

DETAILED SPECIFICATION

SECTION 12310.1

FLEXIBLE LABORATORY FURNITURE SYSTEM (Sigma Flex™)

MOTT MANUFACTURING LTD.

SIGMA SYSTEMS™

11/12/2002

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

PART 1: GENERAL

1.1 CONFORMANCE

- .1 Conform to Division 1 - General Requirements.

1.2 EXTENT OF WORK

- .1 Work consists of furnishing flexible laboratory furniture and fume hoods where specified and as shown on Laboratory Layout Drawings, Detail Drawings, Legends and Schedules.
- .2 It is intended that Work supplied under this Section shall be complete in every detail for purpose required. Include minor materials not herein specifically mentioned, but which may be found necessary to complete or perfect any portion of Work in accordance with requirements of this Specification.
- .3 Co-operate with mechanical, electrical, and other trades for installation and connections.
- .4 Drill holes and provide cut-outs in equipment deemed necessary for installation of service fittings shown on Laboratory Drawings and as required to permit passage of service lines pertaining to this Section of Work which penetrate laboratory furniture components.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- .1 The supply and installation of the laboratory furniture system shall refer to the work required in the following related Sections:
 - .1 Section 06100 Rough Carpentry
 - .2 Section 06400 Architectural Woodwork
 - .3 Section 09650 Vinyl Base
 - .4 Section 11610 Fume Hoods
 - .5 Section 15400 Plumbing
 - .6 Section 16100 Electrical

1.4 QUALIFICATIONS OF MANUFACTURERS

- .1 Work of this Section shall be fabricated by one manufacturer by skilled craftsmen in accordance with best industry practice in shop of a company specialising in Work specified.
- .2 Manufacturer shall have minimum of 5 years of continued experience, having successfully completed other laboratory projects of similar or greater magnitude.

1.5 BIDDING SAMPLE

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

- .1 Bidding samples are required for comparison, and after the Bid Closing Date, Bidders shall provide a 6-foot minimum sample unit comprising of a cross section of wall storage and base units, at no cost to the Owner. The samples shall be representative of the type of system upon which the bid is based, being typical of style, quality of work, type of finishes, and indicative of installation methods described in the Specifications.
- .2 Bidders shall be notified by the Consultant of the specific details and location for the sample to be installed.
- .3 Bidders shall provide the sample, ready for inspection, 15 working days after notification. Failure to meet this condition will disqualify the bid proposal.

1.6 STANDARD OF QUALITY

- .1 The metal furniture specified herein and Section 11610 Fume Hoods shall be based on Mott Manufacturing Sigma SystemsTM Sigma-flex. Bids shall be based on and meet or exceed the products and execution described.

1.7 ALTERNATIVES

- .1 Alternate products shall meet the intent and design criteria shown on Drawings and specified herein. Such alternatives shall be stated in Section 00300 and as further described herein:
 - .1 List of 5 projects completed in the last 5 years of comparable scope, including reference names and current phone and fax numbers.
 - .2 Summary of manufacturing facilities, location and production capacity.
 - .3 Current delivery period.
 - .4 Shop drawing completion period for project being bid.
 - .5 Proof of financial ability to successfully complete this project.
 - .6 A copy of manufacturers quality assurance program. ISO9002 Certificate preferred.
 - .7 Submit copy of warranty and any extended warranty statements.

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

1.8 SUBMITTALS

.1 Shop Drawings

- .1 Further to requirements of Section 01334, prepare and submit for review complete shop drawings showing all items to be furnished under this Contract on Auto CAD, Version 14 or later.
- .2 Shop drawings shall clearly indicate materials being supplied and finishes, connections, attachments, reinforcing, locations or exposed fastening, colors, gloss intensities and coating types by trade name.
- .3 Be responsible for checking all dimensions of Site which affect this work, and for necessary corrections to shop drawings which may arise from such Site dimensions.
- .4 Where dimensions are not available before fabrication is commenced, dimensions required shall be agreed upon between various trade Sections or manufacturers concerned.
- .5 The preparation of shop drawings, catalogue cuts, and manufactured equipment drawings shall be implemented immediately upon signing of Contract.
- .6 Submission of shop drawings for review by the Consultant, shall bear the signature of the Laboratory Subcontractor's project manager, signifying that the drawings have been thoroughly checked and are complete as required for the first submission.
- .7 Clearly indicate:
 - .1 Details of laboratory furniture and fume hoods, including bench and construction sections.
 - .2 Location of each furniture unit in plan and elevation for each assembly.
 - .3 Location for roughing-in of plumbing; including sinks, faucets, strainers, cocks and electrical services.
 - .4 Co-ordinate elevations to each related room plan. Similar or repetitious elevations shall be repeated and included with each room plan for purposes of co-ordinating electrical wire mould, service ducts, and access panels.
 - .5 Provide dimensions of bench locations from building grid lines and walls.

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

- .6 On request, provide test reports by independent testing laboratories indicating results of furniture finish, laboratory top materials, and fume hood linings.

1.9 WARRANTY

- .1 Manufacturer shall submit warranty statement with proposal.

PART 2: PRODUCTS

2.0. MODULAR SUPPORT STRUCTURE

.1 Basic Materials:

- .1 Sheet Steel: Mild steel, cold rolled furniture grade to requirements of ASTM A366/A366M-91, Grade C or higher, with smooth surfaces to furniture quality.
- .2 Galvanised Sheet Steel: Commercial quality galvanised sheet steel to ASTM 653, Designation Z275.
- .3 Stainless Steel:
 - .1 Sheet: ASTM A240, Type 304 AND 316 alloy.
 - .2 Finish: Unless otherwise indicated, AISI No. 4 Brushed finish.
- .4 Glass: Clear Float, 6 mm and 3 mm thick, conforming to CAN2 12.3-M76, Glazing Quality. Laminated Glass: CAN/CGSB-12.1-M90, Type 1 with clear PVB interlayer. Total nominal thickness of laminated glass: 6 mm.
- .5 Sealant: One component, clear silicone base sealant, chemical curing conforming to CAN/CGSB-19.18-M87, anti fungus composition. Acceptable types: "DC-786" by Dow Corning, and "Sanitary 1700" by CGE.
- .6 Resilient Base and Adhesive: Top set coved, 1/8" thick, 6" high and 4" high as indicated for base units, including premoulded end stops and external corners of color selected by Consultant from full range. Continuous lengths. Adhesive for rubber base shall be trowelled on giving 100% coverage. Use an adhesive compatible with both surfaces, as recommended by the base manufacturer.
- .2 Design Requirements:
 - .1 Support systems shall be a core and panel style support structure

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

- .2 Core structure can be supported by anchoring to suitable flooring material or may be supported by structural tables legs (outrigger legs).
- .3 Modular components shall be suitable for single faced wall cores or double faced peninsula or island configuration.
- .4 Core assemblies shall have removable panels on all sides.
- .3 Required System Features:
 - .1 Core or wall system shall support work surfaces, under counter cabinets and overhead storage components.
 - .2 Structural core systems may be configured for floor anchor alone or additional support legs may be used if floor is not of sufficient strength for cantilever support.
 - .3 Core system allows plumbing, electrical and other services to be installed using commonly available mounting systems.
 - .4 Suspended cabinets shall be supported using hook shaped rails attached near the front and rear of the cabinets. It shall be possible to remove and relocate a fully loaded cabinet to any position between legs.
 - .5 All access panels shall be fastened with positive friction catch which snap into place. Panel attachment system shall not rely on adhesives. Panels shall be half width and it shall be possible to remove panels without removing suspended cabinets.
 - .6 Upper storage cabinets shall be adjustable vertically and laterally and shall be removable.
 - .7 It shall be possible to remove and relocate suspended cabinets without disturbing the countertop.
 - .8 Vertical height of table work surfaces, upper storage units and shelves can be adjusted in one inch increments without the use of special tools.

2.1. STEEL CANTILEVER TABLE FRAME

- .1 Basic Materials: As per section 2.0
- .2 Required System Features
 - .1 Nominal table frame dimensions:
Width: 24", 36", 48", 60", 72"

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

Depth: 23", 29"

Height: 22"

- .2 Capable of vertical height adjustments in 1" increments.
- .3 Bracket shall engage upright with 5 hooks.
- .4 Levelling Bolt: Bracket shall be fitted with a levelling bolt which will allow the bracket angle to be adjusted for proper alignment of work surface front edge.
- .5 Table frame shall provide channels from which suspended cabinets may be hung.
- .6 Table frame shall be at minimum 4" wider than cabinets installed to allow clearance for table end brackets.
- .7 Load Capacity: Table frame shall support the work surface plus 600 pounds total load.

2.2. STRUCTURAL TABLE BASE

- .1 Basic Materials: As per section 2.0
- .2 Required features:
 - .1 Nominal base frame dimensions:
Width: 24",36",48",60",72"
Depth: 23", 29"
Height: 30", 36"
 - .2 Used to attach to core and upright to provide support legs.
 - .3 Structural table frame shall provide channels from which suspended cabinets may be hung
 - .4 Weight Capacity: Work Surface plus 600 pounds

2.3. CORE SUPPORT STRUCTURES

- .1 Basic Materials: As per section 2.0
- .2 Riser Uprights: 16 Ga wipe coat galvanised steel (painted). Upright shall have slot system allowing for components to be adjusted in one inch increments.
- .3 Upright connecting members 16 Ga wipe coat galvanised steel

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

- .4 Base Cover: 18 Gage cold rolled steel
- .5 Riser cap: PVC, ABS or cold rolled steel.
- .6 Closure panels: 18 Gage cold rolled steel. Removable panels shall be fastened with positive friction catch. Attachment method shall not rely on adhesives of any kind.
- .7 Floor Mounting Brackets: Two per core assembly. 3" x 2" x 1/4" thick Structural steel angle complete with levelling bolts and mounting holes.

2.4. ISLAND CORE ASSEMBLIES

- .1 Basic Materials: as per section 2.0
- .2 Nominal Dimensions:
 - Width: 24", 36", 48", 60", 72"
 - Depth: 12"
 - Height: 36", 47", 85"
- .3 Floor Mounting Brackets: Two per core assembly. Structural steel angle complete with levelling bolts and mounting holes.
- .4 Core assembly shall be available with removable uprights (36" and 47" height) or as a full height assembly.
- .5 It shall be possible to add upper portion of upright after installation (36" and 47" height)
- .6 When anchored to a suitable strength floor, core assembly shall be capable of supporting worst case load conditions without the use of outrigger legs.
- .7 All hanging components attached to vertical uprights shall be adjustable in 1" increments.
- .8 Closure panels shall snap on without tools and shall be removable without disturbing work surface or suspended cabinets.
- .9 Installed 85" high core shall support the following components, each loaded to its maximum rating for a total of 2820 lbs.
 - .1 Inside and outside shelves - 6", 8", 12" - 180 lbs.; 18" - 130 Lbs.; 24" - 100 lbs.
 - .2 Wall cases - 300 Lbs
 - .3 Two cantilever work surfaces - 600 Lbs each

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

- .4 Two cantilever work surfaces, each loaded with 400 lbs; or two structural table bases, each loaded with 600 Lbs.

2.5 MOBILE INSTRUMENT CARTS

- .1 Basic Materials: as per section 2.0
- .2 Nominal Dimensions:
 - Width: 24", 36", 48", 60", 72"
 - Depth: 34"
 - Height: 78"
- .3 Casters: Four per cart assembly. 4" x 1.25" wheels with grey non-marking tire. Each caster shall have a 300 pound load rating. Front two casters shall be equipped with a modern total lock (locks both wheel rotation and caster swivel). Casters shall be attached to extreme corners of the cart base by threading into welded inserts.
- .4 Cart base assembly: Cart base assembly shall be fabricated from 1.5" x 3" rectangular tube steel of 16 gage wall thickness. Base shall be welded together with neat, professional MIG weld fillets. For maximum strength, fillets shall be left unground. Mobile cart base shall be in a "C" shape with two members across the back and one member at each end. Cart base shall be open at front to allow knee space for seated users. Vertical upright attachment members of 24" in length shall be welded to each end of the "C" shaped base. All open tube ends shall be plugged with black plastic plugs.
- .5 Slotted vertical uprights shall be the same construction and hole pattern as all other furniture in the same series (Mott Manufacturing Sigma-Flex). Slotted uprights shall be bolted to vertical upright attachment members using four 5/16" socket head cap screws. Screws shall be concealed beneath snap in plugs.
- .6 All hanging components attached to vertical uprights shall be adjustable in 1" increments.
- .7 Mobile Instrument Cart shall accept all shelves, cantilevered work surfaces suspended casework and upper storage cabinets designed for other furniture in the same series (Mott Manufacturing Sigma-Flex).
- .9 Fully assembled 78" high instrument cart shall support the following components. Each component has an individual maximum load, but total load shall not exceed 1000 pounds.
 - .1 Shelves - 6", 8", 12" - 180 lbs.; 18" - 130 Lbs.; 24" - 100 lbs.

SECTION 12310.1 - SIGMA-FLEX FLEXIBLE LABORATORY FURNITURE SYSTEM

- .2 Wall cases - 300 Lbs
- .3 One cantilever work surfaces - 600 Lbs each (includes weight of work surface and suspended cabinets (if any))

2.6. SUSPENDED BASE CABINETS / WALL

- .1 Design and construction shall be as in section 12310 - Laboratory Metal Casework.
- .2 Suspended cabinets shall be supported using hook shaped rails attached near the front and rear of the cabinets. It shall be possible to remove and relocate a fully loaded cabinet to any position between legs.
- .3 Suspended wall cases: Provide a system of cold-rolled steel hanger rails attached to the casework frames, to be vertically adjustable on one inch increments. Installation and removal to be accomplished without the use of tools.

2.7 STEEL FURNITURE FINISH

- .1 Metal finish to be as in Appendix 1 - Laboratory Steel Furniture Finish.

PART 3: EXECUTION

3.1 INSTALLATION

- .1 Install casework within system, align and set level with levelling devices, in accordance with shop drawings.
- .2 At wall locations secure wall cabinets to face of finished walls and partitions, applying self-tapping screws through wall finish material into each concealed stud flange.
- .3 Install components to effect a secure, neat and complete installation.

END OF SECTION

Printed 4/26/05