

University of South Carolina  
Project Name: Rebid USC Lancaster Bradley Hall Physics Lab Upgrades  
Project Number: 19010.01  
State Project Number: H37-9519  
Project Manager: Lee Miller

## **Addendum Number 2**

Date: August 20, 2019

From: GMK Associates

To All Bidders:

The following items add to, modify, clarify or otherwise alter the Drawings and/ or specifications and will be a part of the Contract Documents. Where a portion of the Drawings and/or specification is added to, modified or otherwise altered, the portion not so affected shall remain. Bidder shall include all effects that these items may have on this proposal. Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may subject Bidder to disqualification.

### **CHANGES TO PROJECT MANUAL:**

1. none

### **CHANGES TO THE DRAWINGS:**

1. none

### **CLARIFICATIONS:**

1. Q: The name of the controls contractor for this building.
  - a. A: Controls are Automated logic as listed in spec section 23 0923. Recommended contractor is Harris Integrated Solutions
2. Q: Does the stainless steel ductwork need to be welded?
  - a. A: Stainless steel ductwork shall be welded as listed in spec section 23 3100 2.03.d
3. Q: I will need the installation instructions for the owner furnished extractor arms.
  - a. A: Installation instructions can be obtained by download from Fume arm manufacturer website. Owner has arms onsite and should be able to give contractor access to manuals during construction. Model is Fischer Scientific FX2-CHEM-D100-L2400-UP-PLUS. Attached are some basic instructions as well on pages 59 and 60.
4. Lab Casework installation instructions attached.
5. USC Lancaster doesn't have a maintenance contract for the roof at present. The contractor is free to use a qualified roofer at their discretion. The roofer shall have at least 10 years verifiable experience working on built up roof systems.

End of Addendum Two

Attachment: Fisherbrand Lab Furnishings – Installation Procedure, Care and Maintenance



# Fisherbrand Lab Furnishings

Installation Procedure, Care and Maintenance Manual

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# 1. Definitions

**Acid Storage Cabinets:** Cabinets in which acids are stored to avoid having large quantities of hazardous material in the laboratory work area. This reduces the risk of personnel injury or damage to the work area of the laboratory.

**Approved:** Acceptable to the authority having jurisdiction.

**Authority Having Jurisdiction:** An organization, office or individual responsible for enforcing the requirements of code or standard, or for approving equipment, materials, and installation, or a procedure.

**Broom Clean:** A condition in an interior area in which surface debris has been removed by dry methods.

**Casework:** Base and wall cabinets, display fixtures and storage shelves. The generic term for both the “boxes” and special desk, reception counters, and the like. Generally, includes the tops and work surfaces.

**Corrosion Resistant Finishes:** Corrosion resistant finishes are applied to all exposed surfaces of laboratory products such as a service fitting, either colored or clear. The finish can be epoxy, epoxy/polyester hybrid, or polyester.

**Flammable/Solvent Storage Cabinets:** Cabinets in which heat ignitable materials are stored to prevent exposure to ignition sources and restrict access to unauthorized personnel.

**Grounds/Blocking:** Reinforcement within walls to provide adequate anchorage for wall hung or secured equipment. May be wood (2”x4” dimensional or 3/4” plywood) or metal (18 GA. Steel or equivalent), or in accordance with local building code requirements.

**Hazardous Storage Cabinets:** General term for cabinets that restrict access to chemicals that might be harmful or dangerous to students or other personnel not qualified to have access. These chemicals may include but are not limited to corrosives, acids, bases and other chemicals found in the laboratory.

**Laboratory Work Area:** The main area of the laboratory where chemicals are used during experiments, testing or teaching.

**May:** When used indicates an alternate requirement or option.

**Proper Authorities:** The party or parties designated by contract to approve additions, changes or deletions to contracts, plans, or specifications.

**Reasonably:** When used indicates using fair, and sensible methods within accepted industry standards and guidelines.

**Related Equipment:** Items not generally manufactured by a Scientific Equipment and Furniture Supplier, (SEF suppliers), but furnished and/or installed as part of the SEF supplier’s contract. These may consist of but are not limited to: instrumentation, environmental rooms, refrigeration systems, laboratory apparatus, etc.

**Rough-In Point:** Individual or common supply point or mechanical, electrical and heating, ventilating and air conditioning through wall, floor, or ceiling, located within the equipment chase.

**RTV Silicone Sealant:** Silicone is a compound highly resistant to heat, water, etc. Sealant hardens when exposed to air. RTV means, “room temperature vulcanizing” and will harden or cure without a heat gun or other heat source. Will form a permanent elastic watertight and weatherproof bond to many surfaces, such as glass, ceramic, metals, painted surfaces, and plastics.

# 1. Definitions

**Service Fitting and Fixture:** Any device that controls and/or guides the flow of gas, air, vacuum, water, steam, oxygen, or other such services used in a laboratory. Also known as Laboratory Service Fittings.

**Standard Tools:** Tools, such as a screwdriver, key wrench, flat-jawed wrench, strap wrench, and pliers, which are normally carried by tradesmen for installation and maintenance.

**Vent:** Ducting or piping system designed to remove or change the air in an enclosed space like storage cabinets.

## 2. General Site Conditions

**Site Access:** The site roadway should be of solid base and should allow motor vehicle delivery if inside storage or distribution is required, to either the outside hoist, if so required, or the tailgate delivery area. When a hoist or elevator is required, it shall be installed and made available to the installation team at no charge, unless otherwise specified. The receiving area in the building and corridors needed for casework and equipment shall be clear of materials of other trades to make reasonable access to elevators and final distribution.

**Building Finish:** Upon delivery of equipment to the job site, it should be possible to allow complete distribution and commencement of physical installation in the rooms where the equipment is designated to be installed. In order to ensure an orderly installation and to avoid damage to finished furniture, the following degree of building finish should be completed prior to installation of furniture and equipment:

- **Floors:** Floors shall be level within 1/8" (19mm) of level per 10' run, non-accumulative, when tested with a straight edge in any one direction. Floors which exceed this requirement will cause additional work during case work installation. Unacceptable gaps at floor and tolerances at scribes and fillers, due to this problem, which are detected during inspection stages, will not be the responsibility of the installation team. Final floor finish should be completed in those areas where equipment and casework is designated to be installed, or as specified in the bid documents.
- **Wall Systems:** Wall systems shall be completely installed and be plumb for installation of wall cabinets. Wall system finish should be complete and shall include, at a minimum, a prime coat of paint, appropriate with respect to the specifications. Wall systems shall include horizontal bracing supplied and installed by others for support of wall cases and equipment shelving as shown in submitted drawings or required by local code.
- **Ceiling System:** The ceiling system should be in a finished condition.
- **Branch Electrical Circuits:** Branch electrical circuits, including grounding conductors, should be in place.
- **Air Conditioning Grilles:** Air conditioning grilles, call systems and sprinkler heads should be installed.
- **Overhead Electrical Fixtures:** Overhead electrical fixtures should be installed and connected. Adequate lighting shall be available.
- **Overhead Mechanical Lines:** Overhead mechanical lines should be tested for leaks before finished furniture is installed in any area. Where mechanical, electrical and H.V.A.C. service lines will be behind or under furniture installed in designate locations, service access shut offs, or stubs shall be installed at the appropriate rough in point.
- **Service Lines:** Service lines for water, steam, gas and special gases shall be flushed clean of dirt and debris, capped and tested for leaks prior to the connection of service fittings. It is recommended that water be available in or near the rooms where counter tops are designated to be installed.
- **Environmental Conditions:** The building shall be secure and watertight. Exterior glazing and doors shall be installed providing protection from the elements and security for finished equipment and furniture. General conditions indicating readiness for delivery and installation include: Overhead ceiling work, duct work, lighting, acoustical ceiling, insulation, etc. is completed. Air handling and control systems are functioning and relatively constant temperature and humidity conditions are being maintained through owner acceptance. Temperature and humidity ranges of 65-80 degrees F (18-27 degrees C) and 30-50% r.h. are recommended.

