

Scientific Equipment & Furniture Association

SEFA 5-2020 - SCOPE OF WORK STANDARD

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Foreword

SEFA Profile

The Scientific Equipment and Furniture Association (SEFA) is an international trade association comprised of manufacturers of laboratory furniture, casework, fume hoods and members of the design and installation professions. The Association was founded to promote this rapidly expanding industry and improve the quality, safety and timely completion of laboratory facilities in accordance with customer requirements.

SEFA Standards

SEFA and its committees are active in the development and promotion of Standards having domestic and international applications. SEFA Standards are developed by the association taking into account the work of other standard-writing organizations. Liaison is also maintained with government agencies in the development of their specifications.

SEFA's Standards are developed in and for the public interest. These practices are designed to promote a better understanding between designers, architects, manufacturers, purchasers, and end-users and to assist the purchaser in selecting and specifying the proper product to meet the user's particular needs. SEFA's Standards are periodically updated. The Standards are numbered to include an annual suffix which reflects the year that they were updated. SEFA encourages architects to specify this Standards as follows: "SEFA 5-2020"

SEFA Glossary of Terms

SEFA has developed a Glossary of Terms (SEFA 4-2020) for the purpose of promoting a greater understanding between designers, architects, manufacturers, purchasers and end users. The terms defined by SEFA are frequently used in contracts and other documents, which attempt to define the products to be furnished or the work involved. The Association has approved this Glossary in an effort to provide uniformity among those who use these terms. Where a specific Standard contains definitions which differ from those in the Glossary of Terms, then the definitions in the specific Standard should be used.

SEFA encourages all interested parties to submit additional terms or to suggest any changes to those terms already defined by the Association. The definitions should be used to help resolve any disputes that may arise or to incorporate the applicable terms in any contract or related documents.

SEFA Disclaimer

SEFA uses its best effort to promulgate Standards for the benefit of the public in light of available information and accepted industry practices. SEFA does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with SEFA Standards or that any tests conducted under its Standards will be non-hazardous or free from risk. SEFA encourages the use of third party independent testing where appropriate.

1.0 Glossary of Terms

Customer: Can be any one or combination of these listed: Architect, Buyers, Contractors, Engineers, End Users, Specifying Engineers, Purchasers, Construction Managers or Owners.

Drain Line: The pipe or tubing used to connect the sink tail piece or trap to the building waste line.

Electrical Service Fixture: Outlet or other electrical device directly attached to the laboratory furniture and equipment.

Filler Panel: A panel used to close an open area between a unit and a wall or between two units.

Furnish: Supply to other contractors; not installed by Laboratory Furniture Equipment Manufacturer.

Integral Vacuum Breakers: A vacuum breaker which is formed as a unit with the faucet gooseneck.

Job Site: Physical location or building site where laboratory furniture is to be installed.

Knee Space Panel: A panel used to close the area under an apron, to enclose the plumbing space, or to shield the knee space area.

Laboratory Furniture and Equipment: The casework, fume hoods, work surfaces, sinks, fixtures, shelves, and associated hardware as detailed.

Pipe Support: A rack of framework located in the service tunnel used to support the service lines.

Reagent Rack: A shelf, or shelves, provided at the back of wall assembly, or down the middle of center tables, island or peninsulas to provide storage for reagent bottles, with provision made for the support of mechanical or electrical service lines and service fittings as needed.

Rough-Ins: The location for the point of connection for plumbing, electrical, or mechanical services within the casework service tunnel chase shall be located within fifteen feet (15') or as

stated by local codes, whichever is less, of the final fixture location.

Service Fitting: Any device designed to control and/or guide the flow of water, steam, vacuum or gases.

Service Line: Pipe or tubing used to convey the service, gas or liquid, from the building service line to the service fitting on the laboratory furniture or equipment.

Service Strip: A rack or framework used to support the service line.

Service Tunnel or Service Chase: Area in back of or between the backs of base cabinets and under the working surface provided to allow room for several lines.

Service Turret: An enclosure that projects above the table top to provide room for the service line to be brought up through the table top or be connected to the service fittings that are mounted on the outside surface of the enclosure.

Service Umbilical: A fully enclosed chase containing service lines extending from the ceiling area above the laboratory bench into the service tunnel of the same laboratory bench.

