regard to:

i) Nature of and compatibility with product/material are being fixed and fixed to.

ii) Recommendations of manufacturers of fasteners and manufacturers of components, products or materials are being fixed and fixed to.

iii) Materials and loads are to be supported.

iv) Conditions expected in use, including stresses, movements and vibration.

v) Appearance: Use fixings provided for the purpose by product manufacturer where provided. Where practicable use fixings that are not visible in the finished work (unless otherwise indicated in the Contract Documents); where not practicable use visible fixings that match the products they are fixing.

### 6.18.2 CORROSION:

Ensure fixings are non-corrodible in the application in which they are used. Take measures to avoid bi-metallic corrosion and isolate aluminium components from cementitious surfaces. Fasteners for materials and components exposed to moisture in the completed work to be of corrosion resistant material or have a corrosion resistant finish.

### 6.18.3 FIXING SUB-STRATE:

Ensure that fasteners and plugs (if used) have ample penetration into the backing. Do not damage anything being fixed or receiving fixings.

### 6.18.4 PACKINGS:

i) Provide suitable, tight packings at fixing points to take up tolerances and prevent distortion.

ii) Use non-compressible, rot-proof, non-corrodible materials positioned adjacent to fixing points.

iii) Ensure that packings do not intrude into zones that are to be filled with sealant.

6.18.5 CRAMP FIXING:

i) When not specified otherwise position cramps not more than 150 mm from each end of frame sections and at 600 mm maximum centers.
ii) Secure cramps to frames with matching screws as masonry work proceeds, and full bed in mortar.

6.18.6 NAILING:

i) Nails: To BS 1202.

ii) In joints, use not less than two nails and opposed skew nailing unless specified otherwise.

iii) Drive nails fully in without splitting or crushing the material being fixed.

iv) Punch nail heads below surfaces that will be visible in the completed work.

6.18.7 PLUGS:

i) Proprietary types selected to suit the background, loads to be supported and conditions expected in use.

ii) Locate plugs accurately in correctly sized holes in accordance with manufacturer's recommendations.

6.18.8 SCREW FIXING:

i) Screws: To BS 1210.

ii) All screws to have clearance holes. Screws of 8 gauge or more and all screws into hardwood to have pilot holes about half the diameter of the shank.

iii) Before using brass, aluminum or other soft metal wood screws pre-cut the thread with a matching steel wood screw.

iv) Do not hammer screws unless specifically designed to be hammered.

v) Drive countersunk heads flush with timber surface, or not less than 2 mm below it if they are to be stopped.

vi) Washers and screw cups, where specified, to be of the same material as the screw.

6.18.9 PELLETING: Countersink screw heads 6 mm below timber surface and glue in grain-matched pellets not less than 6 mm thick, cut from matching timber. Pellets to occupy the whole depth of the holes and be finished off flush with surface.

6.18.10 PLUGGING: Countersink screw heads 6 mm below timber surface and glue in plugs. Plugs to occupy the whole depth of the holes and project from the surface.

6.18.11 POWDER ACTUATED FIXING SYSTEMS:

i) Tools to be to BS 4078: Part 2 and Kitemark certified, and used in accordance with BS 4078:Part 1. Operatives to be trained and certified as competent by tool manufacturer.

ii) Fasteners, accessories and consumables to be types recommended by the tool manufacturer.

iii) Ensure that operatives take full precautions against injury to themselves and others.

iv) Remove all unspent cartridges from the site when no longer required.

v) Apply zinc rich primer to heads of fasteners used externally, in external walls or in other locations subject to dampness.

vi) Use top hat section plastics washers to isolate cartridge fired nails from stainless steel components fixed externally, in external walls or in other locations subject to dampness.

6.18.12 ADHESIVES:

i) Adhesive types: recommended for their purpose by manufacturer.

ii) Surfaces to receive adhesive to be sound, unfrozen, free from dust, grease and any other contamination likely to affect bond. Where necessary, clean surfaces using methods and materials recommended by adhesive manufacturer.

iii) Adjust surface regularity and texture as necessary to suit bonding and gap filling characteristics of adhesive.

iv) Ensure that operatives observe manufacturer's and statutory requirements for storage and safe usage of adhesives.

v) Do not use adhesives in unsuitable environmental conditions or beyond the shelf life expiry date or open-pot time periods recommended by the manufacturer.

vi) Apply adhesives using recommended spreaders/applicators to ensure correct coverage. Bring surfaces together within recommended time period and apply pressure evenly over full area of contact to ensure full bonding.

vii) Remove surplus adhesive using methods and materials recommended by adhesive manufacturer and without damaging surfaces.