# 3. Receiving, Distribution, Storage and Security

If installation cannot commence in a timely manner due to conditions beyond reasonable control, casework and equipment may be placed in temperature and humidity controlled storage. Additional costs for handling, shipping and storage shall be borne by the owner and/or general contractor.

Distribution of the equipment should be possible at the time of delivery. If, upon mutual agreement, earlier shipment is made and the casework is placed in temporary storage, it is to be secure from the elements, secure against damage by other trades and secure from loss.

In the case of high value items, such as service fittings, that may be shipped to the job site on larger projects and used over the course of several months installation, a secure, locked storage area shall be available to the subcontractor for use to safeguard this equipment as the job site prior to distribution to the proper trades for installation.

Additional costs associated with storage handling necessitated by job site conditions shall be borne by the customer.

Project/job site security and protection shall be the responsibility of the customer.

# 4. General Conformance to Building Specifications

It is intended that the work involved will be in general conformance with the project specifications. When a variation or conflict occurs regarding installation of equipment the issue will be brought to the attention of the proper authorities for immediate disposition.



# 5. Continuity and Cooperation with Other Trades

It shall be the responsibility of the installation team to cooperate with other trades. It is the responsibility of the customer to coordinate all trades. Casework, as installed, is considered to be finished equipment and shall be respected by all trades. Liability for damage shall be borne by the damaging party. If it is indeterminable who caused the damage it shall be the responsibility of the customer.

**Mechanical and Electrical Trades:** Where access is required through items of laboratory equipment, it shall be the service trades' responsibility to remove said access panels/drawers, etc., where they occur, and properly replace such access panels/drawers at their own expense. The installer setting laboratory equipment and the mechanical trades shall cooperate in order to maintain job continuity.

**Protection of Finished Surfaces:** At no time should the installed work be used by tradesmen as a workbench, scaffolding, etc. It will be the responsibility of other trades to perform minor wall touch-up (including final wall finish) and to adequately protect installed laboratory furniture and equipment, especially the laboratory work surface, from debris, paint and damage in the course of their operation, at their expense. At no time shall the work surfaces be walked on. The general contractor is responsible for security and protection of the completed portions of the laboratory until punch list process is completed.

# 6. Installation Procedure

## 6.1 Painted Steel and Stainless Steel Wall and Tall Cabinets

The high point of the wall off the floor should be established and the first cabinet should be anchored at this location. If the wall surface varies more than 3/8-inch (10mm), the appropriate governing authorities on the job site should be consulted relative to accepted procedure to correct prior to installation. Acceptable methods of fastening cabinets to the wall shall be as directed by specifications, or as usual and customary in order to provide a secure wall hung cabinet capable of handling appropriate weight loads. The structural wall system (including grounds/blocking) shall be capable of handling the appropriate loads.

Most installers prefer to hang wall cabinets first, which eliminates working over base cabinet assemblies. Each wall cabinet is attached to a horizontal hanger rail which is anchored to the wall and then bolted together. See Figure 6.1A.

When a row of wall cabinets is indicated, a chalk line should be snapped or laser level used to get all the hangers at the same level.

Proper fasteners and bolts must be used in assembly and mounting of our product. Wall construction is the determining factor. All wall/tall cabinets are required to be secured to either studs or in-wall blocking. Fasteners are furnished by the installer.

All cabinets should be checked to make sure they are not racked out of square by uneven floors. This is important to insure smooth operation of the doors.

To secure door cabinets together remove a screw from two (2) of the hinges on the frame of the cabinet and replace them with 1¼" long self-tapping screws to secure adjacent cabinets as shown in Figure 6.1A and 6.1C.

Tall cabinets should be leveled and anchored to the wall and bolted together. See Figure 6.1C.

### Hardware Used to Install Painted Steel and Stainless Steel Wall and Tall Cabinets

Part/Part Number	Description	Used For:
Commonly Available	Screw, #8 x 1 1/4" flat head, self-tapping	2 per wall cabinet to fasten together
Commonly Available	Screw, #8 x 1 1/4" flat head, self-tapping	3 per tall cabinet to fasten together
ICFC-1	Filler, Clip, 2.500 x 3.500 galvanized	4 per filler
Commonly Available	Screw, #8 x 1/2" pan head, self-tapping	2 per Bang-On clip
ICSC-1	Shelf clip	4 per shelf

# 6. Installation Procedure

Figure 6.1A

## Installing Steel Wall Cabinets

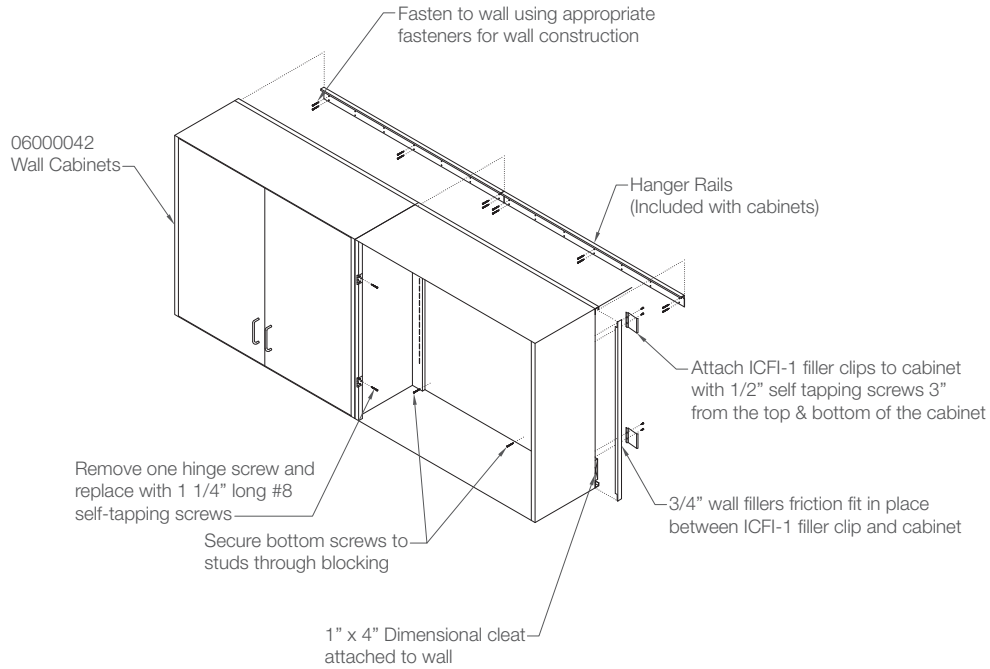
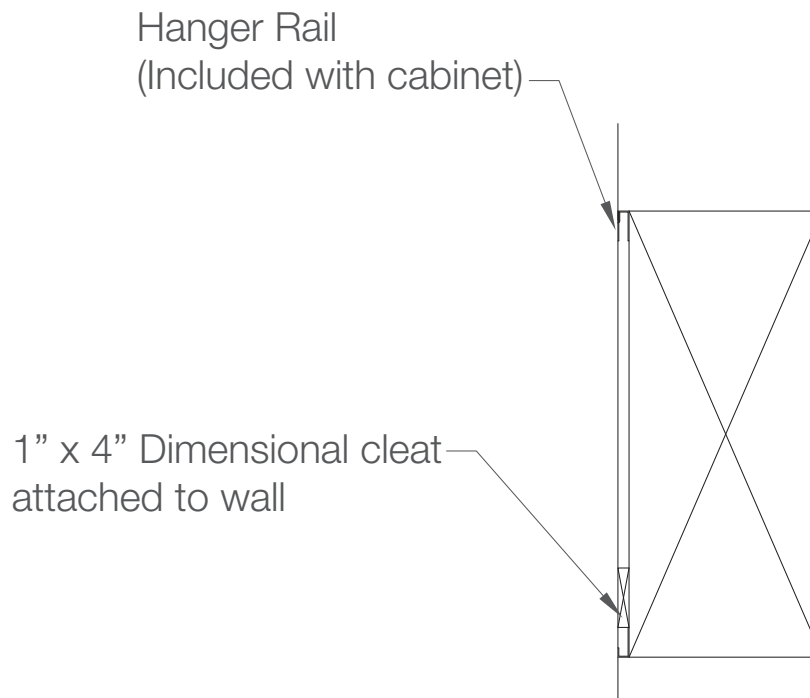


