

SECTION F**SYSTEM FURNITURE AND FITTINGS****1.0 General**

- 1.1 The proposed system furniture should help to create a pleasant and flexible working environment. It should facilitate and accommodate changes to allow for effective usage of space. The proposed furniture should be flexible and come with mobile components to cater for setting up of temporary work settings.
- 1.2 The furniture shall be of the sizes, materials and finishes shown on drawings. Any deviations must be highlighted and the Designer/Client reserved the right to request for modifications.
- 1.3 All furniture shall be of sturdy construction with fine engineering details and be inherently stable against tipping. All fittings and furniture components shall be made for ease of storage, assemble and re-erection without affecting its performance. It shall be durable, easy to clean and maintain with replaceable parts.
- 1.4 All components shall be designed for removal and re-positioning. It is necessary for all components to be designed for interchangeability and reversibility without the need to consider lefts and rights, ups and downs, in order to reduce down time during alterations and minimize the cost of inventory.
- 1.5 All furniture shall be of good quality and finishes and be designed with rounded corners or edges without projections to prevent catch on clothing.
- 1.6 All metal brackets and hardware items shall be finished with epoxy paint or any other equivalent finishes to protect against corrosion, wear and etc.
- 1.7 All drawers and doors are to come with recessed pulls of superior quality finish, and are to be provided with locks with key-alike locking system per workstation (with minimum 1,500 combinations). 3 keys shall be provided for each and every lock. All keys shall be properly labeled and systematically handed to the Employer on completion of the Contract Works. All movable parts of drawers are to have resilient plastic bumpers to prevent metal-to-metal contact and ensure quiet operation.
- 1.8 Product components and spare parts of old and new system shall be of modular concept and must be readily available. The Contractor is to give a guarantee for the availability of spare parts and components for five (5) years after completion of Contract.
- 1.9 A product guarantee shall be provided for 10 years from completion of the contract to safeguard against the following:
- a) Faulty components
 - b) Paint cracking, peeling and etc.
 - c) Plastic laminate/veneer de-lamination
 - d) Fabric durability and colour fastness
 - e) Rust.
 - f) Structural failure of panel
- 1.10 All metal surfaces shall be treated against rust and have epoxy coated finish or other equivalent finish.

- 1.11 Plastic laminate shall be high-pressure factory applied and shall be resistant to scratch, impact, moisture damp, chemical and cigarette scorching, matt finished, and of colour selected by Designer. Minimum thickness shall be 0.8mm unless otherwise specified; the veneer finish shall be as specified with solid wood trimming, stained to Designer's approval and finished with copolymer liquid plastic dressings.

2.0 Panels

- 2.1 All panels shall have acoustical properties, be light in design but rigid. All panels shall be finished in fire retardant fabric. All panels must not support combustion or contain toxic materials.
- 2.2 The panel's structure and the panel pads shall be constructed of minimum 0.8mm thick or 2mm thick extruded aluminium to ensure system rigidity and durability. Panels shall have steel supporting framework (minimum 16 gauge) with epoxy coated metal top cap and edge trims. All edges shall be rounded and the panel system is to be provided complete with all fixing accessories, cover strips, adjustable feet etc.
- 2.3 Panels shall be based on a **tile concept** (Horizontal Module), i.e. constructed of a frame with components that allow for a wide degree of material selections. The surfaces, referred as the panel pads, (or tiles) shall be able to achieve **wide choices of finishes**, e.g. whiteboard, glass and polycarbonate tiles. It shall also allow for easy future replacement of finishes and meet the functional needs required in all systems furniture, e.g. Wire management.
- 2.4 Panel frame shall be **45 to 75mm** thick and pads of minimum 20-25mm thick. It shall be available in various heights. The Contractor shall comply with the minimum height specified. As the height of panels varies with each system, alternatives submitted must be higher than the minimum height specified. Special panel such as glazed panels shall be available.
- 2.5 A logical progression in panel width to permit maximum flexibility shall be incorporated in the design. The panel width shall range between 450mm to 1500mm.
- 2.6 Panels shall be **stackable** to make it possible to **increase or decrease** the height without dismantling workstations. The panels must be able to **stack** up to 3 meters high should there be necessity to lay cables from ceiling Level.
- 2.7 All panels must not support combustion or contain toxic materials. Minimum overall without rating must comply with the following or equivalent:
- a) Fire rating of Class A/Class 1 for the entire panel
 - b) The fabric shall pass colour fastness test of BS 1006:1971 and BS 2681
- Test reports from a recognize laboratory, satisfying the above requirements shall be submitted by the Contractor.
- 2.8 Unless otherwise specified, panels shall be finished in fabric. Panels finished with fabric shall be **tackable** and readily upholstered before delivery to site. Fabric shall be available in a wide range of patterns and colour.
- 2.9 The panel system proposed shall allow easy cleaning and maintenance. All panels must be easily clean by spot remover. Panel surface shall be resistant to chemical, e.g. hair grease.