Sink Outlet: A flanged fitting that is recessed and sealed into the sink bottom to provide means of connecting sink to drainage system.

Tail Piece: The connecting fitting used to connect the sink outlet to the trap or drain line. Tail piece may be an integral part of the sink outlet or a separate piece.

2.0 F.O.B. Origin

2.1. General Requirements

Laboratory furniture and equipment covered by this specification and accompanying drawings shall be supplied under the direction of one Laboratory Furniture and Equipment Contractor to eliminate any divided responsibility, unless specified to the contrary.

Bidders must be prepared to provide within 10 days before opening of bids the following proof of their ability to perform under this contract. They have satisfied the project specifications for qualifications and experience (Usually three years experience and ten completed projects of comparable size and scope within the most recent three year period.)

Financial and technical resources of sufficient scope to assure prompt and satisfactory performance in the production and delivery of equipment specified so as not to delay the program of the work. Failure to meet any of these requirements and qualifications may be sufficient cause for the rejection of any or all bids, and to award the contract to other than the lowest bidder, if in the specifiers opinion, such action would insure better performance and a higher level of quality and value.

2.2 Standard Of Quality

It is the prime intent of this specification and applicable drawings to show and define the essential minimum requirements as to the quality of materials, construction, finish and overall workmanship. Furniture and/or equipment differing from that specified will not be considered unless ample proof is submitted with the proposal in the form of complete drawings and samples indicating all essential requirements of this specification are adhered to. The owner, or their designated representative, reserves the right to reject any quotation offering equipment which in his considered opinion does not meet the standard of quality established by the specification.

2.3 Conditions Of Purchase

F.O.B. origin, freight prepaid and added to invoice. The laboratory Furniture and Equipment Contractor shall prepay freight cost and include it as a separate invoice item. Customer accepts title and equipment at F.O.B point loaded onboard transportation vehicle. Customer is responsible for filing and collecting freight claims.

2.4 Equipment and Service Fixtures Supplied By Laboratory Furniture and Equipment Contractor

2.4.1 Furnish all laboratory furniture and equipment, tops, ledges and supporting structures, fume hoods, vented enclosures or vented devices and miscellaneous items of equipment as listed in this specification or equipment schedules or as specifically noted on drawings. Furnish all filler panels, knee space panels where specified, and scribes as shown. Laboratory furniture and equipment to be furnished as designed and properly marked for installation on job site by appropriate trades.

2.4.2 Furnish, packed in boxes for installation by trade contractor, laboratory sinks, drains, drain troughs, overflows, and sink outlets. These shall be furnished unassembled in properly marked cartons and turned over to the proper trade at the tailgate or single location designated by the Laboratory Furniture and Equipment Contractor. Traps, tailpieces and special coupling devices shall be provided by others.

2.4.3 Furnish, packed in boxes for installation by trade contractor, faucets and plumbing service supply fixtures to attach to the furniture or equipment as called for in the specifications, equipment list or shown on drawings, complete with tank nipples and lock nuts for mounting fixtures on tops or curbs. These shall be furnished unassembled in properly marked cartons and turned over to the proper trade at the tailgate or at a single location designated by the Laboratory Furniture and Equipment Contractor, for distribution, mounting and connection by the plumber. Integral vacuum breakers shall be furnished only as called for in the specifications and where these are part of the equipment

as listed in the specifications, equipment schedule or shown on drawings.

2.4.4 Furnish electrical service fixtures directly attached to the casework or equipment as called for in the specifications, equipment list and/or shown on drawings. Fixtures shall be furnished unassembled, in cartons, properly marked and

shall be turned over to the electrician at the tailgate of the transportation vehicle or at a single location designated by the Laboratory Furniture and Equipment Contractor for distribution, mounting, and connection by the electrician.

2.4.5 Furnish service strip supports, service tunnels, service turrets, supporting structures and reagent racks of type shown on details or specified. Furnish pipe supports as specified as shown on architectural drawings located to no more than four feet (4') between centers. Furnish service lines in reagent racks only when such service lines are specifically noted as part of the specification.

2.4.6 Furnish fume hood blowers only when specifically listed in this section of the specification, equipment schedule or drawings.

2.4.7 Furnish additional cabinet hardware accessories such as locks, label holders, base molding, etc., only when specifically called out to be furnished in this section of the specifications.