Figure 6.1B

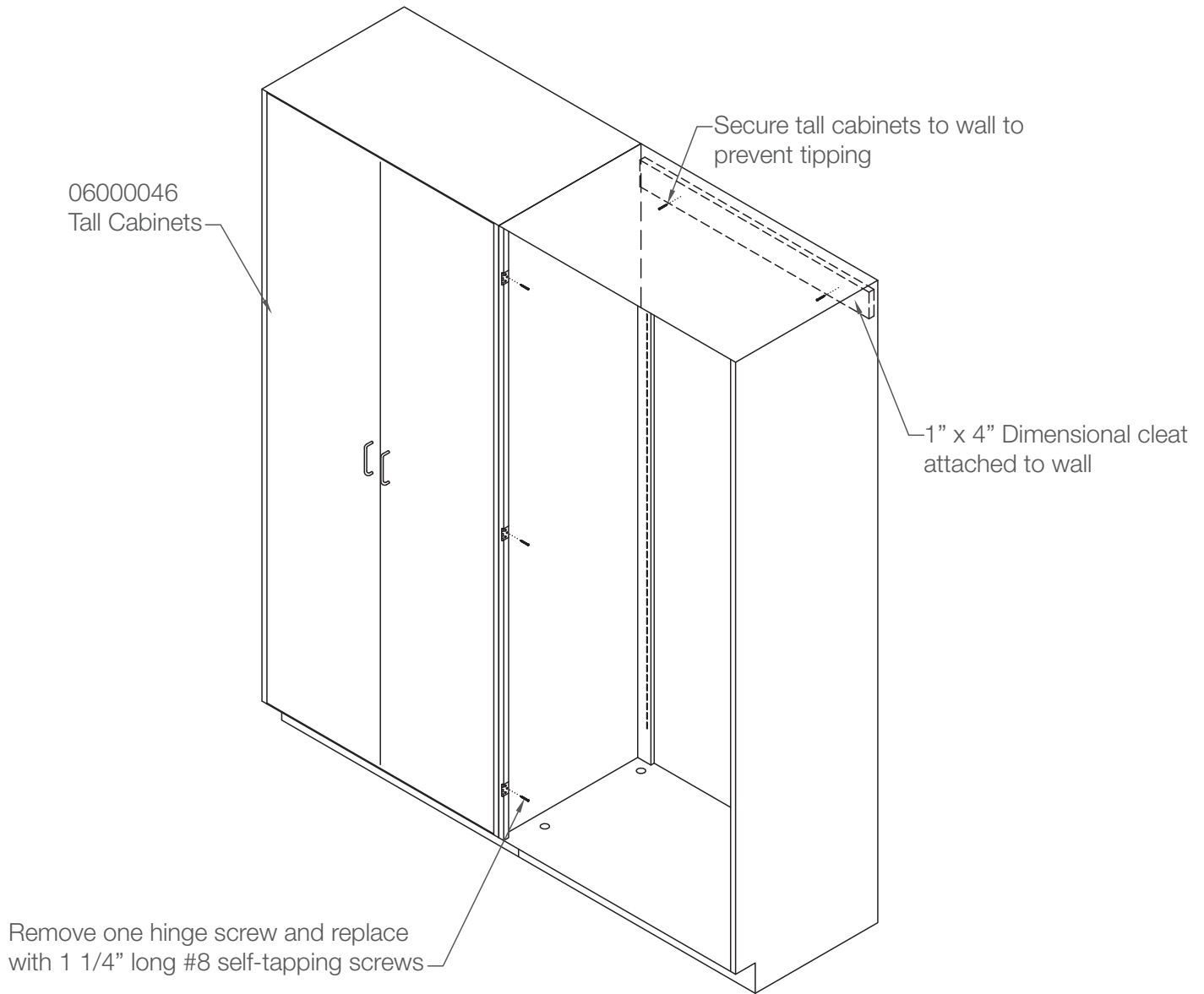
## Installing Steel Wall Cabinets



# 6. Installation Procedure

Figure 6.1C

## Installing Steel Tall Cabinets



# 6. Installation Procedure

## 6.2 Wall Mounted Shelving

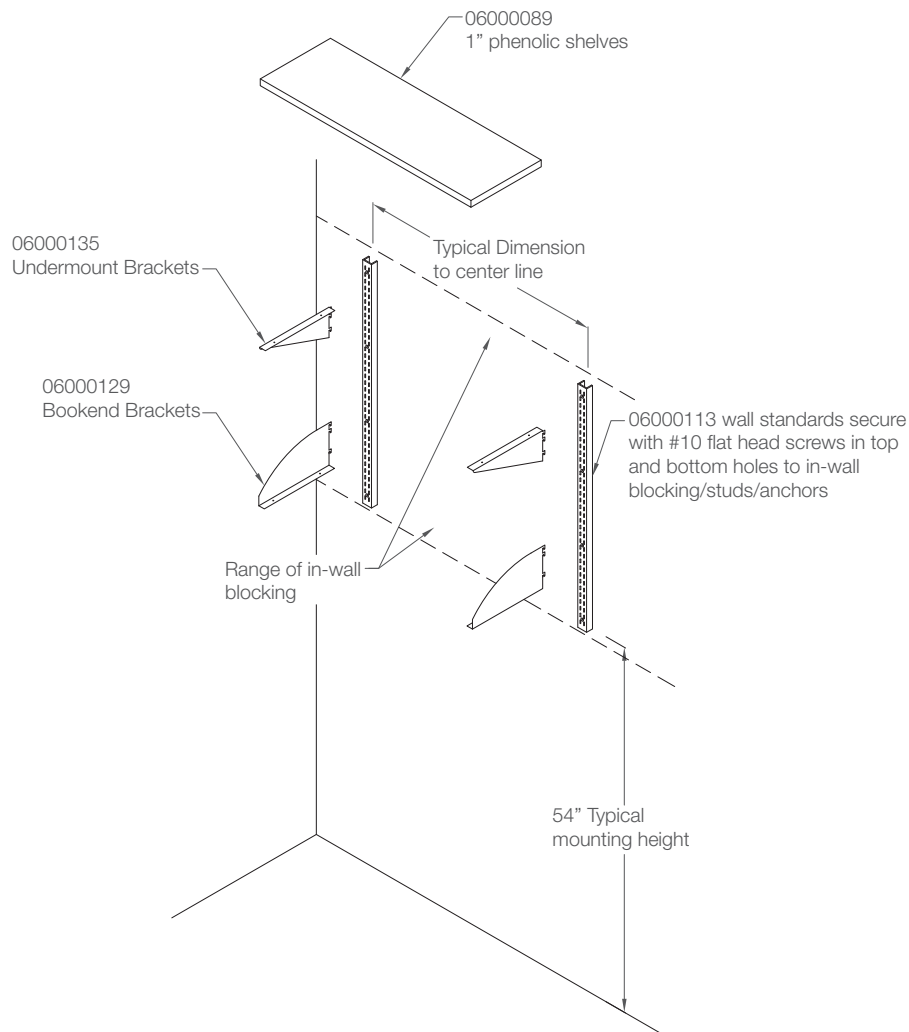
Mount wall standards using appropriate fasteners for wall construction. It is recommended that standards are securely mounted to studs or in-wall blocking. Drywall anchors should not be used. Standards must be installed level and plumb. If not installed properly the shelves will not fit.

