STEEL LABORATORY CASEWORK

PART 1 – GENERAL

1.00 SUMMARY

A. Section Includes: Steel Laboratory Casework

B. Section Includes:
   1. Painted Steel Casework.
   2. Painted Steel Table Frames.

C. Related Sections:

   1. Division 9-Resilient base molding at walls and casework.
   2. Division 11 Section-11600 Laboratory Fume Hoods
   3. Division 12 Sectrion-12346 –Agility Adaptable Furniture Systems
   4. Division 15- Plumbing utilities final connections to casework and fume hoods.
   5. Division 15- Mechanical, HVAC ductwork, equipment, final connections to fume hoods.
   6. Division 16-Electrical utilities and final connection to casework and fume hoods.

1.1 ALTERNATE PROPOSALS

Proposals are invited from alternant manufacturers only if they comply with the minimum design requirements and the minimum performance requirements. A notarized letter stating full compliance must be included in alternant proposals signed by an officer of the manufacturer to ensure compliance.

1.02 SUBMITTALS

A. Submit shop drawings for laboratory furniture showing plan views, elevations, cross sections (where necessary), 3-D renderings, pipe spaces, countertops with locations of sinks and service fixtures and all pertinent details to ensure a complete assembly. Include layout of units with relation to surrounding walls, doors, windows and other building components.

B. Coordinate shop drawings with other work involved.

C. Submit manufacture’s product data and installation instruction.

D. Submit physical samples and/or color cards of available finishes including top material for selection by Architect and Owner.

E. Include independent laboratory certification stating that applied finish complies with specified chemical and physical resistance requirements.

1.03 GUARANTEES

A. Hanson Lab Furniture Inc. guarantees all materials and workmanship of equipment provided for a period of one year (1) from date final acceptance. Any defects due to the use of improper materials or workmanship (normal wear and tear, abuse or misuse excepted) occurring within that time frame shall be promptly rectified upon notification by the Owner or Architect.

1.04 PRODUCT HANDLING

A. Ship all units packaged in protective cartons and labeled for location within the project site.

B. Store all materials in a dry ventilated place, protected from the weather, until ready for installation.

C. Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering.

1.05 QUALITY ASSURANCE

A. Single source responsibility: Fume hood casework, work surfaces, and other equipment and accessories shall be manufactured or furnished by a single furniture company.

B. Manufacturer's qualifications: Modern plant with proper tools, dies, fixtures and skilled employees to produce high quality casework and equipment, and shall meet the following minimum requirements:

1. Five years or more experience in manufacture of casework and equipment of type specified.

2. Ten installations of equal or larger size and requirements.

PART 2 – PRODUCTS

2.01 MANUFACTURER

Design, materials, construction and finish of casework specified are the minimum acceptable standard of quality for inset steel laboratory casework.

Laboratory furniture manufacturer:
Hanson Lab Furniture, Inc.
814 Mitchell Road, Newbury Park, CA 91320
805-498-3121

2.02 CASEWORK MATERIALS

A. All steel used to be high quality cold rolled mild steel, free of scales, buckles, or other defects. Conforming to ASTM Specification No. A36672

B. All steel gauges shall be U.S. Standard gauges applicable as follows:

1. Interior door panels, drawer bodies, filler panels, scribe strips, shelves and security panels are 20 gauge minimum.

2. Door fronts, drawer fronts, cabinet sides, cabinet bottoms, strikes, vertical posts and access panels are 18 gauge minimum.

3. Horizontal rails, intermediate rails and apron housings are 16 gauge minimum.

4. Leveling gusset plates, hinge reinforcement plates, drawer runners and table legs are 14 gauge minimum.

2.03 GENERAL CONSTRUCTION

A. Casework shall be manufactured in accordance with the latest edition of SEFA “Metal Laboratory Furniture” and other applicable standards. Each casework unit shall have a completely welded shell assembly which shall be rigid and self-supporting for interchangeable use in a group of cases or for supporting for interchangeable use in a group of cases or for a single unit use. Each unit shall be complete for relocation at any time without the addition of finished ends or other parts.

