

- 1** General
- 1.1** **SECTION INCLUDES**
  - .1 Labour, Products equipment and services necessary for the laboratory stainless steel casework and fittings Work in accordance with the Contract Documents.
- 1.2** **REFERENCES**
  - .1 ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar; 2000.
  - .2 ASTM D 2240 - Standard Test Method for Rubber Property - Durometer Hardness; 2002.
  - .3 SEFA 8M-2016 Recommended Testing Standards for Laboratory Grade Metal Casework on Base and Wall Cabinets. Report number: 104681075GRR-001B
- 1.3** **SUBMITTALS**
  - .1 Submit in accordance with Section 01 10 10.
    - .1 Product Data: Manufacturer's data sheets on each product to be used, including:
      - .2 Preparation instructions and recommendations.
      - .3 Storage and handling requirements and recommendations.
      - .4 Installation methods.
  - .1 Shop Drawings: Submit shop drawings in accordance with Section 01 10 10 indicating materials, thicknesses, sizes, finishes, profiles, connection attachments, shop jointing, field jointing, reinforcing, anchorage, fastener types and sizes, location of exposed fastenings, mechanical and electrical service routes, service outlets, cutout locations, and sizes. Include erection drawings, plans, elevations, sections, and details as applicable.
  - .2 Samples: Submit samples in accordance with Section 01 10 10.
    - .1 Complete set of colour chips representing the manufacturer's full range of available colours. (minimum sample size: 2" (50mm) x 3" (76mm)).
    - .2 One stainless steel chip representing the manufactured finish shall be provided
    - .3 One of each item of hardware.
- 1.2** **QUALITY ASSURANCE**
  - .1 Testing Reports: Manufacturer shall submit test data which is in compliance with the project specifications.
  - .2 Certificates: Any certificates required by the specification may be requested and provided.

- .3 Instructions: Provide instructions for the installation and maintenance of all products provided and installed within this section.
- .4 Manufacturer Qualifications:
  - .1 The following list of information will be provided to the Architect at least ten (10) days prior to the bid opening:
    - .1 List of manufacturing facilities.
    - .2 A list of ten (10) installations of comparable stature completed within the past 5 years.
    - .3 Construction details depicting the materials, sizes and methods of construction.
    - .4 Independent laboratory test reports that include information on cabinet, fume hood and tabletop finish and performance that have been conducted within the last two years.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Store products in manufacturer's unopened packaging until ready for installation.
- .2 Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- .3 Do not deliver laboratory casework until painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions" Article below.
- .4 Protect finished surfaces from soiling and damage during handling and installation. Keep covered with polyethylene film or other protective covering. Mark in large lettering "NO STANDING."

**1.5 PROJECT CONDITIONS**

- .1 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- .2 Building must be totally enclosed (This includes but is not limited to: Windows and Doors installed, and the location must be weather tight.)
- .3 All wet-work shall be completed.

- .4 HVAC system is operating and will maintain temperature and relative humidity at occupancy levels through remainder of construction period.
- .5 Nearby and related work shall be completed.
- .6 Site must be free of additional construction such as painting, taping and floating drywall work or other items that could damage or mark finish of installed product.
- .7 Required bracing must be installed properly and be ready for casework installation.

1.6 **WARRANTY**

- .1 Provide a written warranty that all work performed under this section shall be free from defect of materials, finish and workmanship for a period of five (5) years from date of shipment.
- .2 The warranty of products of another manufacturer, and sold by Inter Dyne Systems Inc, are limited to the warranty extended by that manufacturer to Inter Dyne Systems Inc.