To attach shelves to brackets, dry set them in place and mark the mounting hole locations on the shelves. Pre-drill the shelves with a 1/8" pilot hole 3/4" deep and secure with 4 ea. 3/4" long, #8 sheet metal screws.

Shelves should not have a length greater than 48" without including a rear retaining lip.

Figure 6.2A

### Installing Wall Mounted Shelving



# 6. Installation Procedure

## 6.3 Painted Steel and Stainless Steel Base Cabinets

Establish the high point of the floor. From that point, the first cabinets are set and made level and plumbed in relation to the high point. If conditions of job site indicate more than the 3/4-inch (19mm) of leveling requirements between the bottom of the cabinets and the low point of the floor, an immediate notification should be made to the proper authorities at the job site, pointing out this condition. Appropriate action should be initiated promptly to deal with this discrepancy.

Base cabinets should be checked to make sure they are not racked out of square by uneven floors. This is important to insure smooth operation of the drawers and doors.

Base cabinets must be leveled along and across the top frame as the assembly progresses. Leveling is done using a 5/16" socket to adjust the leveling feet through the bottom of each unit. Units must be fastened together as shown in Figure 6.3B.

The cabinets themselves shall be fastened together in a secure manner to preclude inadvertent movement and be ready to receive the tops of the designated material. Use a minimum of two (2) 1/4-20 truss head machine screws with washers and nuts in the rear of the cabinet; and two (2) #8 self-tapping screws in the front.

When determining where to place the screws be considerate of the end user and choose a location that will not cause inadvertent injury during normal use. Each modular unit should have secure contact with the floor during the leveling process by the appropriate leveling device.

To secure door cabinets together remove a screw from two (2) of the hinges on the frame of the cabinet and replace them with 1 1/4" long self-tapping screws to secure adjacent cabinets as shown in Figure 6.3A.

To secure drawer cabinets together use 1/2" long self-tapping screws and install just behind the front rail to minimize potential contact by the end users.

### Hardware Used to Install Painted Steel and Stainless Steel Base Cabinets

Part/Part Number	Description	Used For:
Commonly Available	Screw, 1/4-20 x 5/8, Truss head, Machine screw	2 per base cabinet to fasten together
Commonly Available	Washer, 1/4"	2 per base cabinet to fasten together
Commonly Available	Nut, 1/4-20	2 per base cabinet to fasten together
Commonly Available	Screw, #8 x 1 1/4" Flat head self tapping	2 per door cabinet to fasten together
Commonly Available	Screw, #8 x 1/2" Pan head self tapping	2 per drawer cabinet to fasten together
ICFC-1	Filler, Clip, 2.500 x 3.500 galvanized	4 per filler and knee space panels
Commonly Available	Screw, #8 x 1/2" pan head, self tapping	2 per clip
ICSC-1	Shelf Clip	4 per shelf
JTSA-02	TBL End Support Angles, 2" high, pair	2 per rail and 4 per apron assembly
JTSA-04	TBL End Support Angles, 4" high, pair	2 per rail and 4 per apron assembly

# 6. Installation Procedure

Figure 6.3A

## Installing Steel Base Cabinets at Wall Location

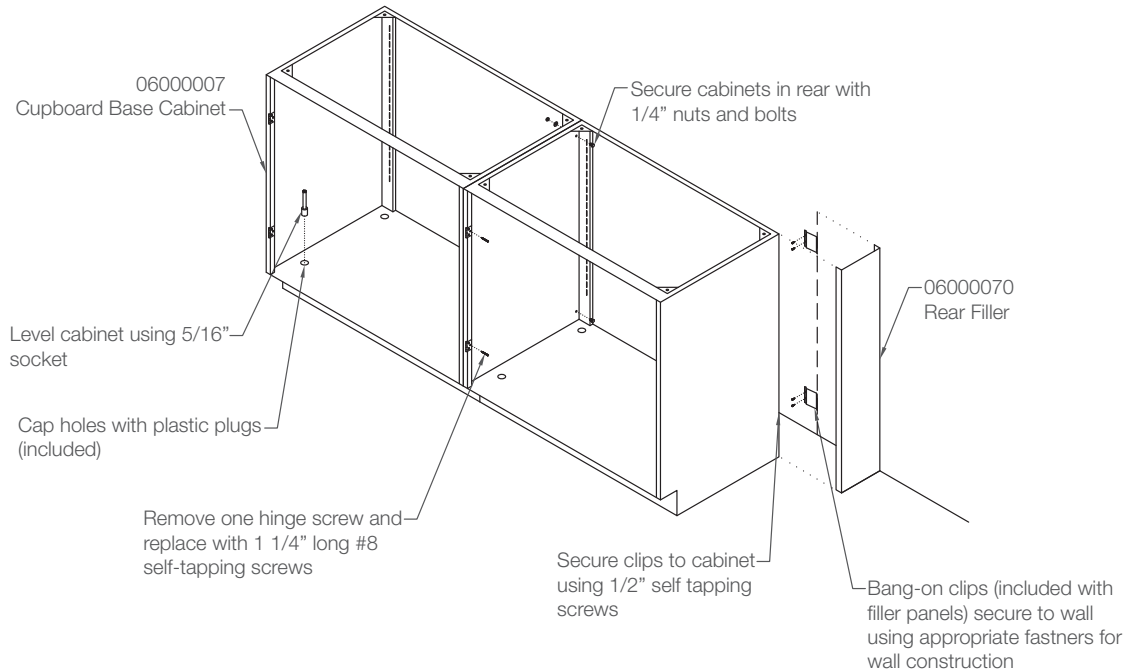
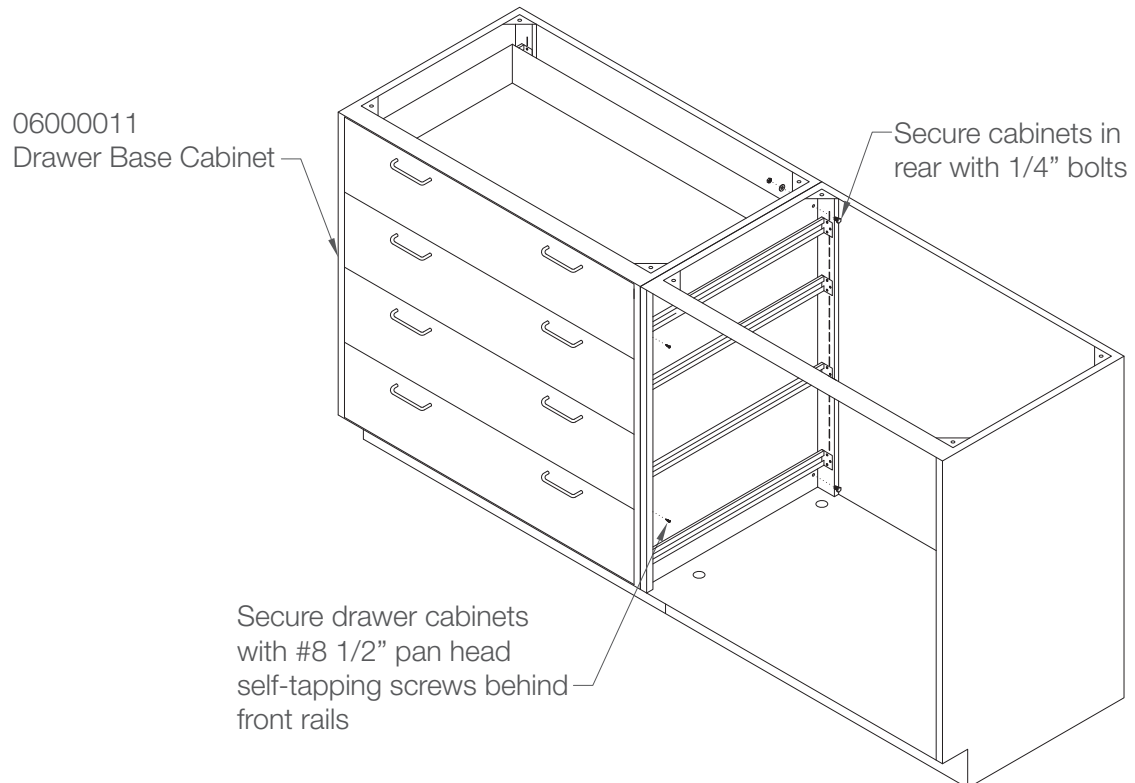