- 2.10 The connections of panel modules shall be flexible, allowing a variety of Cross and T-Joints. The panels shall also be designed to take work components and storage on either or both faces of the modules.
- 2.11 The panels shall be provided with adjustable leveling glides.
- 2.12 Panels shall be structurally designed to support a variety of mounted storage, work surfaces and supplementary components without specific attachment points for flexibility in the repositioning of such units. When fully loaded, it shall not affect the integrity and stability of the panels. Such hanging slots shall be connected and provided with safety catches to prevent unintended pull/fall out. **Off module** hanging capability for overhead storage is a must to allow for flexible re-use of overhead storage during re-configuration works.
- 2.13 Panel systems should include **concealed wire management** capabilities and must meet relevant authorities' requirements. The components shall be engineered for responsive and fail-safe operations. Panel shall have concealed wire management system consist of the following:
- a) At least 2 compartments for electrical, data and telephone cables
 - b) Fiber optic pass-through capability
 - c) Plug-in (power, data and telephone outlet) capability at work surface height
 - d) Storage for excess wiring in the panels
 - e) Access to future maintenance and additional of power/data/phone point to the panels without the need to dismantle the work surface
- 2.14 Panels system shall include integrated concealed wire management capabilities by means of **mid-raceway** located above the **work surface** height. The system shall enable wide degree of flexibility for laying of cables. Raceway covers shall be easily removable and replaceable.
- 2.15 Cable ducts shall be free from sharp edges and have neatly designed removable cover to allow easy installation of wiring. Cover shall be easily snapped into place. All cable ducts shall have releasable cable ties.
- 2.16 The Contractor's tender sum shall be deemed to include the panel's hardware, connectors, end pieces and all other associated and necessary accessories.

3.0 Work surfaces/Tables

- 3.1 Tables could be free standing or with the capability of hanging on to panel system. They shall be sturdy and rigid against vibration and capable of supporting heavy electronic equipment.
- 3.2 All work surface cantilever support brackets should be made possible for cantilever work surfaces to be flushed with each other. It shall be reversible and capable of being install on either side of a panel without the need for extra components.
- 3.3 The dimensions of all work surfaces shall be standardized for interchangeability. The working height shall be adjustable to a comfortable height suitable for local standards (720mm height).
- 3.4 Plastic laminate or approved equivalent finish shall be used on all work surfaces unless otherwise specified. Rounded corners and radius edges shall be provided for safety.

- 3.5 The work surface shall be finished with minimum **0.8mm** thick high-pressure textured laminate **post-formed** at the exposed edges or with hard vinyl edges. The work surface shall be minimum 30mm thick heavy density chipboard or 25mm plywood or equivalent. It must be properly supported to ensure no deflection under a loading of 180 kg. Work surfaces more than width 1200mm shall have **steel reinforcement** below the work surface.
- 3.6 Where freestanding desk is specified, it shall be designed with housing for concealed wires both vertically and horizontally.
- 3.7 All freestanding desks and desk without a panel in front shall have a modesty panel. The panel sides and modesty panels shall have the option to be finished in epoxy powder coated metal sheet or in plastic laminates.
- 3.8 All freestanding desks shall be capable of being mounted on either side of the panel without differentiating left and right.
- 3.9 All detachable tables shall have caster-mounted elements that enable the contemporary office to meet new and non-permanent work settings.
- 3.10 All work surfaces shall be provided with at least 1 wire access openings. The opening shall be sealed with removable cover. The cover finishes shall match with the surfaces of the desktop. Wire management clips or other approved means shall be provided below each work surface to manage/conceal wires.
- 3.11 The work surface shall support electronic equipment of weight up to 56kg of width range of 572mm to 930mm, depth range of 343mm to 661mm and height range of 154mm to 496mm.

4.0 Storage units

- 4.1 Overhead storage units to have tip-up door with heavy-duty good quality hinge and track. It shall be able to accommodate the file size document with internal clearance of minimum 350mm.
- 4.2 All hanging storage must meet the testing requirements of ANSI/BIFMA X5.5 and X5.6. :
 - a) Static Load Test
 - b) Static Load Test for Storage Shelves
 - c) Dislodgment Test for Panel Mounted Components

Test reports from a recognized laboratory, satisfying the above requirements shall be submitted by the Contractor.