2.4.8 The manufacture of furniture or equipment shall be based upon field checked drawings under Section 2.6 Drawings.

2.4.9 Furniture and equipment shall be loaded under the direction of the Laboratory Furniture and Equipment Contractor's manufacturing plant into trucks which normally transport this type of equipment. Full truckload lots of furniture and equipment shall be packed, appropriately protected and shipped in a van and/or stipulated transportation. Less than truckload lots shall be crated, boxed or packed separately for protection, handling and minimum freight rates.

2.4.10 The Laboratory Furniture and Equipment Contractor will not assume responsibility for any aspect of the installation.

2.4.11 Glossary of Terms of SEFA are incorporated herein for reference.

2.4.12 Special Note to Other Sections:

It shall be the responsibility of the specifier to define the work indicated under preceding paragraphs 2.4.1 through 2.4.11, as all inclusive

and representing the total obligation of the Laboratory Furniture and Equipment Contractor, and to make such reference in the General Conditions and in the Scope of Work applicable to all other sections.

2.5 Equipment, Security and Work "By Others" Shall Include But Not Be Limited To:

2.5.1 Providing all framing and reinforcement to walls, floors, and ceilings necessary to adequately support the equipment, and all bucks and plaster grounds required for proper and safe installation of equipment.

2.5.2 Furnishing and installation of rough-in to point stipulated in LFE supplier drawings of all service lines, drain lines, piping, system backflow prevention, vents, revents, steam fittings and special plumbing fixtures or piping to meet local codes even though not specifically called for in Laboratory and Furniture and Equipment Contractor's specifications and/or shown on drawings.

2.5.3 Furnishing, installing and connecting of all duct work from fume hoods, vented enclosures and vented devices to blowers and from blowers to final point of discharge to atmosphere.

2.5.4 Hoisting or elevator service at no charge to Laboratory Furniture and Equipment Contractor.

2.5.5 Furnishing fluorescent tubes, light bulbs, and any miscellaneous materials generally classified as maintenance or supply items.

2.5.6 Providing protection and security during and after laboratory furniture and equipment installation.

2.5.7 Receiving, distributing, unpacking, inventorying and installing all laboratory furniture and equipment tops, ledges and supporting structures, fume hoods, vented enclosures or vented devices and miscellaneous items of equipment as listed in this specification, or equipment as listed in this specification, or equipment schedules or as specifically noted on drawings including all filler panels, knee

space panels where specified, and scribes as shown on Laboratory Furniture and Equipment shop drawings in accordance with SEFA 2-2010, manufacturer's installation instructions and local codes and regulations. Provide dumpster and/or other waste disposal at no cost to Laboratory Furniture and Equipment Contractor.

2.5.8 Receiving, distributing, unpacking, inventorying, installing and connecting, ready for use, all laboratory sinks, drains, drain troughs, overflows, and sink outlets. Supply and install all traps, tail pieces and any special coupling devices.

2.5.9 Receiving, distributing, unpacking, inventorying, installing and connecting, ready for use, all faucets and plumbing service supply fixtures attached to the furniture or equipment as called for in the specifications, equipment list or shown on drawings.

2.5.10 Receiving, distributing, unpacking, inventorying, installing and connecting, ready for use, all electrical service fixtures and devices.

2.6 Drawings

The Laboratory Furniture and Equipment Contractor shall furnish the customer with three sets of shop drawings, which will cover all items described in the furniture and equipment schedule and/or as shown on the drawings. In addition, he shall supply, without charge, one set of as-built drawings.

The Laboratory Furniture and Equipment Contractor shall furnish the customer with three sets of rough-in drawings detailing the locations of sinks and sink outlets, gas valves, chases, service lines, drain lines, piping, system vacuum breakers and conduit.

Additional prints required shall be furnished at a nominal charge to the owner.

The customer shall furnish the Laboratory Furniture and Equipment Contractor verified building measurements, at the time of order or at the time specified by the Lab Furniture and Equipment Contractor, as they exist to insure the proper fitting of all items of equipment furnished by the contractor.