Figure 6.3B

## Installing Steel Base Cabinets at Island or Peninsula



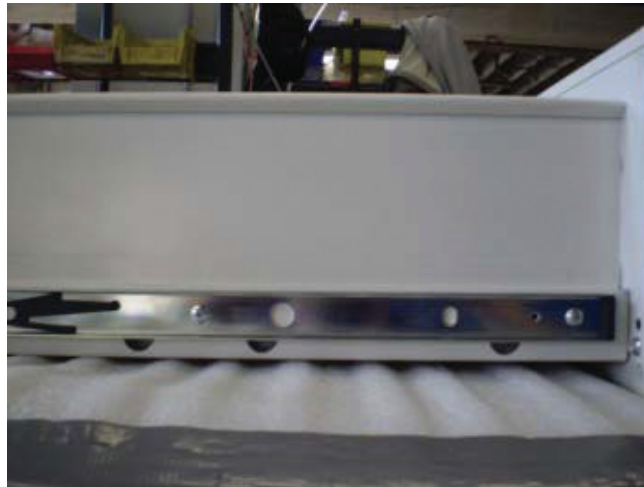
# 6. Installation Procedure

## 6.4 Adjusting Drawers

Prior to any adjustment of doors and drawers, base cabinets must be set plumb, square and level. Use a carpenter's level and a 5/16" socket wrench. With the cabinet set perfectly level, the drawers should move easily in and out. If drawer operation is not smooth, remove the drawer and check to see that each drawer slide slides freely. To free up the slides, apply a drop or two of silicone spray. If the drawer binds, remove the drawer and check the attachment of the slide to the case. To adjust the drawer head position, raise or lower the drawer head by loosening the dead mounting screws, reposition the head and re-tighten the screws or tap the drawer head with a rubber hammer as seen in Figure 6.4A-C. Each drawer is adjusted to a specific location within a certain cabinet. When drawers are removed, they must be replaced in the same cabinet and location. Make sure the slide engages the ball bearing clip.

Figure 6.4A-C

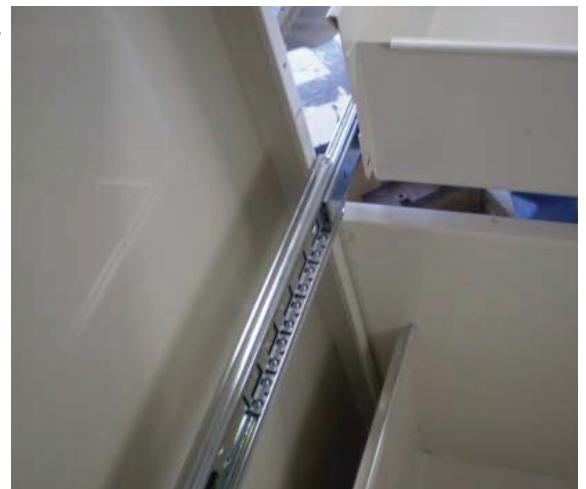
6.4A



6.4B



6.4C





# 6. Installation Procedure

## 6.5 Adjusting Steel Hinged Doors

Prior to any adjustment of doors and drawers, base cabinets must be set plumb, square and level. When the hinged door is low or high in the opening of the unit, the door can be raised or lowered by loosening the screws that hold the hinges to the cabinet side. When all screws in the hinges are loose, the door can be raised or lowered enough so that the reveal is the same around the door. When this accomplished, then all screws should be tightened. Check and re-adjust if necessary.

When a door is crooked or cocked in an opening, this can be aligned by use of a heavy piece of wire bent at one end to form a 90 degree angle. The bent piece should be about three inches long. Insert wire rod between leaves of top or bottom hinge when door is in open position. Close door slowly and hinge will open moving top or bottom of door towards jam. Do not close door all the way. Try the door in the opening after each attempt with the heavy wire until door is properly aligned in the opening.

With the doors open, take rubber mallet and block of wood and tap the hinge on the inside. This will push the hinge out which in turn will draw the spacing between the doors closer. If you need to increase the spacing between the doors, repeat the above procedure except hit the hinge on the outside. This will draw the door to the case sides. Note: We have adjusted the doors at the factory on a level surface.

Figure 6.5A-B

6.5A



6.5B



# 6. Installation Procedure

## 6.6 Painted Steel and Stainless Steel Knee Space Assembly

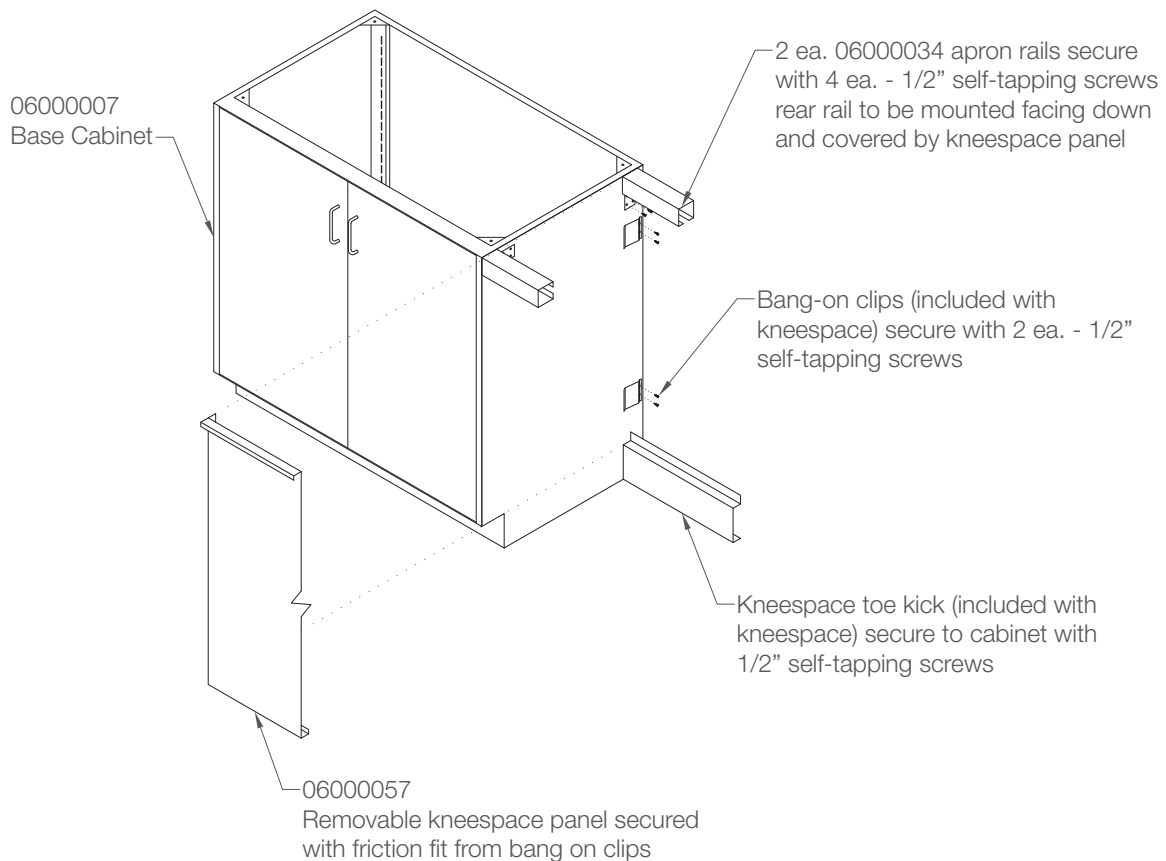
Before installing knee spaces ensure that the adjacent cabinets are set and level. Cut apron rails to length (if required) and attach 2" mounting brackets to rails using the included bolts, washers, and lock nuts. Attach rails to cabinets using 1/2" self-tapping screws. The front rail should be aligned with the front of the cabinet and the bracket should face in towards the back of the cabinet. The rear rail should be aligned with the rear of the cabinet and the bracket should face down towards the floor.