2 **Products**

2.1 **MANUFACTURER**

- .1 Basis of Design:
  - .1 Acceptable Manufacturers:
  - .2 Inter Dyne Systems Inc., 676 E. Ellis Rd., Norton Shores, MI 49441 Direct Phone: (231) 799-8760 Web: [www.interdynesystems.com](http://www.interdynesystems.com)
  - .3 Canadian Scientific Lab Systems Inc., 7777 Eastview Road., Guelph, ON N1H 6J1 Tel: (226) 780-4793 Email: [info@canadianscientific.ca](mailto:info@canadianscientific.ca)
  - .4 Or approved equivalent by Consultant

2.2 **MATERIALS**

- .1 Stainless Steel:
  - .1 Sheet: ASTM A240, Type 304 or 316 alloy
  - .2 Visible surface Finish: Unless otherwise indicated, AISI No. 4 brushed finish.
  - .3 Non-visible surface finish: Unless otherwise indicated, AISI No. 2b finish.
- .2 Glass: Clear Float or Tempered .25" thick, conforming to ANSI Z97.1 glazing quality.
- .3 Acrylic: Clear Acrylic .25" thick conforming to ANSI Z97.1 for use as substitution for clear float glass. Only when specified.
- .4 Base at millwork and wall
  - .1 Stainless Steel SS-1 base (B-1): 18 Gauge Stainless Steel wall base, approximately 100 mm high x 18GA thick, coved profile, in lengths as long as

possible including premoulded end stops and inner and outer corners.

Colour: Brushed Finish.

## 2.3 CASEWORK CONSTRUCTION

### .1 General

- .1 The stainless-steel casework and components shall be of modern design and shall be constructed in accordance with the best practice of the Scientific Laboratory Equipment Industry.
- .2 Exceptional quality casework shall be insured by the use of proper machinery, tools, dies, fixtures and skilled workmanship to meet the intended quality and purpose of the project.
- .3 Individual cabinets shall be rigid and self-supporting, for use interchangeable in a group of cabinets, or individual units.
- .4 All cabinets to have a cleanable smooth interior. Bottoms shall be formed down on sides and back to create easily cleanable corners with no burrs or sharp edges.
- .5 Case openings of Inset style cabinets shall be rabbeted on all four sides for hinged doors to provide a dust resistant case.
- .6 Maintain uniform clearances around door and drawer fronts of 1/16 to 3/32 inch.

### .2 Gauges and Thickness:

Gauges of steel used in construction of cases shall be 18 gauge (.048), except as follows:

- .1 12ga (.105) – leveling foot gussets.
- .2 14ga (.075) – stainless steel shelf clips.
- .3 16ga (.060) – apron rails, cross rails, end pedestals, pull out shelves, hat channel supports and reinforcement gussets.
- .4 20ga (.036) – Drawer assemblies, door assemblies, removable back panels, sloped tops, filler panels and slip filler panels.

### .3 Grain Direction:

Base & Suspended Cabinets: Grain shall run vertical on visible front and side surfaces of all base cabinets, including doors and drawers.

#### .1 Base & Suspended Cabinets:

- .1 Grain shall run vertical on visible front and side surfaces of all base cabinets, including doors and drawers.

- .2 Interior shelf grain runs front to back along the depth of the cabinet.
  - .3 Components in the interior of the cabinet may run horizontally or front to back.
- .2 Wall Cabinets:
  - .1 Grain shall run vertical on visible front surfaces of all wall cabinets, including doors.
  - .2 Grain shall run horizontal on all top and bottom visible surfaces from the front of the cabinet.
  - .3 Interior shelf grain runs front to back along the depth of the cabinet.
  - .4 Components in the interior of the cabinet may run horizontally or front to back.
- .3 Tall Cabinets:
  - .1 Grain shall run vertical on visible front and side surfaces of all tall cabinets, including doors and drawers.
  - .2 Interior shelf grain runs front to back along the depth of the cabinet.
  - .3 Components in the interior of the cabinet may run horizontally or front to back.
- .4 Mobile Cabinets:
  - .1 Grain shall run vertical on visible front and side surfaces of all base cabinets, including doors and drawers.
  - .2 Grain shall run horizontal on all top and bottom visible surfaces from the front of the cabinet.
  - .3 Interior shelf grain runs front to back along the depth of the cabinet.
  - .4 Components in the interior of the cabinet may run horizontally or front to back.
- .5 Fillers:
  - .1 Fillers shall run in the corresponding direction as the cabinet face that the filler is attached to. Except where cabinet dimensions do not permit.
- .6 Aprons, Knee space and Sloped Tops: All grain to run
  - .1 All grain to run horizontally on aprons, knee space panels and sloped tops.
- .4 Cabinet Frame:
  - .1 Side panels to be formed into not less than a L shape in the top, bottom back and a minimum of  $\frac{3}{4}$ " C shaped front.

