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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | November 16, 2009 | Modified ‘Related Sections’ |
| 3 | June 7, 2012 | Addition of References and Replacement Parts sections to this page. |
| 4 | July 6, 2012 | Change tab settings in page 1-8. |
| 5 | April 23, 2015 | General formatting |
| 6 | April 7, 2016 | Phase 1 Update (AV) |
| 7 | November 29, 2016 | Update based on Legal’s comments eDOCs# 6293909 |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

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**The on-line copy is the current version of the document.**

# GEneral

## Work of This Section

### This section covers the work necessary of supplying, furnishing, installing and commissioning of laboratory casework, and equipment and accessories.

### Unit Responsibility:

#### The work requires that the laboratory casework and equipment complete with all accessories be the end product of one responsible system manufacturer or responsible system supplier.

#### Unless otherwise indicated, the Contractor shall obtain each item from the responsible supplier, which shall furnish all components and accessories to enhance compatibility, ease of operation and maintenance, and as necessary to place the equipment in operation in conformance with the specified performance, features and functions without altering or modifying the Contractor’s responsibilities under the Contract Documents.

#### The Contractor is responsible to the Region for providing the laboratory casework and equipment as specified herein.

## Related Sections

### *[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.*

### *Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.*

### *Contractor is responsible for coordination of the Work.*

### *This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]*

### *[List Sections specifying installation of products supplied but not installed under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Execution requirements for ...[item]... specified under this Section.

### *[List Sections specifying products installed but not supplied under this Section and indicate specific items.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Product requirements for ...[item]... for installation under this Section.

### *[List Sections specifying related requirements.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

#### Section 01300 – Submittals

#### Section 01430 – Operations and Maintenance Data

#### Section 01740 – Cleaning

#### Section 05050 – Welding

#### Section 05500 – Metal Fabrications

#### Section 09900 – Painting and Protective Coatings

#### Section 15100 – Plumbing Piping

#### Section 15410 – Plumbing Fixtures

#### Section 15810 – Metal Ductwork and Accessories

#### Section 15830 – Fans

#### Section 16010 – Electrical General Requirements

## References

### Comply with the latest edition of the following statutes, codes, standards, and all amendments thereto:

#### ASTM - American Society for Testing and Materials

##### ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

#### Builders Hardware Manufacturers Association:

##### ANSI/BHMA A156.9-2010, Cabinet Hardware.

#### Canadian General Standards Board (CGSB).

##### CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.

##### CAN/CGSB-12.3-M91, Flat, Clear Float Glass.

#### *[Consultant to determine replacement for withdrawn standards and amend as appropriate]*

## Submittals

### Shop Drawings:

#### Make, model, weight and horsepower of each equipment assembly.

#### Indicate casework locations, large scale plans, elevation, cross sections, rough-in and anchor placement dimensions and tolerances, clearances required, material, thickness and finish.

#### Product Data: Submit component dimensions, configurations, construction details, joint details, attachments, utility and service requirements and locations.

#### Samples

##### Submit two samples, minimum size 75 mm x 150 mm of each colour of base material finish.

##### Submit two samples 200 mm x 200 mm size, illustrating glass type.

### Informational Submittals:

#### Factory Functional Test Report.

#### Manufacturer’s Certification of Compliance that the factory finish system is identical to the requirements specified herein

#### Manufacturer’s instructions indicate special shipping, storage and protection, installation and handling requirements.

#### Manufacturer’s Certificate of Proper Installation.

#### Operation and maintenance Data: As specified in Section 01430 - Operation and Maintenance Data.

#### List of spare parts.

#### List special tools, materials, and supplies furnished with equipment for use prior to and during startup and for future maintenance.

## Quality Assurance

### Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

### Site sample

#### Provide site sample of casework, provide full size base cabinet and base, and upper cabinet complete with drawers, door adjustable shelf and counter top.

#### Site sample, approved by the Consultant, may remain as part of the work.

## Delivery, Storage, and Handling

### Accept casework on site. Inspect on arrival for damage.

## Site Conditions

### Verify that field measurements are as indicated on the shop drawings.

## Sequencing and Scheduling

### Schedule work to not deliver casework to the Site until destination space is ready to receive it.

## Measurement and Payment

*[Choose one of the following payment language provisions that best suits the individual project.*

*If this Section is not specifically referenced by an item in the Bid Form, please use the following language:*

### 1. The work of this Section will not be measured separately for payment. All costs associated with the work of this Section shall be included in the Contract Price.