- 4.3 All suspended components are to come complete with all necessary brackets. Mounting brackets are to be easily latched and unlatched to reposition the suspended units up and down the panel. Each suspended unit is to have a safety catch or other approved means to prevent it from being accidentally dislodged.
- 4.4 Table top storage units shall be freestanding and/or mounted to panels as indicated on the drawings.
- 4.5 Table top storage compartment shall have sliding perforated doors in approved material with guides and nylon channel.

- 4.6 Freestanding storage units with shutter doors shall come with adjustable shelves and leveling guides on base accessible from interior of base.
- 4.7 Open shelves storage units under worktop shall come with shelves in adjustable height and leveling guides accessible from interior of base.
- 4.8 For the steel storage units, they shall come with epoxy coat finish or any other equivalent finishes. For storage cabinet in high-density compressed chipboard or plywood, it shall come with minimum 0.8mm thick plastic laminate finishes.

5.0 Pedestals/Drawers

- 5.1 All pedestals/drawers shall be fully stable under loading and shall pass load test of 30 pounds per drawer at fully extended position. An anti-tilt device shall be incorporated.
- 5.2 All pedestals shall have counter weight base to prevent tipping over when all drawers are fully extended.
- 5.3 All drawers pull shall be rounded and of full length and good quality finish and design.
- 5.4 Independent convenience drawers, lateral drawers, file drawers, etc., where provided, shall slide one below the other and shall be designed for instant installation and repositioning.
- 5.5 The drawers shall be provided with safety catches to safeguard against unintended pull out.
- 5.6 Drawers shall be fitted with anti-slamming devices.
- 5.7 The interior of lateral file drawers shall be provided with adjustable dividers or supports for hanging file folders.
- 5.8 All pedestal/drawers shall be equipped with locks and key-alike systems.
- 5.9 Each standard specified pedestal shall come with combination of 1 drawer with a stationery tray, 1 normal drawer and 1 lateral filing drawer.

6.0 Accessories Rail & In/Out Tray

In/Out trays shall be robust tinted perspex stackable trays with rounded edges. Trays shall come in a set of 2 complete with risers and signage for “IN” & “OUT”. Each tray size shall be 250 x 350 x 55mm to accommodate A4 size folders. Trays may be in metal with epoxy paint finished supported on accessories rail of system panels.

7.0 Signage / Nameplates

Officer name and designation signage attached to panel or doors shall be provided. The signage system shall allow flexibility in changing character or provide software in printing the character. For mounting method, no screws or velco or double-sided tape shall be used at system panels.

Nameplates shall come in matching metal finishes similar to the proposed system panel. Size of signage shall be approximate 58mm ht x 250mm width complete with computer printing insert, Transparent Len cover and end-cap hook on to system panel.

8.0 Electrical & Telecommunication Services

- 8.1 Proposed system furniture shall come with a minimum of 2 compartment cable ducts for the running cables by others. Electrical and computer data and voice cables must be laid in segregated manner as required by the relevant Authorities and Singapore Code of Practices.
- 8.2 All raceway integrated with the panel shall include a channel with compartments for accommodating power, data and telephone cables individually. Metal dividers to prevent interference must separate the cables. The channel complete with metal dividers forming the compartments shall be an integral part of the furniture system and the raceway design. The sockets can be face mounted or concealed in the raceway.
- 8.3 The Vendor shall provide for suitable openings on the workstations for the running of data/voice cables and wire (by others) from the floor service boxes or wall to the computer equipment and telephone on the workstation. All cables must be able to fed through the side or base of the system panel and branched off in various directions as may required. Provision shall also be made for future adding of cables.
- 8.4 The Vendor shall provide for suitable openings on the workstations for the running of data/voice cables and wire (by others) from the floor service boxes or wall to the computer equipment and telephone on the workstation. All cables must be able to fed through the side or base of the system panel and branched off in various directions as may required. Provision shall also be made for future adding of cables.
- 8.5 The Vendor must show capabilities to solve all cable management issues by means of extra components added on both panel and work surface (eg. Adding service outlet box, etc)
- 8.6 In-addition to the work surface specifications, tenderer are encourage to proposed additional innovative cable management capability with reference to the following:
- a) A continuous flip up raceway along the end of worktop to allow for power/data/ telephone points to be located any where along the end of worktop.
 - b) The points are mounted on brackets and cantilevered on rail inside the raceway that can be adjustable in height. The height adjustable sockets will allow for multi-purpose adapter to be plug into the socket without causing obstruction to raceway for closing.
 - c) The rail inside will allowed for sockets to glide along the worktop and thus, cater for individual user needs to work at any positions.
 - d) Additional electrical/data/telephone points can be easily added.
 - e) Raceway will come with integrated cable tray to allow for easy cabling.
- 8.7 The Vendor shall be deemed to have allowed for all attendant costs in his tender.