- .2 One piece die-formed cabinet bottom construction with return side flanges turned down.
- .3 Top horizontal front rail shall interlock with the flange at the top of the side panels and welded for strength, but shall be flush at the face of the unit.
- .4 Rear horizontal rail shall interlock with the flange at the top of the side panels and welded for strength. The removable backs shall lock into the top rear rail where applicable.
- .5 Toe space shall be fully enclosed, 4 inches high by 3 inches deep, with no open gaps or pockets.
- .6 Bottom corners to accept a foot gusset with a 3/8" leveling leg.
- .7 Wall and tall cabinets to be furnished with a welded on solid back with integral mounting to receive a wall cleat.
- .8 Cabinet construction shall be TIG welded to form a strong well-fitted, one-piece unit.
- .9 Front face joints fully welded, ground and polished to provide a continuous flat front plane free of clevises.
- .10 Suspended cabinets shall consist of the same construction as base cabinets with the toe kick removed.
- .5 Backs:
  - .1 Base cabinets furnished with removable back panel for access to stops, valves and service lines.
  - .2 Cabinets with drawers only do not come equipped with back panels.
  - .3 Partial height fixed back panels for sink base cabinets.
  - .4 Wall and tall cabinets to have fixed welded in place backs.
  - .5 Suspended cabinets shall always be furnished with removable back panels.
- .6 Doors:
  - .1 All doors shall close on rubber bumpers.
  - .2 All doors shall be replaceable in the field.
  - .3 Cabinet doors shall not exceed 23" in width. Any cabinets requiring doors to be wider will be supplied with a center divider.
    - .1 Example: a 60inch wide sink base cabinet with double doors to have a center divider between doors.

- .4 All hinged doors less than 36" in height shall be hung by minimum of two (2) hinges. Doors greater than 36" in height shall be hung by minimum of three (3) hinges.
- .5 Hinged and sliding solid doors
  - .1 7/8" thick, outer and inner formed and telescoped boxed construction. Reinforced with a channel to prevent sagging or pulling of fasteners.
  - .2 20 gauge outer and inner panels.
  - .3 Hinges to be attached with #8 stainless screws.
  - .4 Sliding doors to accept rollers and flush handles.
- .6 Hinged and sliding glass doors
  - .1 16 gauge stainless steel outer face to be of one-piece construction, with corners fully welded ground and polished. Reinforced with channels to accept removable inner face.
  - .2 18 gauge stainless steel inner face removable for replacement of glass.
  - .3 Glass set into channels provided by removable back panels.
- .7 Drawers:
  - .1 Fabricate drawer fronts of 20 gauge (.036) stainless panels. The exterior drawer front shall have a channel formation at the top edge with fully finished return edge to form a finished drawer front when secured to the drawer box. Drawer front has a lip to fit over the inside box on the top and bottom edges. Lock the drawer face onto the drawer box with removable #8 screws from the backside of the drawer front.
  - .2 Drawer body shall consist of a two-piece construction, first is the drawer body and second is drawer box front inner panel. Drawer slide rails spot welded to the outer edge of the drawer box sides. Drawer sides shall have a reinforcing bend on the top edges.
  - .3 Drawer slides systems shall be designed with self-closing action with a rating of 100lb capacity per drawer. Stainless steel full extension ball bearing slides.
  - .4 Drawers shall be removable with a release tab incorporated into the slides.
  - .5 All drawers shall close against rubber bumpers.
  - .6 Provide drawer pulls in center location of drawer face. All drawers over 24" wide shall be furnished with two (2) drawer pulls.
- .8 Shelves:

- .1 Adjustable shelves fabricated from 18 gauge stainless steel, with all sides formed down 1" and with an inner return of 3/4" for stiffness and rigidity.
- .2 Quantity of adjustable shelves supplied per cabinet to be called out in supplied submittal drawings.
- .3 Center fixed shelf in tall cabinets, with all sides formed down 1" and with only the front edge formed with an inner return of 3/4" to match the adjustable shelves. Fixed shelf to be attached to center of tall cabinets to help keep the cabinet rigid.
- .9 Knee Space Rails:
  - .1 Knee space rails shall be 4" high and fabricated from a single metal channel shaped skirting.
- .10 Apron Pencil Drawer Assemblies (SPD):
  - .1 Pencil drawer rails shall be 5-3/8" high and fabricated from a single metal channel shaped skirting. Drawer suspension framing shall be mechanically fixed to channels, welded integrally with front and back channel sections formed into a rigid one-piece unit.
  - .2 Standard SPD assemblies range from 24 to 48 inches in width with single drawer or double drawer. Drawer suspension shall be with ball bearing slides and self-closing action.
- .11 End Pedestals:
  - .1 End pedestals shall consist of two (2) 16ga side panels welded together to form a strong rigid unit.
  - .2 End pedestals shall be 2" thick and be designed to accept a knee space rail or apron.
  - .3 End pedestals shall be provided with two (2) leveling devices.
- .12 Cabinet Sloped Tops:
  - .1 Sloped tops shall be fabricated from 20ga stainless steel, welded, ground and polished to make a complete unit. It shall mount flush with the front edge of the cabinet and extend back at an angle.
  - .2 Sloped tops shall be supplied with a wall cleat to mount the sloped top to the wall.
- .13 Scribes and Fillers:



- .1 Provide as needed to close space between cabinets and walls, ceilings and indicated equipment. Fabricate from the same material and with the same finish as cabinets.
- .2 Supply front base filler panels with flanges on both sides and a 3" x 4" toe space along the working face.
- .3 Corner filler panels shall be a two-piece construction, one upper and one panel forming the toe space. Each shall be welded together to form one complete unit.
- .4 Slip filler panels shall consist of a two-piece construction. One double piece and one single piece, the single piece shall slip into the double piece allowing the slip filler to be adjusted as needed along the surface.
- .5 End closure panels shall be flanged on two (2) sides secured to the back of the cabinet or wall and silicone into place on the adjacent surface. No visible mounting hardware allowed.
- .14 Hardware:
  - .1 Door Hinges: 2-1/2" long stainless steel five (5) knuckle type butt hinges.
  - .2 Wire Pulls: shall be provided for drawers and hinged doors, pulls shall be mounted vertically for hinged doors and mounted horizontally for drawers. Recessed pulls available upon request.
  - .3 Door Catches:
    - .1 Stainless steel magnet catch mounted on cabinet body with a receiving 430 stainless steel magnetized plate mounted on door body.
    - .2 Nylon roller catches available upon request.
    - .3 Base cabinet catch to be located on the top of door.
    - .4 Wall cabinets catch to be located on the top of the cabinet.
    - .5 Tall cabinets to have a catch located on the top of the cabinet and a catch on the bottom of the cabinet.
  - .4 Shelf clips: Laser cut 14ga stainless steel removable shelf clips.
  - .5 Leveling guides: 3/8-16 stainless steel 250lb capacity glid with minimum 1" adjustment.
  - .6 Locks: Stainless-steel heavy-duty cylinder 5-disc type tumbler, stamped with identifying number. Keyed individually.
  - .7 Casters:

- .1 Casters shall be dual wheel type made of thermoplastic rubber, with a minimum load rating of 100kg (220lbs) each. All legs with casters shall swivel and have brakes that lock the wheel as well as the swivel feature of the caster when the brake is applied. Minimum height of tables may be increased by 101mm (4") when selecting this caster option.
- .2 'Model 670.13.902' by Hafele or approved alternative. (8 total).

2.4 **STEEL FURNITURE FINISH**

- .1 T304 stainless steel with a #4 brushed finish.
- .2 All factory welds shall be made using TIG process. Filler rod shall be of the same composition as the base material.

