F.O.B. destination, freight prepaid, set in place, not connected.

*This Section provides recommended general administrative provisions required when the laboratory casework and equipment is SUPPLIED AND SET IN PLACE, BUT NOT CONNECTED.*

*When a project has its own Conditions and Division 1, it may be preferable to amend those documents of the Project Manual and the specifications rather than to use this document separately.*

**1.01 SCOPE OF WORK OF THE LABORATORY EQUIPMENT CONTRACTOR**

 A. Laboratory casework and equipment: Furnish to building and un-pad and/or uncrate, set in place and level all specified casework and equipment.

 1. Equipment manufacturer shall be fully responsible for shipping and shall bear shipping expense, retain title during transit, and file damage claims as necessary.

 B. Plumbing fixtures and fittings: Furnish specified plumbing fixtures and fittings, complete with tank nipples and lock nuts for mounting fixtures and fittings on tops and on box curbs. Furnish products unassembled in cartons, properly marked, and turn over to plumbing contractor at the tailgate or at a single location designated by the equipment contractor.

 1. Nipples for hot and cold water to be brass.

 2. Furnish integral vacuum breakers only where specifically called for on drawings or in specifications.

 3. Furnish sink bowls and cupsinks complete with overflows, plugs and strainers as specified.

 4. Furnish above floor traps should be only where specified.

 5. Tailpieces: Integral tailpieces per manufacturer’s standards. Furnish tailpieces less couplings required to connect to the drain piping system.

 C. Electrical fixtures and fittings: Furnish specified electrical fixtures and fittings. Furnish products unassembled in cartons, properly marked, and turn over to electrical contractor at the tailgate or at a single location designated by the equipment contractor.

 D. Fume hoods and accessories: Furnish hoods [assembled with internal piping and wiring installed as specified] [unassembled, for assembly on job by others].

*The following three subparagraphs apply only to unassembled hoods, accessories and services.*

 1. Include all service fixtures and fittings, remote control rods, escutcheon plates, valve handles, remote control valves and nipples.

 2. Furnish fume hood blowers, when specified to be supplied by the equipment contractor, complete with suitable supports, silencers, switches and pilot lights.

 3. Wiring for blowers, for switches and for pilot lights not included in this contract.

 E. Accessory equipment: Furnish the following:

 1. Pipe supports where specified, in accordance with architectural drawings, located no closer than four feet on center.

 2. Service tunnels, service turrets, supporting structures and reagent racks of type shown or specified.

 3. Furnish “Service Lines” in reagent racks only when lines are specifically designated in specification as part of this work.

 F. Cleanup: Remove debris, dirt and rubbish accumulated as a result of delivery of this equipment and leave premised broom clean and orderly.

**1.02 RELATED WORK BY OTHERS**

*Include fume hoods in the following paragraph only if furnished unassembled.*

 A. Services to and within equipment: Furnishing, installation and connection of service lines, drain lines piping system, vacuum breakers and conduit within equipment [and fume hoods], in-service turrets or tunnels, through, under or along backs of working surfaces and in reagent racks above countertops.

1. Setting of plumbing fixtures: Setting of sink bowls, cupsinks, troughs, plumbing and accessory fixtures. Troughs and sinks, except the stainless steel drop-in type, shall be installed flush to underside of work surface with sufficient caulking to prevent leakage when working surfaces are installed by the equipment contractor.
2. Plumbing services: Furnishing, installation and connection of vents, revents, steam fittings and special plumbing fixtures or piping to meet local codes, whether or not specifically called for in the contract documents.

*Edit reference to fume hoods in the following paragraph if fume hoods furnished pre-assembled.*

1. Electrical services: Furnishings and installation of rigid and flexible conduit, fittings and special electrical equipment and accessories, wire, pulling of wire, and wiring and connection of switch to fume hood lights and blower motors. Installation of electrical boxes, receptacles, switches, lights and flush plates furnished by the equipment contractor. Work shall be in accordance with local codes, whether or not specifically called for in the contract documents.
2. Services for fume hoods: Furnishing, installation and connection of all ductwork from fume hoods to blowers to final point of discharge to the atmosphere. Blowers furnished by the equipment contractor shall be installed by the mechanical contractor and wired by the electrical contractor.
3. Bracing and supports: Furnishing and installation of all framing and reinforcements of walls, floors and ceiling necessary to adequately support the equipment, and all bucks and plaster grounds required for proper installation of equipment.
4. Miscellaneous materials: Furnishing of miscellaneous materials generally classified as maintenance or supply items.
5. Hoisting or elevator service: Provided by general contractor at no charge to equipment contractor.
6. Security during and after equipment installation: Protection provided by general contractor.
	1. **SUBMITTAL REQUIREMENTS**
7. Furnish three sets of shop drawings and one set of installation drawings for Contractor’s Owner’s and Architect’s use as required.