9.0 After Sales Support

Tenders shall indicate the types of after sales support services:

- a) Turnaround time for purchase of replacement and/or new items
- b) Warranty period for all the elements (if applicable); and
- c) Other forms of after sales support services

10.0 Compliance with Specification

The Contractor shall list down the items/components/materials, which do not comply with the Specification and indicate the degree of non-compliance in the table provided in Appendix 1 –Compliance Check Form. For items/components materials not listed in the table, the Contractor shall be deemed to have complied fully with the Specification.

Compliance Check Form

Appendix 1

1. Work Surface/Table

Sno.	Description	Compliance	Remarks
1.1	Dimensions comply with specs	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.2	Materials made of Compressed Chipboard or equivalent (please Specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.3	Top surface in High Pressure Laminate Finish or equivalent (min. 0.8mm thick)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.4	Hot Melt PVC Machine edging of minimum 3mm	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.5	Table base in metal finish or others (please specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.6	Additional structural reinforced beams below work surface	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.7	Height adjustable table top	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.8	Table base has wire management capabilities	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.9	Any test conducted by independent party (please specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

2. System Panel

Sno.	Description	Compliance	Remarks
2.1	Dimensions. 45 to 75mm thick	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.2	Panel is inter-changeable (Glass, polycarbonate, fabric pads or whiteboard)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.3	Easily removable Fabric Pad without using tools	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.4	Fabric Pad are made of metal and tackable	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.5	Fabric tiles in Fire rating Class A fabric (minimum)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.6	Panels are stackable up to 1.8m high	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.7	Fabric Pads can be changed without dismantling worktop	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.8	Passed Panel Stability, mechanical strength Test and component static load test (please specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

3. Wire Management

Sno.	Description	Compliance	Remarks
3.1	Power raceway above worktop	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.2	'Lay-in' cabling bottom raceway	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.3	Non conductive material wire guides in power raceway	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.4	Power raceway with minimum 2 cable ducts	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.5	Power sockets can be mounted on panel surface above worktop	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.6	Any other innovative cable management system. (please specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

4. Storage Units

Sno.	Description	Compliance	Remarks
4.1	Dimensions comply with specs	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.2	Cabinet carcass in high density compress chipboard or plywood	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.3	Cabinet door comply design specs. (eg. Sliding door, shutter door, perforated door)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.4	Cabinet Lock comes with foldable keys	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.5	Doors with anti-slam mechanism	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.6	Meet any test standards (please specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

5. Pedestal

Sno.	Description	Compliance	Remarks
5.1	Dimensions comply with specs	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.2	Made of high density board with plastic laminate finish	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.3	2 drawer and 1 lateral filing drawer	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.4	Stationary tray provided	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.5	Adjustable dividers or support for hanging file folders at box drawer	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.6	Foolscap & A4 hanging file folders can be used without extra accessories	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.7	Cabinet Lock comes with foldable keys	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.8	Meet any test standards (please specify)	<input type="checkbox"/> Yes <input type="checkbox"/> No	

LOOSE FURNITURE AND FITTINGS**1.0 SOFAS & COFFEE TABLE**

- 1.1 All sofas & coffee table shall be specified herein and in relevant clauses with the General specifications for this tender.
- 1.2 The Contractor shall submit mock up samples of all sofa & coffee table for Employer/ Project Manager/ Designer's approval. Contractor shall comply with all relevant comments by Employer/Project Manager/Designer and alter the chair to suit the Employer's needs.
- 1.3 All carcasses for sofa and cushion bench shall be made of chemical treated solid wood or plywood with a high elasticity belt webbing base covered by a layer of black non-woven cover. Internal of seat and backrest shall be shaped with non-deformable polyurethane foam of various densities but not lower than 30 and a minimum of 2" thick polyester wadding sheets.
- 1.4 Sofa with specified curve shape formwork shall come with plywood carcass bend to form the desired shapes. Internal of seat and backrest shall come with a layer of non-deformable polyurethane foam sculptured to the contour of plywood base and a minimum 2" thick polyester wadding sheets.
- 1.5 All sofas and benches shall be finished in selected fabric or vinyl leather finishes.
- 1.6 Exposed solid wood base for sofa shall be stained to designer's specification. Designer's castor wheels in specified colour shall also withstand a weight of 100 kg each. Other exposed stainless steel component shall come in selected finishes for both base and framework
- 1.7 Coffee Tables and side table shall come with stainless steel framework bent and formed to desire shape. A minimum of 8mm thk tempered glass top with specified tinted colour tones shall be provided for all tops.