6.18.13 SUSTAINABILITY CERTIFICATION SPECIFICATION FOR ADHESIVES:

i) Specification of all adhesives inside the building must comply with the following low volatile organic compound (VOC) levels:

| **Architectural Applications** | **VOC Limit (g/L less water)** | **Specialty Applications** | **VOC Limit (g/L less water)** |
|---|---|---|---|
| Indoor Carpet Adhesives | 50 | PVC Welding | 510 |
| Carpet Pad Adhesives | 50 | CPVC Welding | 490 |
| Wood Flooring Adhesives | 100 | ABS Welding | 325 |
| Rubber Flooring Adhesives | 60 | Plastic Cement Welding | 250 |
| Subflooring Adhesives | 50 | Adhesive Primer for Plastic | 550 |
| Ceramic tile Adhesives | 65 | Contact Adhesives | 80 |
| VCT and Asphalt Adhesives | 50 | Special Purpose Contact Adhesives | 250 |
| Drywall and Panel | 50 | Structural Wood Member Adhesives | 140 |
| Cove base Adhesives | 50 | Sheet Applied Rubber Lining | 850 |
| Multipurpose Construction Adhesives | 70 | Top and Trim Adhesives | 250 |
| Structural Glazing | 100 | | |
| **Substrate Specific Applications** | **VOC Limit (g/L less water)** | | |
| Metal to metal | 30 | | |
| Plastic Foams | 50 | | |
| Porous Materials (except wood) | 50 | | |
| Wood | 30 | | |
| Fiberglass | 80 | | |
| **Aerosol Adhesives** | **VOC Limit (g/L less water)** | | |
| General purpose mist spray | 65% VOC's by weight | | |
| General purpose web spray | 55% VOC's by weight | | |
| Special purpose aerosol adhesive (all | 70% VOC's by weight | | |

6.18.14 COMPLETION

6.18.15 TESTING: Test where recommended to do so by manufacturers to assess the extent of adhesion to joint surfaces.

6.18.15 PROTECTION: Protect until cured, avoiding any damage from other activities or conditions on site.

## 6.19 SEALANTS

### 6.19.1 GENERAL

i) Allow for sealants throughout the project between all differing materials and trades.

ii) All sealants to match adjacent material if not already specified on detail drawings.

iii) Samples of all sealants are to be submitted for comments prior to installation.

### 6.19.2 SUBMITTALS:

i) Independent current test certificates demonstrating the suitability of each sealant for its intended application (including hardness, compressibility and modulus of elasticity, considering joint movement and exposure for the size of joint).

ii) Manufacturer's product descriptions confirming compliance with performance standards including the BS 11600 coding.

iii) Where required to provide a specific fire resistance provide independent performance certification to confirm compliance.

iv) For trafficked areas and areas to be to be fuel resistant: show compliance with BS 2499 and BS 5212.

v) Where in contact with drinking water, provide evidence of compliance with UK water quality standards.

vi) In permanently wet service environments provide evidence of suitability.

vii) Details of design life of each sealant (period during which it will not change in appearance, colour and performance).

### 6.19.3 OPERATION AND MAINTENANCE MANUALS:

Include details of maintenance/replacement regime and cleaning methods for respective sealant application.

### 6.19.4 SEALANT TYPES:

i) Use specific types referred to in the Component schedule or equivalent, and which meet the conditions of this Specification.

ii) Select sealant that is suitable for the purpose and recommended for the purpose by the manufacturer, compatible with substrates and adjacent materials with which they may come into contact.

iii) Do not use wet applied sealants unless indicated in the Contract Drawings or Specification, or otherwise agreed with the Architect.

iv) Do not use sealants which will stain or bleed into surrounding materials.

v) Manufacturers and applicators to operate an approved ISO 9000 series quality system.