*Following submittal requirement for roughing-in drawings applied when equipment contractor furnishes all traps to floors and walls. When traps to floors and walls are supplied by others, roughing-in drawings should be provided by the contractor furnishing the traps.*

1. Furnish the Owner, without charge, six sets of roughing-in drawings.
2. Submit samples as specified. Owner shall furnish equipment contractor for approval of samples in writing.
	1. **INSPECTION AT FACTORY**
3. Owner has right to inspect equipment at contractor’s plant prior to shipment. Equipment found not to be in conformance with requirements of the contract documents may be rejected.
	1. **DEFINITIONS**
4. Service Fixtures
	* 1. Plumbing service fixtures: Oxygen, gas, air, vacuum and steam cocks; ball turrets; hot, cold and distilled water faucets; remote control valves, flask-washers, steam mixing valves; filter pumps; vacuum breakers; eye washers; shower heads; steam cones and steam baths; sinks, cupsinks, traps, plaster traps.
		2. Electrical service fixtures: Electrical convenience outlet boxes, electrical pedestals, “C” type conduits, single or duplex A.C. or D.C. receptacles, switches, variable voltage units and fluorescent tubes.
5. Service Lines
	* 1. Plumbing service lines: Oxygen, gas, air, vacuum, steam, hot and cold and distilled water piping; fittings; and shutoff valves necessary to carry respective services from the plumbing service fixtures through equipment to building roughing-in outlets in floors or walls.
		2. Electrical service lines: Conduit, junction boxes, conduit fittings and wire necessary to carry electrical services from the electrical service fixtures through equipment to building roughing-in outlets in floors or walls.
6. Others
	* 1. Separate and independent contractors having no connection whatsoever with the Laboratory Furniture and Equipment Contractor, whether or not both are subcontractors to a common General Contractor. Plumbing, Heating and Ventilating, and Electrical Contractors and other subcontractors and mechanics required to complete “Work by Others” are not to be reimbursed by the Laboratory Furniture and Equipment Contractor.
7. Glossary of Terms
	* 1. **Drain Line**: Pipe or tubing connecting the sink outlet or trap to the building waste line.
		2. **Filler Panel**: Panel used to close an open area between unit and wall or between two units.
		3. **Furnish**: Supply to other contractors or subcontractors – not installed by Laboratory Furniture and Equipment Contractor.
		4. **Knee Space Panel**: Panel used to close the area under an apron, to enclose the plumbing space, or to shield the knee space area.
		5. **Pipe Support**: Rack or framework supporting service lines and located in the service tunnel.
		6. **Reagent Rack**: Unit of shelves for storage of reagent bottles, located at the back of wall tables and down the middle of center tables, with provisions for support of service lines and fittings serving the table provided in the supporting mechanisms of the reagent rack.
		7. **Scribe**: Strip of material scribed to the wall and fastened to the casework, to form a tight enclosure where the casework abuts the wall.
		8. **Service Line**: Pipe or tubing used to convey the gas or liquid service from the building service line to the plumbing fitting on the laboratory equipment.
		9. **Service Tunnel**: Area provided for service lines in the back of, or between, base cabinets, and under the work surface.
		10. **Service Turret**: Enclosure projecting above the table top to provide room for the service line to be brought up through the table top or for connection of the service line to fittings mounted on the outside surface of the turret enclosure.
		11. **Silencers**: Vibration isolator pads used under the blowers to prevent the noise that would be generated due to the blower vibration.
		12. **Sink Outlet**: Flanged fitting recessed and sealed into the sink bottom to provide means of connecting sink to drainage system.
		13. **Tank Nipple**: Short piece of pipe with a tapered thread on one end and a tapered thread connecting to a running thread on the other, used to anchor the plumbing fitting to the table top, and to connect it to the service lines.
	1. **WARRANTY**
8. Provide manufacturer’s standard one-year warranty against defects in materials and workmanship.
9. Subject to provisions of the warranty, manufacturer agrees to repair or replace non-conforming products or its parts or to refund the purchase price, at the manufacturer’s option, for the warranty period following Substantial Completion.

END OF SECTION