F.O.B. destination, freight prepaid, erected and 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.*

*When laboratory casework and equipment are supplied and installed, delete references to final connections by others in the Related Sections paragraph of Part 1 the casework specifications.*

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

 A. Furnish laboratory casework and equipment. Furnish to building and un-pad and/or uncrate 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. Installation: Set casework and equipment in place, level, and scribe to walls as necessary. Completely install, erect and connect all fixtures, equipment and accessories ready for use. Work shall include:

 1. Scribes and filler panels.

 2. Service line piping, conduit and accessories necessary to properly connect fixtures, fittings, sinks and electrical outlets to building service outlets. Install in floor or walls per equipment manufacturer’s roughing-in drawings.

 3. Plumbing fixtures, sink plugs, traps and drain lines above floors, all installed, set and fully connected to building service outlets per equipment manufacturer’s roughing-in drawings.

 4. Connection of fume hoods to ducts based on ducts being roughed-in within two inches of hood outlets and properly aligned.

 5. Pipe supports where specified, service tunnels, service turrets, supporting structures, reagent racks and “Service Lines” in reagent racks.

 C. Clean up: Remove debris, dirt and rubbish accumulated as a result of delivery of this equipment and leave premises broom clean and orderly.

**1.02 RELATED WORK BY OTHERS**

 A. Framing and reinforcing of walls, floors and ceilings as required to adequately support equipment, and all plaster grounds and bucks required for proper installation of casework and equipment.

1. Building services to outlets and shutoff valves for connection of electrical and plumbing services to locations per equipment manufacturer’s roughing-in drawings.
2. Fume hood blower and properly installed transitions from fume hood outlet to ductwork to blower to atmosphere. Holes through exterior building walls for fume hood exhaust ducts, installation of exhaust ducts, and interior and exterior repair of walls after ducts are installed.
3. Building modifications and adjustment required to accomplish the work of the equipment contractor, including any cutting and patching required to accommodate equipment and services.
4. Miscellaneous materials: Furnishings of miscellaneous materials generally classified as maintenance or supply items.
5. Hoisting or elevator service: Provided by general contractor at no charge to the 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