*OR If this Section is specifically referenced in the Bid Form, use the following language and identify the relevant item in the Bid Form:*

### All costs associated with the work of this Section shall be included in the price(s) for Item No(s). \_\_\_ in the Bid Form.

*If the work of this Section is to be measured and paid for by several different methods, please amend the standard wording given above to reflect the different methods of measurement and payment.*]

# PRODUCTS

## Manufacturers

#### *[Consultant to provide 3 acceptable products]*

#### Approved Equivalent

## Materials

### Laboratory furniture and fume hoods: [     ], standard metal construction, colour: To later selection.

### *[Consultant to confirm which equipment listed in Table 1 is to be housed within cabinetry]*

### Safety glass: CAN/CGSB-12.1-M90, M type 1 or 2, fully tempered clear flat, 6 mm thick minimum; exposed edges ground, cut or drilled to receive hardware.

### Counter tops back splash and side splash: modified epoxy resin manufactured by [     ]. Colour: [     ].

### Service fittings and fixtures:

#### Double sink preferred

#### Cup sinks: stainless steel with waste fittings.

#### Escutcheons: Stainless steel.

#### Fume Hood: [     ] model, manufactured by [     ]. Provide 316 S/S Square Corner interior lining, UL/CSA approved fluorescent light fixture with left corner post mounted UL/CSA approved switch, two UL/CSA approved 120V duplex receptacles, one per side. Provide cut outs for fan switch, and single point baffle control.

#### Fume Canopy: [     ] model, manufactured by [     ]. Provide fixed baffle.

#### Single Sink: [     ] model, manufactured by [     ].

#### Sink Faucet: [     ] Model, manufactured by [     ]. Provide rigid gooseneck hot and cold water faucet with aerator.

#### Electrical outlet covers: Stainless steel.

## Laboratory Equipment

*[Consultant to amend table below in collaboration with Region based on project requirements]*

**Table 1- Laboratory Equipment**

|  |  |  |
| --- | --- | --- |
| Quantity | Item | Catalogue # |
| 1 | HACH DR 100 test kit for Chlorine Residuals (or approved equivalent) |  |
| 1 | HACH DR 5000 (or approved equivalent) for testing various parameters, to include testing reagents for chlorine and ammonia. |  |
| 1 | Electronic balance, 205 g capacity, readable to 0.1 mg, mettler or approved equivalent. |  |
| 1 | Accumet 1001 Portable pH meter (or approved equivalent) |  |
| 1 | Accumet 950 Selective Ion Analyzer with RS232-C computer connection and: ATC Probe, Combination pH electrode (or approved equivalent) |  |
| 1 | Jar Stirrer Unit (Phipps & Bird) with 6 paddles and illuminated base(VWR Scientific) |  |
| 8 | 1.5 L beakers |  |
| 1 | Mettler Toploading Balance(0-6000 g capacity; readable to 0.1 g) |  |
| 1 | Corning Combination Stirrer/Hot Plate (or approved equivalent) |  |
| 1 | Corning Hot Plate (or approved equivalent) |  |
| 1 | Incubator for on-site BOD analysis(VRW Scientific) |  |
| 1 | Stirrer Unit |  |
| 1 | Magnetic stirring bar kit |  |
| 2 | 50 mL graduated Kimax-brand burets |  |
| 1 | Fisher double buret support, complete with base and clamp |  |
| 1 | Pyrex brand two-part distilling head |  |
| 2 | 500 mL boiling flasks |  |
| 1 | Muffle Furnace – Thermolyne Type 1400 (or approved equivalent) |  |
| 1 | Convection Oven – Fisher Isotemp 600 Series Standard Lab oven (Forced air model) (or approved equivalent) |  |
| 1 | Fisher Micromaster E Series Microscope (monocular) (or approved equivalent) |  |
| 1 | YSI Portable Dissolved Oxygen Meter Model [     ] equipped with: Oxygen/Temperature probeSingle-cable submersible stirrerBattery pack/chargerBOD Bottle Probe (nonstirring model) |  |
| 1 | Sludge Judge Sampler (VWR Scientific) |  |
| 1 | Ion-exchange Millipore unit for supplying laboratory-grade water |  |
| 4 | Volumetric pipets 10 mL |  |
| 4 | Volumetric pipets 25 mL |  |
| 4 | Volumetric pipets 50 mL |  |
| 1 | Pkg. of 200 Graduated 10 mL disposable polystyrene pipets |  |
| 4 | 25 mL graduated cylinders |  |
| 4 | 1000 mL graduated cylinders |  |
| 4 | 100 mL graduated cylinders |  |
| 12 | 250 mL pyrex beakers |  |
| 12 | 1000 mL pyrex beakers |  |
| 12 | 250 mL Erlenmeyer pyrex flasks |  |
| 1 | Buchner funnel, 9 cm |  |
| 1 | Filter vac funnel support (Canlab) |  |
| 2 | 1 L filtering flasks (Canlab) |  |
|  | 10 ft. Vacuum tubing, tygon, 6.5 mm ID x 4.8 mm wall thickness |  |
| 1 | Fisher airejector aspirator |  |
| 5 | Boxes of 100 9.0 cm diameter glass fibre filter paper (Reeve Angel or Whatman) |  |
| 2 | Beaker tongs |  |
| 3 | 1000 mL volumetric flasks |  |
| 6 | 500 mL wash bottles |  |
| 1 | Flask brush |  |
| 1 | 2 gallon carboy |  |
| 1 | Lab fridge – bar size |  |
| 1 | Vacuum Pump |  |