2.5 **COUNTERTOPS, SCULLERY UNITS AND SHELVING**

- .1 Countertops: 16-gauge (1.59 mm) type 304 or 316 stainless-steel with number 4 finish; one-piece construction where possible; turned down fronts; integral turned up backs to 3/8-inch (9.5 mm) radius; three formed channels placed underneath for support. All without solder. Provide factory punched service fixture holes.
  - .1 Sides: Weld turned up.
  - .2 Sides: Weld turned down.
  - .3 Sides: Weld as indicated on drawings.
  - .4 Include sound deadening compound on underside of countertop.
  - .5 Dimensions: As indicated on drawings.
- .2 Countertops without sinks:
  - .1 Form tops with 1.25" high (32mm) edges with 0.5" (12mm) return flange. Reinforced with wood core or metal hat channels as shown on drawings.
  - .2 Form edges, flanges and backsplashes integrally from one sheet of steel. Intersections between backsplashes and work surface shall be radiused a minimum of 0.375" (9mm).
  - .3 Where indicated on drawings, provide marine edges. Marine edges shall be 1" (25mm) wide and 0.25" (6mm) high.
- .3 Countertops with sinks:
  - .1 Form tops with 1.25" high (32mm) edges with 0.5" (12mm) return flange.
  - .2 Marine edges shall integrally formed on all edges. Marine edges shall be 1" (25mm) wide and 0.25" (6mm) high.
  - .3 Work surface shall be reinforced with metal hat channels.

- .4 Form edges, flanges and backsplashes integrally from one sheet of steel. Intersections between backsplashes and work surface shall be radiused a minimum of 0.375" (9mm).
- .4 Joints:
  - .1 Factory welds shall be ground and polished to provide an invisible joint.
  - .2 Field connections shall be mechanical "tongue and groove" interlocking design with concealed bolts to provide a hairline seam.
- .5 Sound Deadener:
  - .1 Countertops and sinks shall have sound deadening material applied as required to the underside.
    - .1 Nominal thickness:
    - .2 0.062" (1.5mm).
  - .2 Sound deadener shall be waterborne, non-flammable and shall contain no volatile organic compounds.
- .6 Material Properties:
  - .1 Chemical Resistance:
    - .1 Evaluation of chemical resistance based on SEFA 3 – 2010 Laboratory Work Surfaces standard list of 49 chemicals / concentrations, their required methods of testing (24-hour surface test) and exceed the acceptable results as a means of establishing an acceptable level of performance for all exposed and semi-exposed surfaces.
    - .2 The chemical resistance performance shall in accordance with SEFA 8.
- .7 Scullery sinks: not less than 14-gauge (1.90 mm) type 304 or 316 stainless steel w a number 4 finish; one piece construction where possible; fabricated with corners rounded and coved to 3/4-inch (.17-mm) . All seams provided are continuous welded butt joints. Sinks sloped to bottom with center punched 3 1/2" (88.9-mm) diameter drain outlet supplied with stainless steel strainer. All seams are polished to a uniform #4 finish free of cross scratches. Sinks to have a heavy duty 1/8 inch (3-mm) thick coating of heat resistant, sound deadening compound applied to under surface. Frame to be 2" 16-gauge wall square stainless-steel tube or 16-gauge wall 1-5/8" dia round tube with heavy duty adjustable bullet feet with 4" aprons and 1-1/2" tube style stretchers fully welded. Supplied with offset style wall clips to secure to wall at