6.19.5 SUITABILITY OF JOINTS: Before commencing, check that:

i) Joint dimensions are within limits specified for the sealant

ii) Surfaces are smooth and undamaged

iii) Preparatory work which must be done before assembly of the joint has been carried out.

iv) Inform employer if joints are not suitable to receive sealant and submit proposals for rectification.

6.19.6 PREPARING JOINTS:

i) Remove all temporary coatings, tapes, loosely adhering material, dust, oil, grease and other contaminants which may affect bond.

ii) Backing strip, bond breaker, primer: Types recommended for the purpose by sealant manufacturer.

iii) Insert backing strips and/or bond breaker tape into joint leaving no gaps.

iv) Cover adjacent surfaces with masking tape to prevent staining and protect surfaces which would be difficult to clean if smeared with primer or sealant.

6.19.7 APPLYING SEALANTS:

i) Use only materials stored under appropriate conditions, in labeled containers bearing the batch number and date of manufacture. Do not use beyond shelf life expiry date.

ii) Apply in accordance with the manufacturers' written preparatory instructions and the Code of Practice of the British Adhesives and Sealant Association Manual of Good Practice.

iii) Ensure that operatives observe manufacturers and statutory requirements for safe

storage, handling, usage and disposal of sealants.

iv) Use equipment and methods recommended by sealant manufacturer and apply within the recommended application life of primer and sealant, and the recommended air and substrate temperature ranges.

v) Do not apply to damp surfaces (unless recommended otherwise), to surfaces affected by ice or snow or during inclement weather. Do not heat joints to dry them or raise the temperature.

vi) Fill joints completely, leaving no gaps, excluding all air and ensuring firm adhesion of sealant to required joint surfaces. Tool the sealant to a neat, slightly concave profile unless specified otherwise.

6.19.8 SUSTAINABLE CERTIFICATION SPECIFICATIONS FOR SEALANTS: Specification of all sealants and sealant primers inside the building must comply with the following low volatile organic compound (VOC) levels:

| **Architectural Applications** | **VOC Limit (g/L less water)** | **Architectural Applications** | **VOC Limit (g/L less water)** |
|---|---|---|---|
| Clear wood finishes, varishing, sanding | 275 | Clear brushing lacquer | 275 |
| Concrete-curing | 100 | Dry fog coatings | 150 |
| Fire retardant coatings Clear | 650 | Fire retardant coatings Pigmented | 650 |
| Floor coatings | 100 | Graphic Art (sign) coatings | 500 |
| Japanese/Faux Finishing coatings | 350 | Magnetite cement coatings | 450 |
| Mastic coating | 300 | Metallic pigmented coatings | 500 |
| Multi-colored coatings | 250 | Non-flat coatings | 50 |
| Non-flat High Gloss | 50 | Pigmented lacquer | 275 |
| Pre-treated wash primer | 420 | Quick-dryenamels | 50 |
| Primer, sealer and undercoats | 100 | Quick-dry primer, sealer and undercoats | 100 |
| Recycled coatings | 250 | Specialty Primers | 100 |
| Waterproofing sealers | 100 | Non-porous | 250 |
| Porous | 775 | Other | 750 |

6.19.9 COMPLETION

6.19.10 TESTING: Test where recommended to do so by manufacturers to assess the extent of sealant cure and/or adhesion to joint surfaces.

6.19.11 PROTECTION: Protect until cured, avoiding any damage from other activities or conditions on site.

END OF SECTION

## 6.20 LIQUID APPLIED TANKING / DAMP PROOF MEMBRANES

### 6.20.1 GENERAL REQUIREMENTS

i) This specification is to be read in conjunction with all contract documentation and in particular:

ii) Series 12 Floor Finish Plans.

iii) Raised Floor Specification as provided.

iv) The scope of this package is as the design drawings

v) The Trade Contractor is to visit site at tender stage to familiarize themselves with the building and to raise any issues at tender stage.

vi) All products are to be installed in strict accordance with the manufacturer's instructions. The manufacturer is to visit site to confirm this and proof of this is to be provided by the Trade Contractor.

vii) The trade contractor is to make allowance for everything within the Liquid Applied Tanking package which using their past experience could 'reasonably' be expected to have been foreseen.

viii) The trade contractor is to liaise with all other relevant trades to ensure the suitability of the waterproofing/tanking interfacing with their works.

ix) Where raised floor pedestals are mechanically fixed through the tanking in areas such as IT rooms, the trade contractor is to allow for revisiting and making good.

x) Apply water proof membrane 1000mm AFF before tiling works are carried out. Allow sufficient for drying, testing and inspection before tiling works are carried out.