The knee space panels come in two parts; a fixed toe piece and a removable panel. Secure the toe piece to both cabinets using 1/2" self-tapping screws. The front of the toe piece should be set 2" from the back of the cabinet. The removable panel is held in place using friction fit with the included bang-on clips. Attach 2 clips on each cabinet using 1/2" self-tapping screws. The front of the clip should be positioned 2" from the back of the cabinet. Install removable panel by setting the base on the toe piece and pushing the side returns in at the bang-on clip locations. The top of the panel will cover the rear apron rail and have a grab edge return.

Note: If apron drawers are used the removable panel will sit 1/4" below the bottom of the drawer rails

Figure 6.6A

### Installing Knee Space Assembly



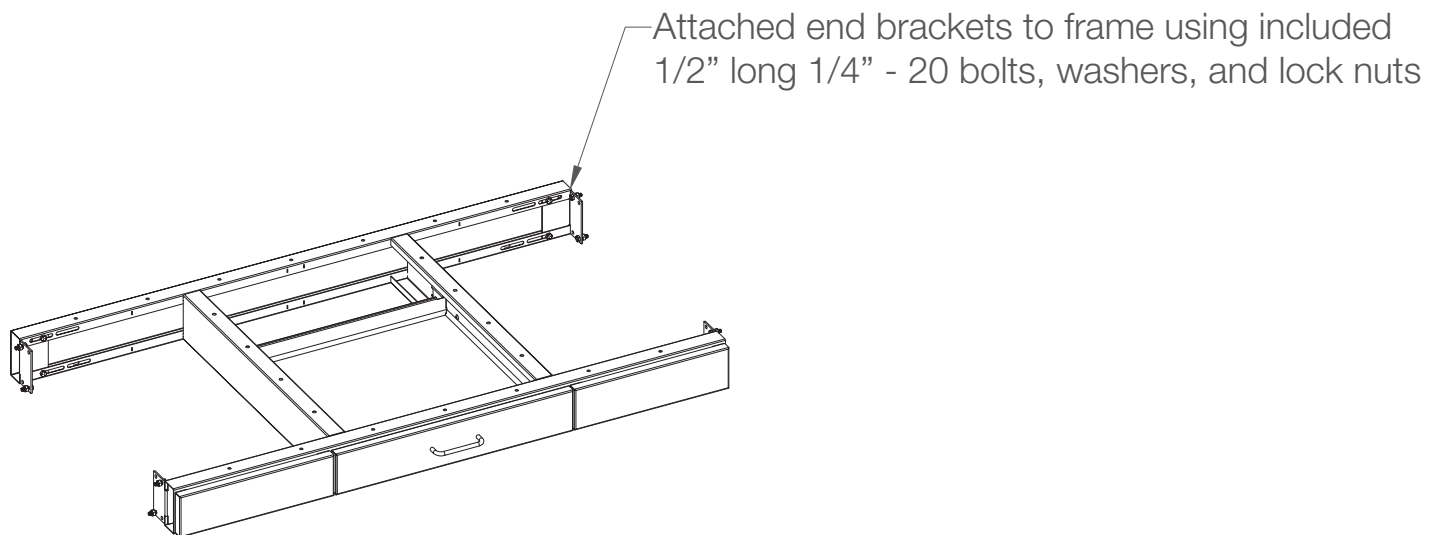
# 6. Installation Procedure

## 6.7 Painted Steel and Stainless Steel Apron Drawer Frame and Rail Assembly

1. Install end angles on frame using nuts, bolts and lock washers from hardware kit.
2. Place frame upright and position in desired location. Mark angle mounting holes locations on wall or cabinet.
3. Drill 1/4" mounting holes in cabinet and mount frame to cabinet with 1/4"-20 x 1/2" bolts and nylon nuts. If mounted to wall, drill pilot holes and attach with 1/4"-10 x 1-3/4" lag bolts.
4. Install and adjust drawer for proper operation.