- .8 Shelving: 18-gauge (1.27 mm) type 304 stainless steel with number 4 finish; formed return on bottom, front and side edges. Dimensions: As indicated on drawings.
    - .1 Dimensions: As indicated on drawings.
  - .9 Wall Standards and Triangular Brackets: 304 stainless-steel with number 4 finish; brackets have tang on bottom for stability. 14-gauge, with countersunk installation holes on 1" returns. Heavy duty style is 12-gauge with the same dimensions.
    - .1 Standard Length: 2 feet (610 mm).
    - .2 Standard Length: 3 feet (914 mm).
    - .3 Standard Length: 4 feet (1219 mm).
    - .4 Standard Length: 6 feet (1829 mm).
    - .5 Bracket Size: 12 inches (305 mm); left side.
    - .6 Bracket Size: 12 inches (305 mm); right side.
    - .7 Bracket Size: 16 inches (406 mm); left side.
    - .8 Bracket Size: 16 inches (406 mm); right side.
- 2.6 **WALL AND BASE CABINETS**
- .1 Stainless steel: Commercial-quality, 304 stainless-steel, complying with ASTM A 366; satin brushed #4 finish; suitable for exposed applications; and stretcher leveled or roller leveled to stretcher-leveled flatness.
  - .2 Minimum Stainless-steel Thickness: Provide stainless steel laboratory furniture components of the following minimum thicknesses:
    - .1 Sides, ends, fixed backs, bottoms, tops, soffits, and items not otherwise indicated: 0.0478 inch. Except for flammable liquid storage cabinets, bottoms may be 0.0359 inch if reinforced.
    - .2 Back side panels, doors, drawer fronts and bodies, and shelves: 0.0359 inch. For back panels and doors for flammable storage cabinets, use 0.0478 inch thick stainless steel. For shelves more than 36 inches long, use 0.0478 inch thick stainless steel or provide suitable reinforcement.
    - .3 Intermediate horizontal rails, table aprons and cross rails, center posts, and top gussets: 0.0598 inch.
    - .4 Drawer runners, sink supports, and hinge reinforcements: 0.0747 inch. Leveling and corner gussets: 0.1046 inch.
  - .3 General: Complete assembly and finish work at point of manufacture. Perform assembly on precision jigs to provide units which are square; fully reinforced with angles, gussets, and channels; and integrally framed and welded to form a dirt and

vermin-retardant enclosure. Where applicable, reinforce base cabinets for sink support. Maintain uniform clearance around door and drawer fronts of 1/16 to 3/32 inch.

- .4 Fabricate units on precision dies for interchangeability of like-size drawers, doors, and similar parts.
- .5 Flush Doors: Outer and inner pans formed and telescoped into box formation, with channel reinforcement full height on center of each pan. Fill doors solid with noncombustible, sound-deadening material.
- .6 Hinged Doors: Reinforce with formed angles on inner pans made with 1 piece of steel.
- .7 Drawers: Assemble fronts from telescoping outer pans, designed to eliminate raw edge of steel at top. Fabricate sides, back, and bottom of one piece with rolled or formed top of sides for stiffening and comfortable grasp for drawer removal.
- .8 Adjustable Shelves: Front, back, and ends formed down with returned lip at front and back.
- .9 Toe Space: Provide stainless steel toe space, fully enclosed, 4 inches high by 3 inches deep, with no open gaps or pockets.
- .10 Table Legs: Not less than 2-inch square, electrically welded tubing. Provide leg stretchers where necessary to comply with structural performance requirements. Weld or bolt leg stretchers to legs and cross-stretchers. Securely bolt legs to table aprons. Provide leveling device welded to bottom of each leg.
- .11 Leg Shoes: Vinyl or rubber, black, open-bottom type.
- .12 Utilities: Provide space, cutouts, and holes for pipes, conduits, and fitting in cabinet bodies to accommodate utility services and their support-strut assemblies.
- .13 Filler Strips: Provide as needed to close space between cabinets and walls, ceilings, and indicated equipment. Fabricate from the same material and with the same finish as cabinets.

## **2.7 PLUMBING AND ELECTRICAL FIXTURES**

- .1 Plumbing Service Fittings:
  - .1 Provide fittings as indicated on Drawings, complete with washers, locknuts, nipples, and other installation accessories. Include wall and deck flanges, escutcheons, handle extension rods, and similar items.
  - .2 Service fittings shall be delivered to the point of use and installed under this section of the specifications, for connection and plumbing by the mechanical division of the specifications.

- .3 All service fittings shall be factory assembled (including the assembly of valves and shanks to turrets, flanges and other mounting accessories), and each fixture shall be individually tested.
- .4 Preparation:
  - .1 Provide openings, accesses, cutouts, etc., in casework units and tops as necessary to permit installation of fittings at the Project Site.
- .2 Electrical Service Fittings:
  - .1 Provide units with metal housing and gaskets required for mounting on laboratory casework. Receptacles, terminals, pilot lights, device plates, and accessories are specified in Division 26. Ensure fittings comply with required NEMA, ULC, UL and CSA standards as applicable.
  - .2 Provide types of fittings necessary for the services indicated on the Drawings.
  - .3 Preparation: Provide openings, accesses, cutouts, etc., in casework, reagent shelf supports, service chase columns and tops as necessary to permit installation of fittings at the Project Site.