2.7 Samples

When requested by the customer, samples as specified shall be submitted and approval before proceeding with any of the work. Product samples will be the basis of evaluation and any samples which do not meet the quality standards of the architect's specifications shall constitute a basis of rejection of the quotation. Samples shall clearly show the following:

1. Top Construction
2. Drawer Construction
3. Corner and Leg Construction
4. Cabinet Construction
5. Door Construction
6. Finish
7. Hardware
8. Service Fixtures
9. Sink Construction

Samples shall be held by the customer for the duration of the project as a means for comparison of products supplied. Customer shall furnish contractor with written sample approval.

2.8 Inspection

Furniture and equipment may be inspected by the customer at the Laboratory Furniture and Equipment Contractor's manufacturing plant at the customer's expense prior to shipment. Any equipment found not to be in accordance with the project documents, approved shop drawings and approved samples may be rejected. All rejected furniture and equipment must be promptly replaced or modified at no cost to the customer.

3.0 Delivered and Installed

3.1 General Requirements

Laboratory furniture and equipment covered by this specification and accompanying drawing shall be supplied under the direction of one Laboratory Furniture and Equipment Contractor to eliminate any divided responsibility, unless specified to the contrary.

Bidders must be prepared to provide within 10

days before opening of bids, the following proof of their ability to perform under this contract.

1. They have satisfied the project specifications for qualifications and experience. (Usually three years experience and ten completed projects of comparable size and scope within the most recent three year period.)

2. Financial and technical resources of sufficient scope to assure prompt and satisfactory performance in the production and delivery of equipment specified so as not to delay the progress of work.

Failure to meet any of these requirements and qualifications may be sufficient cause for the rejection of any or all bids, and to award contract to other than the lowest bidder if in the specifier's opinion, such action would insure better performance and a higher level of quality and value.

3.2 Standard of Quality

It is the prime intent of this specification and applicable drawings to show and define the essential minimum requirements as to the quality of materials, construction, finish and overall workmanship. Furniture and/or equipment different from that specified will not be considered unless ample proof is submitted with the proposal in the form of completed drawings and samples indicating all essential requirements of the specification are adhered to. The owner, or their designated representative, reserves the right to reject any quotation offering equipment which in his considered opinion does not meet the standard of quality established by this specification.

3.3 Conditions of Purchase

The Laboratory Furniture and Equipment Contractor shall be fully responsible for shipping and shall bear shipping expense, retain title during transit and file freight damage claims as necessary. Title transfers to the buyer upon substantial completion.

3.4 Equipment and Service Fixtures Supplied By Laboratory Furniture and Equipment Contractor

3.4.1 Furnish, deliver and install all laboratory furniture and equipment, tops, ledges and supporting structures, fume hoods, vented enclosures or vented devices and miscellaneous items of equipment as listed in this specification, or equipment schedules or as specifically noted on the drawings. Furnish all filler panels, knee space panels where specified, and scribes as shown. Laboratory furniture and equipment to be furnished as designed and properly marked for installation on job site by Laboratory Furniture and Equipment Contractor.

3.4.2 Furnish and deliver, packed in boxes for installation by trade contractor, laboratory sinks, drains, troughs, overflows, and sink outlets. These shall be furnished unassembled in properly marked cartons and turned over to the proper trade at the tailgate or a single location designated by the Lab Furniture and Equipment Contractor. Traps, tail pieces and special coupling devices shall be provided by others.

3.4.3 Furnish and deliver to respective trades' care and custody, packed in boxes for installation by trade contractor, faucets and plumbing services supply fixtures attached to the furniture or equipment as called for in the specifications, equipment list or shown on drawings, complete with tank nipples and lock nuts for mounting on tops or curbs. These shall be furnished unassembled in properly marked cartons and turned over to the proper trade at the tailgate or at a single location designated by the Laboratory Furniture and Equipment Contractor, for distribution mounting and connection by the plumber. Internal vacuum breakers shall be furnished only as called for in the specifications and where these are part of the equipment as listed in the specifications, equipment schedule or shown on drawings.

3.4.4 Furnish and deliver electrical service fixtures directly attached to the casework or equipment as called for in the specifications, equipment list and/or shown on drawings. Fixtures shall be furnished unassembled in

cartons, properly marked and shall be turned over to the electrician at the tailgate of the transportation vehicle or at a single location designated by the Laboratory Furniture and Equipment Contractor for distribution, mounting and connection by the electrician.