Figure 6.7A

### Installing Apron Drawer Frame Assembly



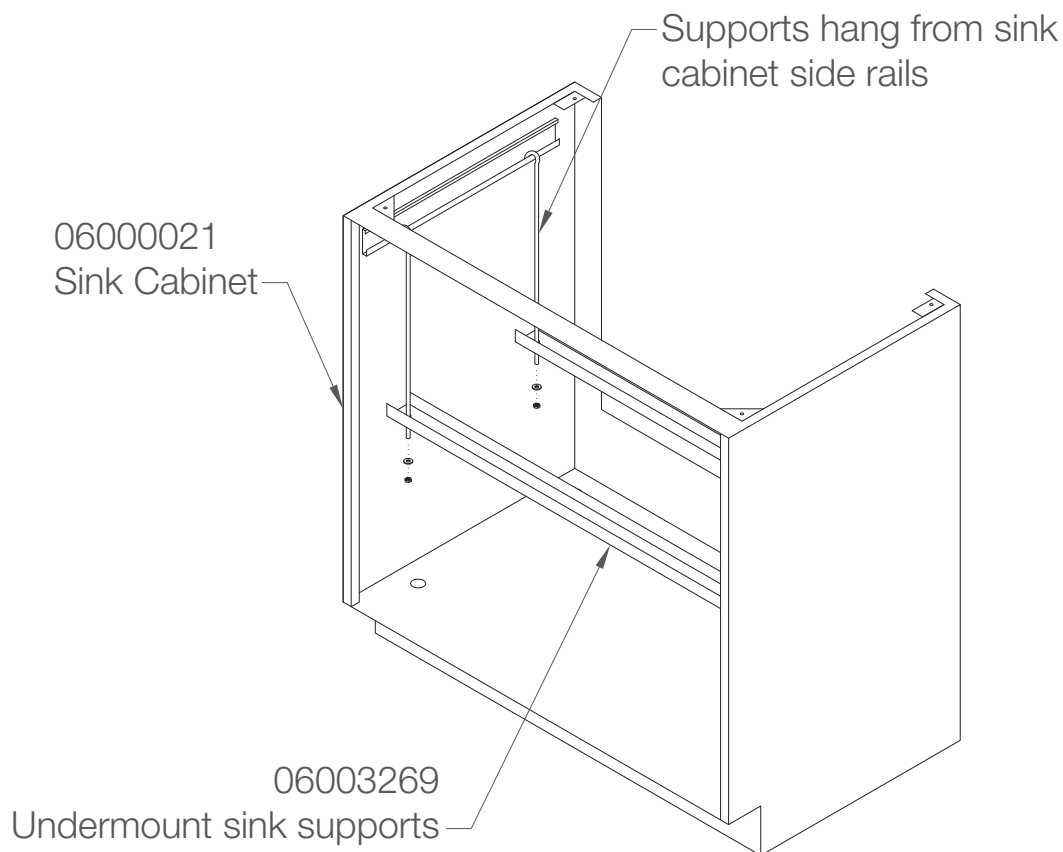
# 6. Installation Procedure

## 6.8 Sink Support Assembly (for undermount sinks)

Sink support kits are required when using under mount sinks. Hang the hooked, threaded rods from the mounting rails on the sides of the sink cabinet. Attach the support brackets using the included washers and nuts as noted in Figure 9. Dry fit the sink to ensure position of supports in relation to cut out in top and sink outlet. Once the work surface has been set put a bead of silicone across the top edge of the sink and place on the support brackets. Position sink in final location and tighten the nuts on the support brackets to secure sink in place. Wipe up any excess sealant using a wet rag soaked in lacquer thinner.

Figure 6.8A

### Installing Sink Support Assembly

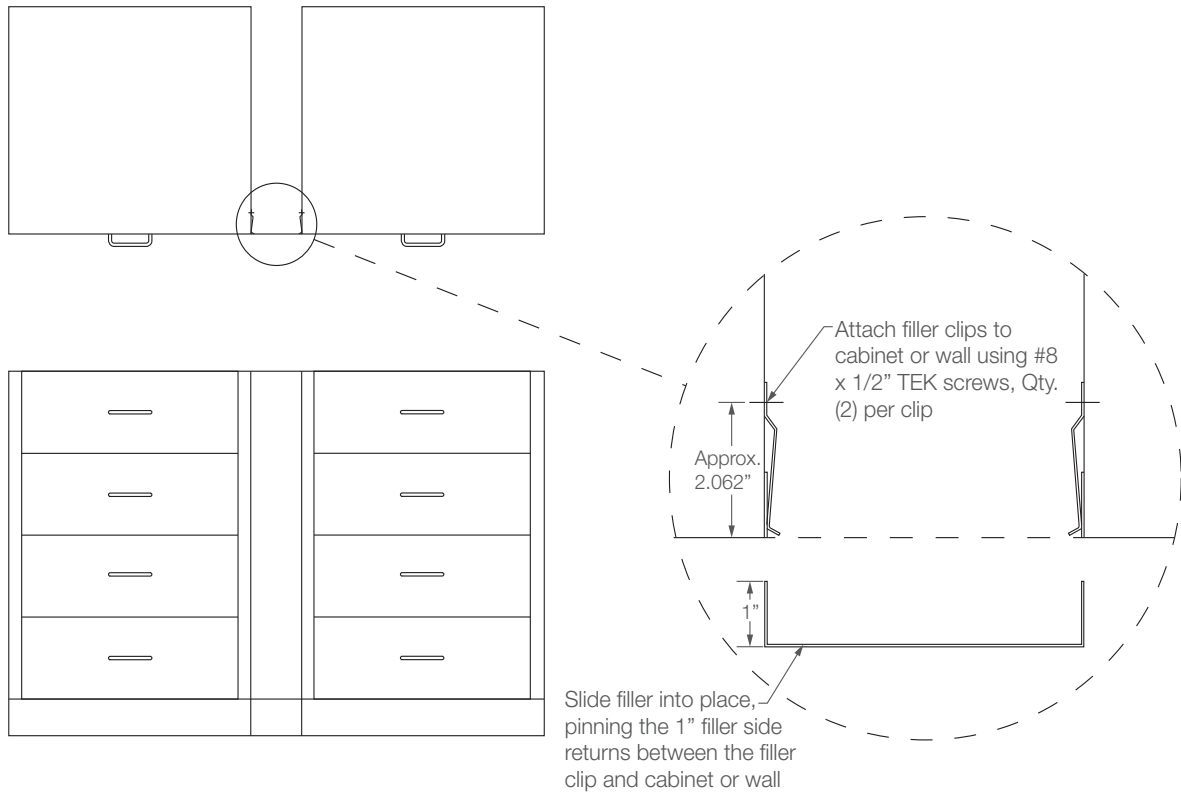


# 6. Installation Procedure

## 6.9 Painted Steel and Stainless Steel Fillers

Filler clips are attached to the steel unit with #8 - 1/2" self-tapping screws. Slide filler under clips as seen in Figure 6.9A.