## **2.8 CASEWORK HARDWARE**

- .1 Hardware, General: Provide manufacturer's standard satin-finish, commercial quality, heavy-duty complying with requirements indicated for each type.
- .2 Hinges: Stainless-steel, 5-knuckle hinges complying with BHMA 156.9, Grade 1, with antifriction bearings and rounded tips. Provide 2 for doors less than 48 inches high and 3 for doors more than 48 inches high.
- .3 Pulls: Stainless-steel, fastened from back with 2 screws. For sliding doors, provide plastic, or aluminum flush pulls. Provide 2 pulls for drawers more than 24 inches wide. Recessed pulls available in gray polypropylene.
- .4 Door Catches: Nylon-roller spring catch or dual, self-aligning, permanent magnet catch. Provide 2 catches on doors more than 48 inches high.
- .5 Drawer Guides: Stainless-steel Full Extension Ball Bearing Drawer Slide complying with ANSI/BIFMA X5.5-2008, ANSI/KCMA a 161.1-2006, ANSI-BHMA a 156.9-2010, NSF/ANSI 2 Food Equipment, SEFA-8-2007, WI.
- .6 Label Holders: Stainless-steel or chrome-plated, sized to receive standard label cards approximately 1 by 2 inches, attached with screws or rivets.
  - .1 Provide on all drawers

- .7 Drawer and Cupboard Locks: Cylindrical type, with cam, cylinder exposed, chrome-plated finish, complying with BHMA A156.11, Grade 1.
  - .1 Provide minimum of 2 keys per lock.
  - .2 Provide on all drawers and doors.
- 2.9 **PERFORMANCE REQUIREMENTS**
  - .1 Structural Performance: Provide stainless steel laboratory casework capable of withstanding the following loads without permanent deformation, excessive deflection, or binding of drawers and doors.
    - .1 Shelves of Base, Wall, and Storage Cabinets: 200 lbs.
    - .2 Drawers: 150 lbs.
    - .3 Wall Cabinets: 150lbs/ft.
    - .4 Floor-Supported Base Cabinets: 100-lbs/ft/ within cabinets, 75-lbs/ft. countertop.
- 3 Execution**
- 3.1 **EXAMINATION**
  - .1 Do not begin installation until substrates have been properly prepared.
  - .2 If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding
- 3.2 **PREPARATION**
  - .1 Clean surfaces thoroughly prior to installation.
  - .2 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- 3.3 **INSTALLATION**
  - .1 Coordinate cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures. Round internal corners of cut-outs and seal exposed cores.
  - .2 Scribe and cut as required, fit to abutting walls, and surfaces, fit properly into recesses and to accommodate columns, fixtures, outlets, or other projecting, intersecting or penetrating objects leaving a 0.8 mm gap maximum.
  - .3 Install in accordance with manufacturer's instructions.
  - .4 Casework Installation:
    - .1 Casework shall be set with components plumb, straight, and square, securely anchored to building structure with no distortion. Concealed shims shall be used as required.