## Hardware

### Pulls: *[Consultant to provide details]-*Flush aluminum pulls.

### Hinges: *[Consultant to provide details]* – Standard chrome hinges.

## Fabrication - General

### Fabricate casework, assembled and welded. Coordinate size of units with access limitations of the building.

### Fabricate corners and joints without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.

### Fabricate components, of die formed sheet steel. Form each unit rigid, not dependent on adjacent units for rigidity.

### Form edges and seams smooth. Form material from continuous sheets.

### Fabricate countertop surfaces without visible joints.

### Set glass in doors with gasket and removable stops to minimize rattles or vibration.

### Cut and drill counter tops, backs and other components for service outlets and fixtures.

### Install fixtures and fittings built into or part of casework. Provide access panels for maintenance of utility service and mechanical and electrical components.

## Finishes

### Metal: Two coats of chemical resistant series 437 sicopoxy high solids thermosetting epoxy coating *[Consultant to confirm product and amend as required]* or approved equivalent. Colour: To later selection.

### Stainless steel: No. 4 finish.

### Shop finish components.

### Coat metal surfaces in contact with cementitious materials with bituminous paint.

# EXECUTION

## Examination

### Verify existing conditions.

### Verify adequacy of support framing and anchors.

### It is the responsibility of the contractor to fully coordinate delivery, installation and testing of all casework and equipment.

## Installation

### Lab cupboard should not be over counter.

### Coordinate casework installation with size, location and installation of service utilities.

### Install casework, components and accessories in accordance with manufacturer's instructions.

### Use anchoring devices to suit conditions and substrate materials encountered.

### Set casework items plumb and square, securely anchored to building structure.

### Insulate to prevent electrolysis between dissimilar metals.

### Scribe to abutting surfaces and align adjoining components. Apply matching filler pieces where casework abuts dissimilar construction.

### Field weld joints in stainless steel work, without open seams.

### Close ends of units, splash aprons, shelves and bases with sealant.

### Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

### Make all necessary piping and wiring and cable connections.

### Install equipment and all related accessories in accordance with the manufacturer’s instructions and to the satisfaction of the Consultant.

## Adjusting

### Adjust work for smooth operation.

### Adjust doors, drawers, hardware, fixtures, and other moving or operating parts to function smoothly.

## Cleaning

### Clean work.

### Clean casework, counters, shelves, glass, legs, hardware, fittings and fixtures.

## Protection of Finished Work

### Protect finished items of Work.

### Do not permit finished casework to be exposed to continued construction activity.

## Schedules

### Laboratory Casework: See Contract Drawings for model numbers and location.

**END OF SECTION**