1. All drawers and doors shall be in one plane. All rails and stiles shall be on the same plane. Flush face construction will be furnished with all exposed joints on the fascia to be flush welded. All joints to be ground smooth and polished. Any overlap construction on the fascia area is not acceptable.

2. All sectional units shall be fully and securely welded at all points. They shall have within each cabinet die pierced slots necessary for receiving drawer runners, shelf supports, door hinges, rabbets, channels, and required hardware. The slots required for the installation of hardware shall be within the inside shell of the cabinet and then boxed in with a channel section at the rear. This is necessary to close off any openings through the back or sides which might permit dust or dirt to enter the cabinet.

3. The cabinet interiors shall be flushed with the interior bottom coved on each side for ease of cleaning. All cabinet bottom shall be formed and fitted and provide a 4” high by 3” deep toe space.

4. The cabinet shall incorporate channel reinforcement at front and rear corners. Cabinets 35” and longer shall also have front and rear center posts with channel reinforcements.

B. Base Cabinet Construction

1. All sectionalized units shall have double wall drawer and door fronts incorporated into the construction of the cabinet. All members and parts shall be of the gauge specified in paragraph 2.01 materials

2. The exposed sections of corner posts, rails, and stiles shall not be less than 1-1/4” wide.

3. All doors and drawers shall close against neoprene rubber bumpers and these shall be installed so that doors and drawers fit flush with cabinet face. Removable channel door strikes shall be attached to the sides of upright posts. Doors shall close against these rabbets.

4. There shall be a minimum clearance allowed between doors, drawers, and other parts on the face of the cabinets.

5. Removable backs shall engage in an offset in the cabinet body and shall be

held in place without the use of any device or tools. The removable back shall be flanged to ensure rigidity.

6. Cabinet bottoms shall be fitted with four corner gusset plates welded in place and provided with leveling bolts. Gusset plates are die formed. Leveling bolts shall ensure easy handling when moving during installation as well as for adjustment. The bottom of the cabinet shall have a 1” hole above each leveling bolt for accessibility with a screwdriver for adjustment during installation. The hole shall be fitted with a chrome plated button type closure cover.

C. Door Construction

1. All doors shall be double wall construction and shall be hung on a pair of 5 Knuckle Stainless Steel institutional type hinges.

2. Interior of door pans shall be painted for protection from corrosion prior to assembly. Outer door pan shall be formed into channel shape on all four sides. Inner door pan shall have offset at pull side and hinge side with flange at top and bottom. All panels are to be installable with fasteners. Permanent welding of panels to hinges is not acceptable. Sound deadening shall be provided prior to assembly of doors.

D. Drawer Construction

1. Drawer fronts shall be double wall construction and installed independent of drawer body. Drawer bodies shall be formed from one piece of sheet metal. This one piece construction shall provide coved intersection between sides and bottom. The top edges of sides and back shall be channel shaped for maximum strength. The drawer pulls shall be attached to the drawer head and held tightly with screws. Drawer runners shall be 14 gauge steel and fully formed with 180 degree roller guide channel and welded to the drawer body. Screws or rivets to attach runners are not acceptable. Drawers may be removed from cabinet without the use of tools.

E. Shelf Construction

1. All 35” or longer cabinets shall have additional hat channel support welded in the center of the shelf.

2. All adjustable shelves shall be supported on anodized shelf clip sets. These

clips are set into a series of perforations that allow for adjustability on ½" centers.

F. Wall Cabinet and High Cabinet Construction

1. All free standing casework, whether ceiling hung, wall mounted or floor mounted shall be constructed of 18 gauge steel bodies. All interlocking members shall be welded at critical points. The entire front fascia to be flush welded and ground smooth without seams or joints. The sides shall be formed to have 1 ¼" side vertical face with 2" return and offsets to receive doors and have accommodations for hinges when hinged are required. Cabinet's backs shall be recessed ¾" on all four sides for facilitating setting against uneven walls and clearance of hanging assemblies.