### 6.20.2 PRODUCTS

### 6.20.3 COLD APPLIED DAMP PROOFING

Substrate : Screed/Concrete Slab

- Location: New Server and Hub Rooms

Primer : As recommended by the coating manufacturer

Coating: Modified epoxide coating.

- Manufacturer : RIW Limited or similar local approved manufacturer

, Arc House, Terrace Road South, Binfield, RG42 4PZ.

Tel: 01344 397777 Fax : 01344 862010

Product reference: Toughseal. Number

of coats : Two ( 2 )

Coverage per coat (minimum) : 4m² / litre.
Reinforcement: RIW Flexiseal, in accordance with manufacturer's recommendations.
Blinding : As recommended by the coating manufacturer
Other requirements: 75 x 50mm high ms perimeter angle bund bedded in sealant compatible with tanking and mechanically fixed to slab.
Flood test to depth of bund for 60 minutes. Report test results to CA.

6.20.4 SUITABILITY OF SUBSTRATE

i. Substrates generally :
   1. Smooth, even textured, clean, and dry and frost free.
   2. Within tolerances for level and surface regularity.
   3. Vertical and horizontal surfaces: Correctly prepared and free from irregularities.

ii. Moisture content and stability of substrate: Must not impair integrity of finished tanking / damp proofing.

iii. Preliminary work : Complete including :
   1. Chases.
   2. External angles.
   3. Formation of upstands and kerbs.
   4. Movement joints.
   5. Penetrations / Outlets.

6.20.5 PRIMERS

Application: Uniform, continuous coverage.

6.20.6 COATING APPLICATIONS

i. Adjacent surfaces exposed to view in finished work: Protect.

ii. Coatings :

iii. Apply in dry atmospheric conditions.

iv. Uniform, continuous coverage. Do not allow to pool in hollows.

v. Firmly adhered to substrate and free from imperfections.

vi. Prevent damage to finished coatings.

vii. Penetrations: Impervious.

viii. Final covering: Apply as soon as possible after coating has hardened.

6.20.7 COLD APPLIED COATINGS

i) Thinning: Not permitted unless recommended by manufacturer.

ii) Successive coats :

iii) Allow to dry before applying next.

iv) Apply at right angles to previous.

6.20.8 MODIFIED COATINGS

i) Air and surface temperatures: Do not apply if below minimum recommended by coating manufacturer.

ii) Curing: Keep dry until fully cured.

6.20.9 REINFORCEMENT

i) Laying: As recommended by coating manufacturer.

ii) Edge overlap (minimum): As recommended by coating manufacturer

iii) Finish: Smooth and free from imperfections.

6.20.10 JUNCTIONS WITH DPC's

i) DPC's: Clean, all edges fully exposed.

ii) Coverage: Fully coat dpc, and overlap adjacent surfaces by 75mm minimum.

6.20.11 COMPLETION

6.20.12 PROTECTION OF COATINGS

i) Surface: Clean and free from contaminants.
ii) Protect from site traffic until raised floor installed.

END OF SECTION

## 6.21 RAISED FLOOR

### 6.21.1 Performance Requirements

The completed raised floor construction shall give a faultless monolithic appearance, which is rigid, free from vibration, creep and squeaking, where all floor panels are flush and identically square to ensure a panel to panel fit. When installed, the panel edge shall not be visible.

Floor panels shall be capable of independent removal and relocation without affecting the stability, strength or rigidity of the entire assembly, or adjustment of the supporting structure.

Ensure that the installation of any floor mounted elements such as junction boxes, outlets and air grilles are flush with the raised floor finished level.

The finished floor and / or clear under floor height of particular areas shall be as nominated on the drawings.

### 6.21.2 Technical Requirements

High load areas identified in the drawings or where large items such as compactus units are located, allow strengthening of the standard raised floor installation to the entire high load zone and extending one metre around the extent of the high load item by providing:

a. a grid of proprietary stringers screw-fixed between supporting pedestal heads; or
b. additional pedestals at all mid-points of adjoining panel edges; or
c. additional support framing to loading requirements.