3.4.5 Furnish and deliver service strip supports, service tunnels, service turrets, supporting structures and reagent racks of type shown on details or specified. Furnish pipe supports as specified as shown on architectural drawings located no more than four feet (4') between centers. Furnish service lines in reagent racks only when such service lines are specifically noted as part of this section of specifications.

3.4.6 Furnish and deliver fume hood blowers only when specifically listed in this section of the specifications, equipment schedule or drawings.

3.4.7 Furnish additional cabinet hardware accessories such as locks, label holders, base molding, etc. only when specifically called out to be furnished in this section of the specifications.

3.4.8 The manufacture of furniture or equipment shall be based upon field checked drawings under Section 3.6 Drawings.

3.4.9 Furniture and equipment shall be loaded under the direction of the Laboratory Furniture and Equipment Contractor's plant into trucks, which normally transport this type of equipment. Full truckload lots of furniture and equipment shall be packed, appropriately protected and shipped in a van and/or stipulated transportation. Less than truck load lots shall be crated, boxed or packaged separately for protection, handling and minimum freight rates.

3.4.10 The Laboratory Furniture and Equipment Contractor assumes responsibility for installation, which shall be performed in accordance with SEFA 2-2010.

3.4.11 SEFA 4-2010 Glossary of Terms is incorporated herein by reference.

3.4.12 Special Note to Other Sections:

It shall be the responsibility of the specifier to

define the work indicated under preceding paragraphs 3.4.1 through 3.4.11 as all inclusive and representing the total obligation of the laboratory furniture and equipment contractor, and to make such reference in the General Conditions and in the Scope of Work Applicable to all other sections.

3.5 Equipment, Security and Work "By Others" Shall Include But Not be Limited To

3.5.1 Providing all framing and reinforcement to walls, floors and ceiling necessary to adequately support the equipment, and all bucks and plaster ground required for proper and safe installation of equipment.

3.5.2 Furnishing and installing of rough-in to point stipulated in LFE supplier drawings of all service lines, drain lines, piping, system backflow prevention, conduit and wiring including GFI protection, vents, revents, steam fittings and special plumbing fixtures or piping to meet local codes even though not specifically called for in Laboratory Furniture and Contractor's specifications and/or shown on drawings.

3.5.3 Furnishing, installing and connecting of all duct work from fume hoods, vented enclosures and vented devices to blowers and from blowers to final point of discharge to atmosphere. Blowers, when so specified to be furnished by Laboratory Furniture and Equipment Contractor, shall be handled and/or installed by others.

3.5.4 Hoisting or elevator service at no charge to Laboratory Furniture and Equipment Contractor.

3.5.5 Furnishing fluorescent tubes, light bulbs and any miscellaneous materials generally classified as maintenance or supply items.

3.5.6 Providing protection and security during and after laboratory furniture and equipment installation.

3.5.7 Providing dumpster and/or other waste disposal at no cost to the Laboratory and Equipment Contractor.

3.5.8 Receiving, distributing, unpacking, inventorying, installing and connecting ready for use all laboratory sinks, drains, drain troughs, overflows, and sink outlets. Supply and install all traps, tailpieces and any special coupling devices.

3.5.9 Receiving, distributing, unpacking, inventorying, installing and connecting ready for use all faucets and plumbing service supply fixtures attached to the furniture or equipment as called for in the specifications, equipment list or shown on drawings.

3.5.10 Receiving, distributing, unpacking, inventorying, installing and connecting ready for use all electrical service fixtures and devices.

3.6 Drawings

The Laboratory Furniture and Equipment Contractor shall furnish the customer with three sets of shop drawings, which will cover all items described in the furniture and equipment schedule and/or as shown on the drawings. In addition, he shall supply, without charge, one set of as-built drawings.

The Laboratory Furniture and Equipment Contractor shall furnish the customer with three sets of rough-in drawings detailing the locations of sinks and sink outlets, gas valves, chases, service lines, drain lines, piping, system vacuum breakers and conduit.

3.7 Samples

When requested by the customer, samples as specified shall be submitted and approved before proceeding with any of the work. Product samples will be the basis of evaluation and any samples which do not meet the quality standards of the architect's specifications shall constitute a basis of rejection of the quotation. Sample shall clearly show the following:

1. Top Construction
2. Drawer Construction
3. Corner and Leg Construction
4. Cabinet Construction
5. Door Construction
6. Finish

7. Hardware
8. Service Fixtures
9. Sink Construction

The customer shall furnish the contractor with written sample approvals.