2. Metal doors shall be double walled construction at least 5/8" thick. Both inner and outer panels shall be pan shaped with construction as described for base cabinet construction. Doors are to be dustproof with outer surfaces flush with the front face of cabinet. Cabinets wider than 24" shall be equipped with pairs of doors.

3. Frameless glass sliding doors shall be nominal 3/16" thick sheet glass set in a glazing channel in a full length extruded aluminum bottom shoe with rollers and operate on bottom aluminum track secured to cabinet bottom. Top edge of glass shall fit into double plastic track, secured to cabinet top for quiet operation.

4. Wall Cabinets and tall cabinets to have adjustable shelves, each with a front seismic lip.

G. Knee Space Panels

1. Knee space panels shall be fabricated from 18 gauge steel with flanged return at top for rigidity. Provide at open knee spaces to cover pipe space where occurs. Panels shall be removable and mounted o angles secured to adjacent cabinet sides and table legs.

H. Free Standing Tables Frames and Legs

1. Table frames shall be fabricated from 18 gauge steel and shall be an assembly, box shaped, and fully welded at all critical points. Frame rails shall be 5" high formed into a "C" channel shape with 1" return at top and bottom. Rails to be

held in place with (2) 5" high formed "C" shaped channels with 1" return at top and bottom. Channels to be spot welded to rails. End caps shall be 5" high formed into panshape with ½" return on four sides.

I. Apron Rails, Drawer Housings, Legs and Support Panels

1. Apron Rails, and drawer housings shall be fabricated from 18 gauge steel. Housing consist of front and rear rails, rails shall be trimmable 3-1/2" high formed into "C" channel with 1" return at top and bottom. Channels to be spot welded to rails. Apron Rails and drawer housings are trimmable if required at the jobsite. Angle brackets are provided to attachment to casework or walls.

2. End leg or H-leg supports to be 18 GA with leveling bolts for adjustments and include vinyl leg shoes. H-legs to be all welded construction and have a lower horizontal crossrail. End Support Panels shall be fabricated from 18 gauge steel and shall consist of (2) telescoping side panels totally enclosed on all four sides welded to form a strong, rigid unit. End Support Panels shall be 1-1/4" thick and provide a 4" high by 3" deep toe kick space. End Support Panels shall be provided with two leveling bolts for adjustment.

3. Drawer housing with pencil drawers when required, are provided within the frame housing and are constructed the same as for base cabinets with drawer slides.

2.04 STEEL CABINET FINISH

A. Pretreatment: Thoroughly clean surface of grease, dirt and oil in an alkaline solution, rinse, then bathe in a phosphatizing solution. Bake entire unit with metallic phosphate coating to provide excellent bond for subsequent finish and aid in the prevention of corrosion.

B. Finish: Finish shall have electrostatically applied, baked on Powder Coat Epoxy paint finish. This material shall meet the most stringent air quality standards. Solvent based alkyd melamine enamels are not acceptable. The final finish shall meet the following test data with no more than slight discoloration but no change of gloss and no loss of adhesion with exposure to the following chemicals:

Acetate, Amyl
Acetate, Ethyl
Acetic Acid 98%
Acetone
Acid Dichromate 5%
Alcohol, Butyl