### 6.21.3 Assembly Components

All pedestals and stringers shall be galvanised steel and located under the corner of each floor panel. Pedestals shall incorporate sound dampening pads and provide a means of height adjustment of ±100mm from the designated height.

Floor panels shall be edge protected high-density fibre-reinforced solid calcium sulphate, with either a pre-finished galvanised steel top sheet, or a high-pressure plastic laminate, as identified in the documents.

Floor panels shall be 600 x 600mm, with an overall minimum thickness of 30mm and a maximum weight of 18kg each or as per given specification. They shall be capable of carrying a point load of 300kg without failure, and a deflection of not greater than 2mm.

If required, permanently mark the floor panels with recommended lifting locations.

6.21.4 Installation

Prior to installation, submit a method statement with all manufacturer's published product specifications and installation procedures for approval by the Supervising Consultant.

Installation shall be by a manufacturer-registered installer.

Vacuum the sub-floor prior to installing the floor panels. Give sufficient notice so that the Supervising Consultant can inspect the installed pedestals (and stringers), together with any installed sub-floor service, prior to the installation of any floor panels.

6.21.5 Prototypes and Samples

Provide a 4.2 metre square prototype of the raised floor assembly, with samples of all configurations and finishes specified.

Approved prototypes in appropriate locations may form part of the completed installation subject to positioning, levelling etc; otherwise remove all traces from the Works.

6.21.6 Warranty

Submit a 10-year warranty on the entire assembly, including installation, parts. The warranty is to include cost of labour for any works required under it.

6.21.7 Special Area Assemblies

Where the floor cavity will serve as an air-conditioning plenum space pressurised by floor mounted air-handling units as identified on the drawings, the Main Contractor shall provide and incorporate floor mounted proprietary air grilles with volume control dampers within the flooring system.

6.21.8 Penetrations and Service Outlets

Where indicated on the drawings or as required, allow for all cored penetrations or edge cutouts for services generally. Provide secondary support to the modified floor panel to maintain the rigidity of the panel where required.

Where nominated on the electrical drawings, provide and co-ordinate cutouts to the floor panels to accept flush mounted service outlet boxes that provide electrical, data and telephone service outlets.

Provide labels to the visible surface of the floor panels, identifying major services beneath and their direction.

6.21.9 Ramps and Steps

Ramps and steps shall transition between different floor levels as indicated on the drawings. Ramps shall be constructed at a minimum gradient of 1:12. Provide proprietary stair-nosing protection at each step.

Surface finishes including risers shall be as indicated, or with a non-slip rubber finish where the raised floor finish is high-pressure laminate or as specified / shown on the drawings.

6.21.10 Maintenance Manual and Spares

On completion, submit bound recommendations for the care and maintenance of the raised floor system, and instructions for the following:

a. Panel removal and replacement, including recommendations on the number and method / pattern of panels that can be temporarily removed during services without compromising the stability of the assembly;

b. Limitations on height adjustability;

c. Installed mass of the assembly per square metre, and the maximum loading permissible;

d. Recommended method of cleaning of the floor, including references to adhesives and panel substrate, wet mopping and floor polishes.

Hand-over to the client at practical completion, spare pedestals, stringers and new floor panels of each nominated finish and type, equivalent to 2.0% of the total installation, together with 2 proprietary panel-lifting devices, which incorporate an ergonomic handle and minimum 2 rubber suction cups.

END OF SECTION

## 6.22 Timber Flooring

### 6.22.1 General

i) The Timber flooring to be installed is to be in accordance with the details on Tender Drawing set.

ii) The sub floor is to be completely clean and dry before laying. Raised floor tile (where it is applicable) shall be checked and ensure it is rigid, free from vibration, creep and squeaking and all floor panels are flush and identically square to ensure a panel to panel fit.

iii) Minimum 12mm plywood shall be installed and ensure all are levelled before receiving the timber floor.

iv) Timber floor is to be installed as per manufacturer guidelines.

### 6.22.2 Scope of Works

i) Refer to the Drawings for details of required Timber floor works.

ii) The Main Contractor shall check on site and allow for any making good work to existing floor for timber floor in tendering.

END OF SECTION