3.8 Inspection

Furniture and equipment may be inspected by the customer at the Laboratory Furniture and Equipment Contractor's manufacturing plant and the customer's experience prior to shipment. Any equipment found not to be in accordance with the project documents, approved shop drawings, and approved samples may be rejected. All rejected furniture and equipment must be promptly replaced or modified at no cost to the customer.

4.0 Delivered, Installed and Connected

4.1 General Requirements

Laboratory furniture and equipment covered by this specification and accompanying drawings shall be supplied under the direction of one Laboratory Furniture and Equipment Contractor to eliminate any divided responsibility, unless specified to the contrary.

Bidders must be prepared to provide within 10 days before opening of bids the following proof of their ability to perform under this contract:

They have satisfied the project specifications for qualifications and experience (Usually three years experience and ten completed projects of comparable size and scope within the most recent three year period.) sufficient scope to assure prompt and satisfactory performance in the production and delivery of equipment specified so as not to delay the progress of the work.

Failure to meet any of the requirements and qualifications may be sufficient cause for the rejection of any or all bids, and to award contract to someone other than the lowest bidder if, in the opinion of the specifier, such action would insure better performance and a high level of quality and value.

4.2 Standard of Quality

It is the prime intent of this specification and applicable drawings to show and define the essential minimum requirements as to the quality of materials, construction, finish **and** overall workmanship. Furniture and/or equipment differing from that specified will not be considered unless ample proof is submitted with the proposal in the form of complete drawings and samples indicating all essential requirements of the specifications are adhered to. The owner, or their designated representative, reserves the right to reject any quotation offering equipment which in his considered opinion does not meet the standard of quality established by the specifications.

4.3 Conditions of Purchase

The Laboratory Furniture and Equipment Contractor shall be fully responsible for shipping and shall bear shipping expense, retain title during transit, and file freight damage claims as necessary. Title transfers to the buyer upon substantial completion

4.4 Equipment and Service Fixtures Supplied By the Laboratory Furniture and Equipment Contractor Shall Include:

4.4.1 Furnish, deliver and install all laboratory furniture and equipment, tops, ledges and supporting structures, fume hoods, vented enclosures or vented devices and miscellaneous items or equipment as listed in this specification, or equipment schedules or as specifically noted on drawings. Furnish all filler panels, knee space panels where specified, and scribes as shown. Laboratory furniture and equipment to be furnished as designed and properly marked for installation on job site by Laboratory Furniture and Equipment Contractor.

4.4.2 Furnish, deliver and install laboratory sinks, drains, drain troughs, overflows, and sink outlets. Traps, tailpieces and special coupling devices shall be provided by others.

4.4.3 Furnish, deliver and install faucets and plumbing service supply fixtures attached

to the furniture or equipment as called for in the specifications, equipment list or shown on drawings, complete with tank nipples and lock nuts for mounting fixtures on tops or curbs. Integral vacuum breakers shall be furnished only as called for in the specification and where these are part of the equipment as listed in the specifications, equipment schedule or shown on drawings.

4.4.4 Furnish and deliver electrical fixtures directly attached to the casework or equipment as called for in the specifications, equipment list and/or shown on drawings. Devices shall be furnished unassembled, in cartons, properly marked and shall be turned over to the electrician at the tailgate of the transportation vehicle or at a single location designated by the Laboratory Furniture and Equipment Contractor for distribution, mounting, and connection by the electrician. Service boxes, pedestals shall be mounted in place ready for attachment of conduit.

4.4.5 Furnish, deliver and install service strip supports, service tunnels, service turrets, supporting structures and reagent racks of type shown on details or specified. Furnish pipe supports as specified and as shown on architectural drawings located no more than four feet (4') between centers. Furnish service lines in reagent rack only when such service lines are specifically noted as part of this section of specifications.

4.4.6 Furnish and deliver fume hood blowers only when specifically listed in this section of the specification, equipment schedule or drawings.

4.4.7 Furnish additional cabinet hardware accessories such as locks, label holders, base molding ,etc., only when specifically called out to be furnished in this area of the specifications.