Alcohol, Ethyl
Alcohol, Methyl
Ammonium Hydroxide 28%
Benzene
Carbon Tetrachloride
Chloroform
Chromic Acid 60%
Cresol
Dichloroacetic Acid
Dimethylformamide
Dioxane
Ethyl Ether
Formaldehyde 37%
Formic Acid 90%
Furfural
Gasoline
Hydrofluroic Acid 37%
Hydrofluoric Acid 48%
Hydrogen Peroxide 30%
Iodine, Tincture of
Methyl Ethyl Ketone
Methylene Chloride
Monochlorobenzene
Napthalene
Nitric Acid 20%
Nitric Acid 30%
Nitric Acid 70%
Phenol 90%
Phosphoric Acid 85%
Silver Nitrate, Saturated
Sodium Hydroxide 10%
Sodium Hydroxide 20%
Sodium Hydroxide 40%
Sodium Hydroxide, Flake
Sodium Sulfide, Saturated
Sulfuric Acid 33%
Sulfuric Acid 77%
Surfuric Acid 96%
Surfuric Acid 77%, and Nitric Acid 70%, equal parts
Toluene
Trichloroethylene
Xylene1
Zinc Chloride, Saturated

C. Adhesion and flexibility: No peeling, cracking or exposure of metal when painted surface is bent 180 degrees over ¼" diameter mandrel.

D. Unless otherwise specified, casework colors are to be selected from manufacturers standard color palette and shall be designed by the Architect/Owner.

2.05 HARDWARE AND ACCESSORIES

A. Provide standard satin finish hardware units and install uniformly and precisely after final finishing is complete. Align and adjust hardware so that moving parts operate freely and contact points meet accurately. Set hinges snug and flat.

Turn screws to a flat seat. Allow for final field adjustment after installation. Any field assembly of units is not acceptable.

1. Hinges: Institutional type, 5 knuckle, 304 stainless steel. Provide one pair for doors less than 4 ft. high and 1 ½ pairs for doors over 4 ft. high.

2. Drawers and door pulls: Shall be solid die cast aluminum alloy with satin finish. Pulls are to be mounted with two screws on 4" centers and fastened front and back. Provide two pulls for drawers over 24" wide.

3. Catches: Shall be friction type spring actuated with nylon roller manufactured in two parts for assembly with cabinet body and door. Minimum five pound pull for roller and strike plate.

4. Drawer Slides to be full extension, ball bearing 100 lb. capacity slides.

5. Shelf adjustment clips: Shall be nickel plated to engage in performed perforated adjustment shapes.

6. Leg shoes: Molded vinyl, black, performed 2" square unit with open bottom, provided on all table legs.

7. Aerosol touch-up paint shall be provided when manufacturer's standard colors are specified.

PART 3 – EXECUTION

3.01 INSTALLATION OF CASEWORK

A. Install plumb, level, true and straight with no distortions. Where laboratory furniture abuts other finished work, scribe and apply filler strips for accurate fit with fasteners concealed where practicable.

B. Base Cabinets: Set cabinet's straight, plumb and level using leveling bolts. Bolt continuous cabinets together. Align similar adjoining doors and drawers to tolerance of 1/16".

C. Wall Cabinets: Securely fasten to walls with approved fasteners. Anchor, align and adjust wall cabinets as specified for base cabinets.

1. Reinforcement of stud wall to support wall mounted cabinets will be done during wall erection, by others. Responsibility for coordination of size and location of reinforcement shall be by the trade involved. Suggested locations shall be supplied by the casework contractor on the approved shop drawings.

2. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as required.

D. Accessory installation: Install accessories and fittings in accordance with manufacturer's recommendations. Turn screws to seat flat; do not drive.

E. Sink installation: Sinks which were not factory installed shall be set in resistant sealing compound and secured and supported per manufactures recommendations.

3.02 CLEANING AND PROTECTION

A. After installation is completed, all casework shall be thoroughly cleaned inside and out. Touch-up as required.

B. Clean countertops with diluted dishwashing liquid and water leaving tops free of all grease and streaks. Use no wax or oils.

C. Protect top materials and installed laboratory furniture from damage by other trades. If damaged is incurred on protected areas by other trades, repair and or replacement costs shall be borne by that contractor.

D. Repair or remove and replace defective work as directed by the Architect/Owner.

END OF SPECIFICATION