2.0 BAR STOOL, HIGH TABLE & CHAIRS

- 2.1 All bar stool shall come in matt, textured polypropylene seat, stainless steel drum base with height adjustable gas lift.
- 2.2 All high table shall come in matt, textured, polypropylene top, stainless steel drum base with height adjustable gas lift.
- 2.3 Bar stool & high table shall come in a wide range of colour selection for Employer/ Project manager/ Designer selection.

3.0 COMPACTUS

- 3.1 All mechanical compactus shall be made of steel with epoxy powder coating or equivalent finishes. Rail shall come in 25mm concrete steel with 0.8mm stainless steel sheet coating. Roller wheels shall be made of iron die casting with anti-rust zine coating.
- 3.2 Each set of compactus shall come with central locking system with options of safety locking devise for each individual mobile bay (To prevent accidentally crushing of users). Contractor shall allow for a minimum of 700mm to maximum of 1000mm aisle clearance for each set of compactus.

- 3.3 Each single bay shall come with a minimum size of 900W x 450D x 2150H. Double bay shall come with a minimum size of 900W x 650D x 2150H. Each bay shall come with a minimum of 5 adjustable shelves with options for holding arch files, paper files or lateral filing pockets. Each bay shall come with the options of providing additional swing door with individual lock, for double bay unit, a separator shall be added to separate both back to back bays.
- 3.4 Contractor shall survey each individual site of compactus before construction and ensure all units are mark on floor with minimum walkway and aisle clearance of 700mm. Approval by Project Manager/Designer must be given before ordering of material.

4.0 MEETING / DISCUSSION TABLES

- 4.1 All tables shall be free-standing with steel supporting base complete with steel frame work, adjustable leveling guides, wire management system and cable trays under work surface.
- 4.2 All work surfaces shall finish with minimum 0.8mm thick high pressure plastic laminate or other equivalent finishes, round corners and radius edges shall be provided for safety. The work surface shall be minimum 30mm thick heavy density chipboard or 25mm plywood or equivalent. It must support to ensure no deflection under a loading of 180kg.
- 4.3 All metal surface shall be treated against rust and have epoxy powder coat finish or other equivalent finishes.
- 4.4 All meeting and discussion tables shall come with minimum 1 no of Service outlet box for 1 twin power point and 2 network points. Cable trays and wire management flexible host shall be incorporated.

5.0 METAL CABINETS

- 5.1 3-tier lateral metal filing drawers with individual drawer lock and single metal bar with pad lock. Approximately Size: 900W x 450D x 1050mm Ht
- 5.2 The metal filing drawers shall come in epoxy-coated finish or other approved finishes for steel.
- 5.3 All drawers shall be fully stable under loading and shall pass load test of 30 kg per drawer, fully extended.
- 5.4 All drawers shall be provided with catches to safeguard against unintended pull out and also be fitted with anti-slamming devise.
- 5.5 Each 3-tier filing unit shall come with individual lock per drawer linking to a master-key system of minimum 1000 combination. Additional metal bar with pad lock shall be installed to lock all 3 drawers together. 4 keys per padlock are deem to be inclusive inside the costing.

6.0 METAL RACK

- 6.1 The contractor shall allowed for approved bolt-less metal rack as per specified in construction drawings.

- 6.2 Specification of metal rack shall comply with the following minimum requirement:
- a) Each shelf shall come with Load bearing capacity plate. Load capacity plates shall show the maximum load per shelf, per bay and per sq./m (in the case of multi-tier structures) and it should be fixed in a prominent position.
 - b) Rack alignment. Once the shelving is assembled, the contractor shall align it vertically and horizontally. The perpendicular deviation should not exceed 1/200 and correspondingly the horizontal deviation should not exceed 1/300.
 - c) Rack Safety Standard - If the height of the top shelf exceeds over five times the depth of the shelving, it should be fitted with wall ties, back-to-back or overhead ties to prevent un-intended toppling.
 - d) Specialist vendor recommended by manufacturer shall carry out all installation work.
 - e) Frame load bearing capacity - The first shelf level must be fitted at no more than 200mm from the ground and the following levels at intervals not exceeding 500mm with a minimum of 5 interconnecting bays.
 - f) Shelf load bearing capacity - The contractor shall provide data for shelf load bearing capacities, the uniformly distributed load shall come with a deflection lower or equivalent of 1/200 degree of the shelf length.