4.4.8 The manufacture of furniture or equipment shall be based upon field checked drawings under section 4.6 Drawings.

4.4.9 Furniture and equipment shall be loaded under the direction of the Laboratory Furniture and Equipment Contractor's manufacturing plant into trucks which normally transports this type of equipment. Full truckload lots of furniture

and equipment shall be packed, appropriately protected and shipped in a van and/or stipulated transportation. Less than truckload lots shall be crated, boxed or packaged separately for protection, handling and minimum freight rates.

4.4.10 Glossary of terms of SEFA are incorporated herein by reference.

4.4.11 Special Note to Other Sections.

It shall be the responsibility of the Specifier to define the work indicated under preceding paragraphs of this section as all inclusive and representing the total obligation of the Laboratory Furniture and Equipment Contractor, and to make such reference in the General Conditions and in the Scope of Work applicable to all other sections.

4.5 Equipment, Security And Work "By Others" Shall Include But Not Be Limited To:

4.5.1 Providing all framing and reinforcement to walls, floors, and ceilings necessary to adequately support the equipment, and all bucks and plaster grounds required for proper and safe installation. Furnishing and installation of rough-in to point stipulated in LFE supplier drawings of all service lines, drain lines, piping, system backflow prevention, conduit and wiring including system GFI protection, vents, revents, steam fittings and special plumbing fixtures or piping to meet local codes, even though not specifically called for in Laboratory Furniture and Equipment Contractor's specifications and/or shown on drawings.

4.5.2 Furnishing, installing and connection of all duct work from fume hoods, vented enclosures and vented device to blowers and from blowers to atmosphere. Blowers when so specified to be furnished by Laboratory Furniture and Equipment Contractor, shall be handled and/or installed by others.

4.5.3 Hoisting or elevator service at no charge to Laboratory Furniture and Equipment Contractor.

4.5.4 Furnishing fluorescent tubes, light bulbs, and any miscellaneous material generally classified as maintenance or supply items.

4.5.5 Providing protection and security during and after laboratory furniture and equipment installation.

4.5.6 Providing dumpster and/or other waste disposal at no cost to Laboratory Furniture and Equipment Contractor.

4.5.6 Connecting ready for use all laboratory sinks, drains, drain troughs, overflows, sink outlets. Supply and install all traps, tailpieces and any special coupling devices.

4.5.7 Connecting ready for use all faucets and plumbing service supply fixtures attached to furniture or equipment as called for in the specifications, equipment list or shown on drawings.

4.5.8 Receiving and installing electrical devices and connecting, ready for use, all electrical service fixtures and devices.

4.6 Drawings

The Laboratory Furniture and Equipment Contractor shall furnish the customer with three sets of shop drawings, which will cover all items described in the equipment schedule and/or as shown on the drawings. In addition, he shall supply, without charge, one set of as-built drawings.

The Laboratory Furniture and Equipment Contractor shall furnish the Customer with three sets of rough-in drawings detailing the location of sinks and sink outlets, gas valves, chases, service lines, drain lines, piping, systems vacuum breakers and conduit.

Additional prints required shall be furnished as a nominal charge to the Owner.

The Customer shall furnish the Laboratory Furniture and Equipment Contractor verified building measurements, at time of order or at time specified by the Laboratory Furniture and Equipment Contractor, as they exist to insure the proper fitting of all items of equipment furnished by the Contractor.

4.7 Samples

When requested by the Customer, samples as specified shall be submitted and approved before proceeding with any of the work. Product samples will be the basis of evaluation and any samples which do not meet the quality standards of the architect's specifications shall constitute a basis of rejection of the quotation. Sample shall clearly show the following:

- (1) Top Construction
- (2) Drawer Construction
- (3) Corner and Leg Construction
- (4) Cabinet Construction
- (5) Door Construction
- (6) Finish
- (7) Hardware
- (8) Service Fixtures
- (9) Sink Construction

Samples shall be held by the Customer for the duration of the project as a means for comparison of products supplied.

The Customer shall furnish the Contractor with written sample approval.

4.8 Inspection

Furniture and equipment may be inspected by the Customer at the Laboratory Furniture and Equipment Contractor's manufacturing plant at the Customer's expense prior to shipment. Any equipment found not to be in accordance with the project documents, approved shop drawings, and approved samples may be rejected. All rejected furniture and equipment must be promptly replaced or modified at no cost to the Customer.