- .2 Cabinets in continuous runs shall be fastened together with joints flush, uniform and tight with misalignment of adjacent units not to exceed 1/16 of an inch.
- .3 Wall casework shall be secured to solid material, not lath, plastic or gypsum board.
- .4 Top edge surfaces shall be abutted in one true plane. Joints are to be flush and gap shall not exceed 1/8 of an inch between tops.
- .5 Casework and hardware shall be adjusted and aligned to allow for accurate connection of contact points and efficient operation of doors and drawers without any warping or binding.
- .5 Countertop Installation:
  - .1 Countertops are to have been fabricated in lengths according to drawings, with ends abutting tightly and sealed with corrosion resistant sealant.
  - .2 Tops will be anchored to base casework in a single true plane with ends abutting at hairline joints with no raised edges at joints.
  - .3 Joints shall be factory prepared having no need for in-field processing of top and edge surfaces.
  - .4 Joints shall be dressed smoothly, surface scratches removed, and entire surface cleaned thoroughly.
- .6 Install millwork at locations shown on drawings. Position accurately, level, plumb straight.
- .7 **MW-1A, MW-1B – Upper and Lower Cabinets**
  - .1 Construct sink countertop sizes and details as noted.
  - .2 Construct countertop sizes and details as noted.
  - .3 Construct upper and lower storage sizes and details as noted.
  - .4 Construct cabinet frames, back, doors, shelves, end pedestals/fillers sizes and details as noted.
  - .5 Anchor to supports in a concealed manner
  - .6 Mitre joints at corners. Keep joints to a minimum.
  - .7 Round all corners, edges and ends.
  - .8 Drawer and Cupboard Locks
  - .9 Install brackets and supports supplied under work of Section 05 50 00.
- .8 **MW-2A, MW-2B, MW-2C – Upper and Lower Cabinets**
  - .1 Construct countertop sizes and details as noted.



- .2 Construct upper and lower storage sizes and details as noted.
- .3 Construct cabinet frames, back, doors, shelves, end pedestals/fillers, knee space rails sizes and details as noted.
- .4 Anchor to supports in a concealed manner
- .5 Mitre joints at corners. Keep joints to a minimum.
- .6 Round all corners, edges and ends.
- .7 Drawer and Cupboard Locks
- .8 Install brackets and supports supplied under work of Section 05 50 00.
- .9 **MW-5 – Mobile Workstation**
  - .1 Construct tabletop sizes and details as noted.
  - .2 Construct lower storage sizes and details as noted.
  - .3 Construct cabinet frames, shelves, end pedestals/fillers sizes and details as noted.
  - .4 Anchor to supports in a concealed manner
  - .5 Mitre joints at corners. Keep joints to a minimum.
  - .6 Round all corners, edges and ends.
  - .7 4 heavy duty swiveling casters per workstation.
  - .8 Install legs and supports supplied under work of Section 05 50 00.
- .10 Casework Installation:
  - .1 Peel protective plastic off all surfaces that will not be accessible after installation. Leaving on as much of the plastic as possible until the end of installation to ensure finish surfaces do not get scratched or damaged during installation.
  - .2 Set casework components plumb, level and true; shim as required, using concealed shims.
  - .3 Cabinets in continuous run must be fastened together flush, tight and uniform not exceeding 1/16" of an inch misalignment.
  - .4 Wall casework wall cleats shall be secured to solid supporting backing material, not to plaster, lath or gypsum board. Wall cabinets shall hang on wall cleats supported with solid backing materials at all times.
  - .5 Top surfaces shall be joined in one level plane. Joints to be flush and gaps shall not exceed 1/8 of an inch between the tops.
  - .6 Adjust casework and hardware so doors and drawers operate smoothly without warp or bind.

- .11 Fastening:
  - .1 Coordinate wall securement, anchorage, and blocking for stainless steel casework items.
  - .2 Position items of stainless steel casework Work accurately, level, plumb, true and fasten or anchor securely.
  - .3 Design and select fasteners to suit size and nature of components being joined. Use proprietary devices as recommended by manufacturer.
  - .4 Provide heavy duty fixture attachments for wall mounted cabinets.
  - .5 Set finishing nails to receive filler. Where screws are used to secure members, countersink screw in round cleanly cut hole and plug with wood plug to match material being secured.
- .12 Remove and replace damaged, and/or marked stainless steel casework.
- 3.4 **CLEANING**
  - .1 Remove all protective plastic and labels immediately after installation.
  - .2 Repair or remove and replace defective work as directed on completion of installation.
  - .3 Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish.
- 3.5 **PROTECTION**
  - .1 Protect installed products until completion of project.
  - .2 Counter tops and ledges shall be protected with 6mm (1/4") ribbed cardboard for the remainder of the construction process.
  - .3 Examine casework for damaged or soiled areas; replace, repair, and touch-up as required.
  - .4 Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION