Harmony Flush Overlay product line

12 35 53.13 Metal Laboratory Casework

1. General

1. Conditions

2. Scope of Work

1. This section covers all materials for the supply of laboratory furniture and all required accessories as specified below.
2. Work Includes:
   A. Steel case work.
   B. Fume hood base cabinets (if applicable).

3. References

1. **SEFA 8 M-2010** – *Recommended Practices for Metal Laboratory Grade Furniture, Casework, Shelving and Tables*.

4. Qualifications

1. These specifications are based on Bedcolab's products and shall be considered the minimum quality criteria.
2. The supplier must be a recognized laboratory furniture manufacturer with a minimum of 5 years experience in the industry.
3. The supplier shall meet all recommended practices of the Scientific Equipment & Furniture Association (SEFA).

5. Warranty

1. Bedcolab certifies that all components of the laboratory furniture included in this section are guaranteed for a period of one (1) year starting on the date of complete goods shipping.
2. Refers to Bedcolab's warranty document for complete details and limitations.

6. Product Handling

1. The manufacturer must provide proper packaging in order to ensure product integrity up to the final destination.

2. The minimum packaging requirements are as follows:

   A. Each cabinet shall be placed on a pallet suitable for forklift handling.
   B. Each pallet shall be covered with a plastic wrap.
   C. Cabinets may be stacked to a maximum of two cabinets in height. Each stacked component shall be separated with a protective separator, cardboard corners and a plastic wrapping.

2. Products

1. Materials

1. Commercial quality cold rolled steel sheets as per **ASTM A366-85, class 1**
2. Stainless steel sheets, type **304 or 316 with # 4** satin finish, per **ASTM A240, A480, A666, A262**
3. Polished glass as per **CAN/CGBS-12.3**, 3 mm (1/8”) thickness
4. Polished laminated glass as per **CAN/CGSB.12.1**, first quality, 6 mm (1/4”) total thickness
5. Polished tempered glass as per **CAN/CGSB.12.1**, first quality, 6 mm (1/4”) total thickness
6. ANSI-A208.1-2009: for mat-formed wood particle board
7. AWI Standards Edition 1, 2009: for woodwork standards
8. NEMA 3 LD – 2005: for performance requirements of high-pressure laminates
9. ANSI-A208.1-2009: for mat-formed wood particle board.

2. Painted Steel Cabinet Construction

1. The laboratory furniture shall be constructed as per Bedcolab’s *Harmony Flush Overlay Cabinet System*.
2. The minimum metal gauges used in the casework fabrication shall be as follows and as recognized by North American standards:
   A. 11 gauge (3.2 mm), for the cabinet’s top front rails
   B. 14 gauge (1.7 mm), for all leveling devices and drawer suspension tracks
   C. 20 gauge (1.0 mm), for all drawer boxes
   D. 18 gauge (1.2 mm), for all of the other cabinet’s components including cabinet frame and shelves.
3. Cabinets shall have successfully passed all required physical and chemical resistance tests as per **SEFA 8 M-2010** specifications. Manufacturer shall supply proof of test results.
4. Casework shall feature an all-welded construction. All cases shall be rigid, self-supporting and fabricated to allow individual unit relocation at any time. Screws and bolts are acceptable only if they are to be used on removable pieces.
5. All welds shall be ground smooth. Spot weld will not be noticeable.

6. Each unit shall have non-exposed top, front and bottom rails to ensure cabinet rigidity. The vertical posts and the horizontal rails must form a rigid square assembly to house the doors and drawers. The doors and drawers fitment will be such to prevent a sight line within the cabinet and to prevent dust penetration.
7. The cabinet side panels including front and back vertical rails must be formed in one piece. All front vertical posts shall be pre-punched to accommodate left or right door hinging as well as any combination of drawers, doors and shelves. In addition, front vertical rails shall be reinforced with a U-shaped channel for added strength. All rear vertical posts shall be pre-punched to receive any standard type drawer suspension tracks and shelf clips.
8. All parts and subassemblies including the doors, drawers, drawer suspension tracks, front center posts and removable back panels, shall be interchangeable in the field without the use of special tools.
9. Each corner, under the cabinet floor, shall be equipped with a 3/8” (10 mm) diameter steel threaded bolt type leveling device. Levelling devices are to be adjustable with slot screwdriver from inside the cabinet and shall provide travel up to 1-1/2″ (38 mm). Black nylon hole plugs shall be supplied to cover the leveling device access holes once installed and levelled. In order to properly support the weight exerted by the leveller, a full-depth formed box shall be spot welded to the side wall as well as the bottom of the cabinet.
10. To allow full access to the storage area, all double door cabinets must be free of a center post. The cabinet shall be constructed in such a way as to allow the retrofitting of a center post for future installation of a different door and drawer combination.
11. All base cabinets shall be provided with a continuous enclosed 4″ (102 mm) high by 3″ (51 mm) deep toe space along the entire working area.
12. The front top portion of the side panels shall be welded to an 11 gauge U-shaped channel to form a rigid square assembly to properly support the countertop.
13. No exposed horizontal structural members between doors and drawers shall be accepted.
14. Perforations or mechanical fixations are not permitted on visible cabinet sides.
15. All base cabinets, with the exception of the drawer units, shall be supplied with a back panel which shall be removable, without the use of tools. Back panels shall extend full height and width between the structures of the cabinet. Sink cabinets shall have a partial back panel, 9″ (227 mm) high, to accommodate plumbing requirements.
16. All cabinet boxes must be fabricated to allow any future door and drawer arrangement. Front center posts or any other separators must be removable or can be added at any time, without having to make additional perforations or modifications to the cabinet.

17. Shelving:

    A. Shelves shall be cold rolled steel 3/4” (19 mm) thick with all four sides bent down and shall have a 3/4” (19 mm) return flanges on the front and back.

    B. Shelves shall be adjustable in 1/2” (13 mm) increments and shall be full depth and width of the cabinet’s interior.

    C. Each shelf shall be supported by four zinc plated shelf clips.

18. Drawers:

    A. The drawer bottom flanges shall be bent upward on four sides for easy cleaning.

    B. Drawer sides shall be structurally reinforced around the top edge by a 1/2” (13 mm) return flange with a 1/4” (6 mm) seam bend to the inside. The front and back drawer panels shall be reinforced by a 3/4” (19 mm) flange all around and shall be welded to the sides to form a rigid drawer unit.

    C. Drawers shall operate on 1″ (25 mm) diameter nylon rollers with steel ball bearings. One such roller shall be on each drawer slide and one on each drawer suspension tracks.

    D. The following drawer widths: 15″ (381 mm), 18″ (457 mm), 21″ (533 mm), 24″ (610 mm) and 30″ (762 mm) will be provided with a 75% opening self-closing drawer track. The track shall be designed to prevent metal to metal contact and shall incorporate a self-closing action for at least the last 7″ (178 mm) of drawer travel.

    E. Drawers 36″ (914 mm), 42″ (1 067 mm) and 48″ (1 219 mm) wide shall be supplied with full extension drawer tracks.

    F. All file drawers shall be supplied with full extension drawer tracks.

    G. The drawer slides shall have built-in stops to prevent unintentional removal of the drawers and shall be designed so that the drawers can be removed from full open position by lifting the front of the drawers and pulling out. The closing action of the drawers shall be cushioned by two rubber bumpers and the drawers shall be designed to operate freely and quietly even when loaded.

    H. One handle shall be supplied horizontally in the upper front center of each drawer, except for drawers 30″ (762 mm) or wider which require two handles.

19. Wall Storage and Tall Case Cabinets:

    A. All wall and tall case storage cabinets shall be made of cold rolled steel and built using the same construction as the standard base cabinets.

    B. Cabinet sides, bottom and top shall be 18 gauge (1.2 mm) steel panels with similar construction details on the front edge as the standard base cabinets.

    C. Back panel shall be flanged 1/2” (13 mm) on all four sides and spot welded to cabinet sides, bottom and top. Back panel shall be reinforced with two hat channels welded vertically at 5″ (125 mm) from each side and have two vertical rows of holes at 1/2” increments for shelf support clips.

    D. The cabinet floor shall cover the full interior width and depth with return flanges bent down on all four sides. This panel shall be removable for easy access to wall fastenings.

    E. Shelves shall be cold rolled steel 3/4” (19 mm) thick with all four sides bent down and shall have a 3/4” (19 mm) return flanges on the front and back. Shelves shall be adjustable on 1/2” (13 mm) increments and shall be full depth and width of the cabinet’s interior. Each shelf shall be supported by four zinc plated shelf clips.

    F. The wall and tall case storage cabinets should allow the addition of all of the following door arrangements without any modifications to the cabinet. Cabinets can be supplied open on the front or with the following types of doors:

        i. Hinged wood doors shall be the same construction as the doors on the standard base cabinets.

        ii. Hinged glass doors shall be 1/8” (3 mm) glass with a 2 ¾” x 3/4” (70 mm x 19 mm) wood frame all around the glass.

        iii. Sliding glass doors shall be 1/4” (6 mm) glass fitted to a W-shaped extruded aluminum shoe running the full width of glass door bottom. Shoe shall be provided with two nylon roller assemblies. The door assembly shall run on an inverted W-shaped extruded aluminum track. One finger pull 5/8” x 3″ (16 mm x 76 mm) per door shall be ground into glass on the side of the door.

20. Furniture Hardware:

    A. Handles: all handles for wood doors and drawer fronts shall be one of the following:

        i. Brushed nickel wire pulls 4″ (102 mm) long
        ii. Stainless steel wire pulls 4″ (102 mm) long

B. Hinges: Door hinges shall be 14 gauge (1.9 mm) steel, five knuckles type screwed into the door and fastened to the cabinet side with two countersunk screws. Hinges shall be one of the following options:

   i. Vibra finish stainless steel
   ii. Stainless steel

C. Door catches: Shall be adjustable zinc plated steel, spring loaded with nylon rollers.

D. Strike plate: shall be made of steel and part of the cabinet structure.

E. Levellers: Levellers at the four cabinet corners shall be cadmium plated hex head 3/8" (10 mm) machine screws 2 1/2" (64 mm) long slotted on threaded end for screwdriver adjustment. Levelers can be supplied, as an option, with grey rubber caps.

F. Hole plugs: Hole plugs for cabinet floors shall be black nylon.

G. Shelf clips: Shelf clips shall be Roll-It # 101 with a zinc finish.

H. Drawers and hinged door bumpers: Drawers and hinged door bumpers shall be self adhesive clear type bumper. Two bumpers per door or drawer, model 3M # SJ-5003.

I. Drawer tracks: shall be one of the two following options:

   i. 75% opening self-closing Bedcolab model # DT002 with 7″ (178 mm) self-closing feature – 150 lb capacity.
   ii. 100% full extension opening – 200 lb capacity.

J. File drawer tracks for all drawers 36″ (914 mm) wide and over: shall be full extension type, zinc finish. Weight capacity is 200 lbs. The drawer slide must be installed in such a manner that the drawer can be easily removed from the cabinet without the use of tools.

   File hangers supplied with the file drawers: shall be made of painted steel 1/8" x 3/4" (3 mm x 19 mm) and be adjustable to accommodate legal or letter size files.

21. Steel Furniture Finish:

A. When fabrication of the unit is completed, all surfaces shall be free of scratches and imperfections. Welds will be ground smooth where necessary. The unit will be washed using a three-stage iron phosphate process for proper surface preparation and subsequently, dried in a dry off oven to remove all humidity traces.

B. A high quality chemical resistant polyurethane paint will then be applied to all surfaces including the interior of door and drawer panels using an electrostatic spray process. The parts will be oven baked for the duration and temperature recommended by the paint manufacturer. Painted surfaces shall conform to **A.A.M.A. 2603**.

C. The painted surfaces shall meet or exceed the SEFA 8 specifications for chemical resistance as specified by the Scientific Equipment and Furniture Association and shall contribute to LEED credits.

D. Technical Performance:

i.	Adhesion to substrate:	100% 5B (ASTM D3359)
ii.	Hardness:	3H (ASTM D3363)
iii.	Gloss:	60 +/- 5 units on 60°
iv.	Flexibility:	1/4” Conical Mandrel (ASTM D522)
v.	Impact resistance:	100 in-lb direct: 100 in-lb reverse (ASTM D2794)
vi.	Corrosion resistance:	1000 hr less 1/16” in creepage over B-1000 treated test panels (ASTM B117)
vii.	Humidity resistance:	1000 hr no blistering over B-1000 treated test panels (ASTM D2247)

E. Colors: Twenty colors are available as per Bedcolab’s color chart.

3. Wood Facades:

1. Full flush overlay with 1/8” reveal between intra-cabinet doors and drawers and 1/16” reveal at cabinet edge for hinge offset around the door and 1/8” reveal on adjacent cabinets. All doors and drawers’ fronts will be adjusted to maintain these tolerances.
2. All banded edges to be stick stock 5 mm hardwood edge banding. Three millimetres (3 mm) rolled edge banding is unacceptable.
3. The veneer shall be specifically hand selected by area (within reasonable visual range) prior to fabrication of the cabinet faces for uniformity of color and grain. The resulting selection shall provide a pleasing uniform color with natural characteristics selected to not interfere with the overall aesthetic appearance of the casework.
4. Veneer used for exterior surfaces exposed to view after installation shall be constructed of grade AA (with modifications to grade), split matched of at least 1/45” thick veneer modified for appearance as indicated below.
5. All doors and drawer fronts will be vertically matched within the same cabinet. Center balanced by cabinet or center balanced & sequence matched by elevation is optional.
6. Door/drawer heads to be manufactured using 3/4” three-ply particle core plywood panels. Panels must be produced from North American sources, imported panels are not allowed. All panels shall be manufactured without the use of urea formaldehyde if NAUF (No Added Urea Formaldehyde) is required on the project.
7. Grain direction on doors and drawer fronts shall be vertically matched.

8. Wood Finish on Cabinet Facades

   A. Casework shall be finished on all interior and exterior surfaces in a flat line; oven cured process, spraying a catalyzed vinyl coating especially formulated for laboratory casework and be acid and solvent resistant (System 7 Catalyzed Vinyl).

   B. Casework finish shall meet AWI *Quality Standards Eighth Edition for Specialty Finishes – Premium Catalyzed Vinyl* and SEFA *8-1999 Chemical Resistance Specifications*. Manufacturers are to provide documentation to the consultant of their finishes' compliance to the above.

   C. Apply one coat of sealer and two finish coats to surfaces. Thoroughly sand surfaces between coats. Maximum film build is 6 mils wet and 2.9 to 3.3 mils dry.

   D. Solids content to be 35% minimum by weight.

   E. Prior to finishing, sand surfaces smooth, ensuring that they are free of dirt, defects, chatter and machine marks.

   F. Apply sealer and finish coats to all exposed and semi-exposed casework surfaces.

   G. Finish coat shall leave a smooth, clear, satin finish with consistent coloration.

   H. Finishes must pass the following tests or they will be rejected.

      i. 20 cycle cold check test
      ii. Print test per ASTM D2091
      iii. Moisture resistance test
      iv. Impact resistance test
      v. Hot water test
      vi. Chemical resistance test as per ASTM D1308