Figure 6.9A

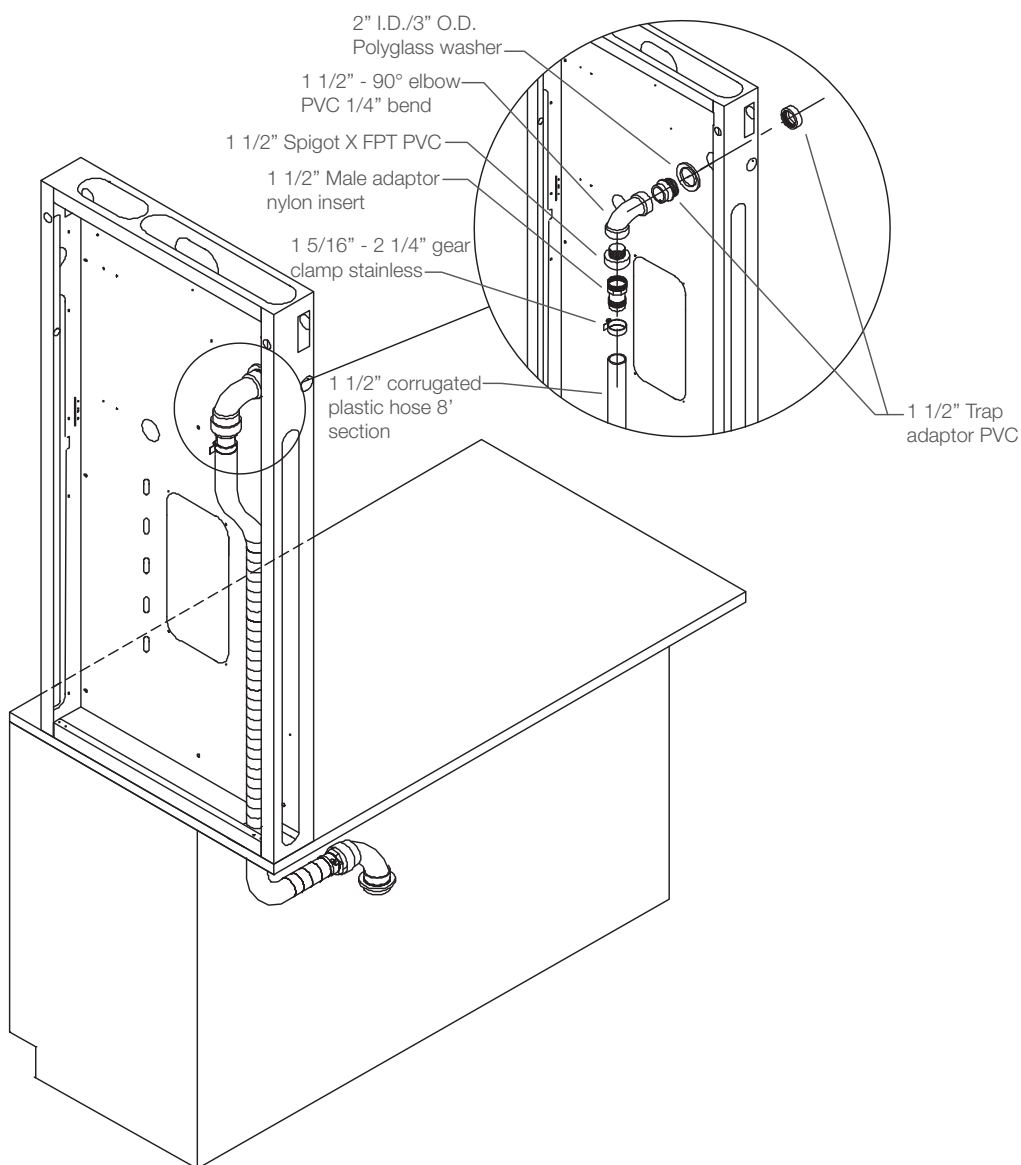


# 6. Installation Procedure

## 6.10 Acid Storage Cabinets

1. Screw the cabinets together through the hinges similar to standard door cabinets
2. Cabinets can be secured in rear using 1/4" nuts and bolts above the acid liners
3. DO NOT Puncture Acid Liners
4. Fume hood vent kits should be used for acid cabinets under or adjacent to chemical fume hoods. See Figure 6.10A

Figure 6.10A



# 6. Installation Procedure

## 6.11 Solvent Storage Cabinets

1. Establish the high point of the floor. From that point, the first cabinets are set and made level and plumbed in relation to the high point.
2. DO NOT Puncture sidewalls of Flammable cabinets
3. Solvent cabinets rarely require venting and should not be vented into fume hoods. If venting is required contact your EHS department for proper venting procedure.

# 6. Installation Procedure

## 6.12 Wood Wall and Tall Cabinets

The high point of the wall off the floor should be established and the first cabinet should be anchored at this location. If the wall surface varies more than 3/8" (10 mm), the appropriate governing authorities on the job site should be consulted relative to accepted procedure to correct prior to installation. Acceptable methods of fastening cabinets to the wall shall be as directed by specifications, or as usual a customary in order to provide a secure wall hung case capable of handling appropriate weight loads. The structural wall system (including grounds/blocking) shall be capable of handling the appropriate loads.

Most installers prefer to hang wall cases first, which eliminates working over base unit assemblies. Each wall cabinet is attached using the built in upper and lower horizontal rail. See Figure 6.12A.

When a row of wall cabinets is indicated, a chalk line should be snapped or laser level used to get all the hangers at the same level. Proper fasteners and bolts must be used in assembly and mounting of our product. Wall construction is the determining factor. All wall/tall cabinets are required to be secured to either studs or in-wall blocking. Fasteners are furnished by the installer.

All cabinets should be checked to make sure they are not racked out of square by uneven floors. This is important to insure smooth operation of the doors.

Secure wall cabinets together with (4) 1 1/4" long wood screws as shown in Figure 6.12A and 6.12C.

Tall cabinets should be leveled and anchored to the wall and bolted together. See Figure 6.12C.

### Hardware Used to Install Wood Wall and Tall Cabinets

Part/Part Number	Description	Used For:
Commonly Available	Screw, #8 x 1 1/4" wood screw	4 per wall cabinet to fasten together
Commonly Available	Screw, #8 x 1 1/4" wood screw	6 per tall cabinet to fasten together
ICSC-1	Shelf clip	4 per shelf



# 6. Installation Procedure

## 6.12 Wood Wall and Tall Cabinets

Figure 6.12A

### Installing Wood Wall Cabinets

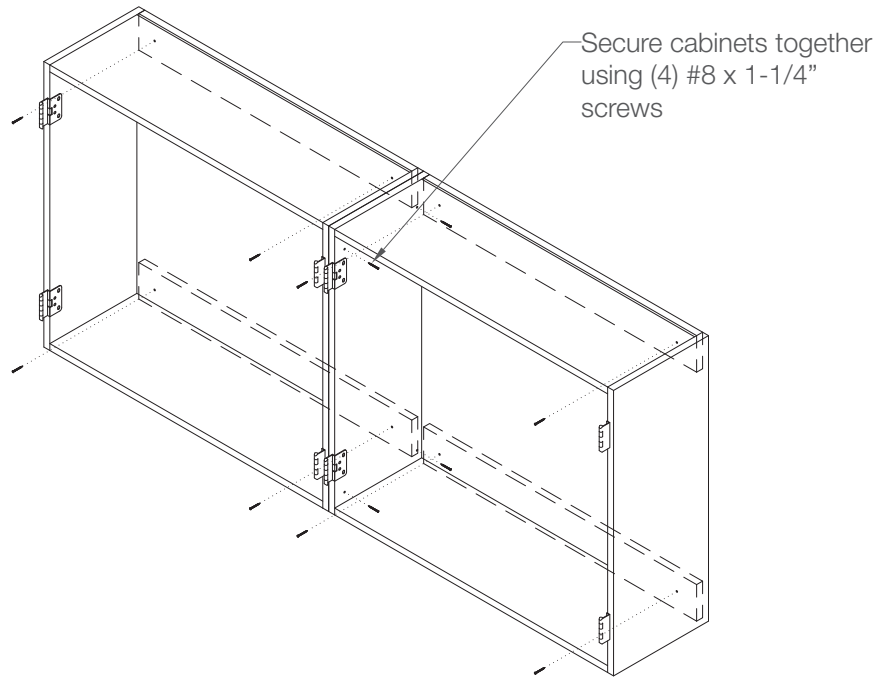
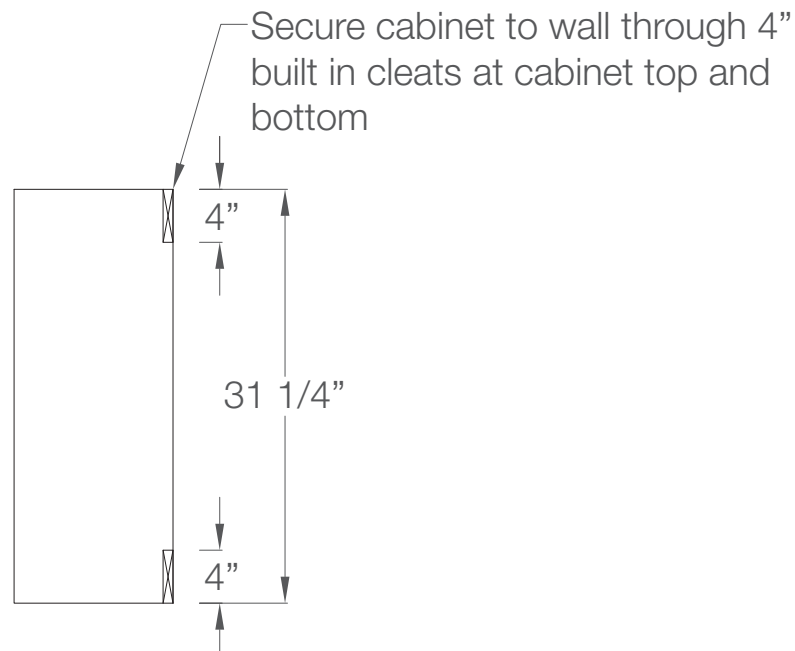


Figure 6.12B

### Installing Wood Wall Cabinets

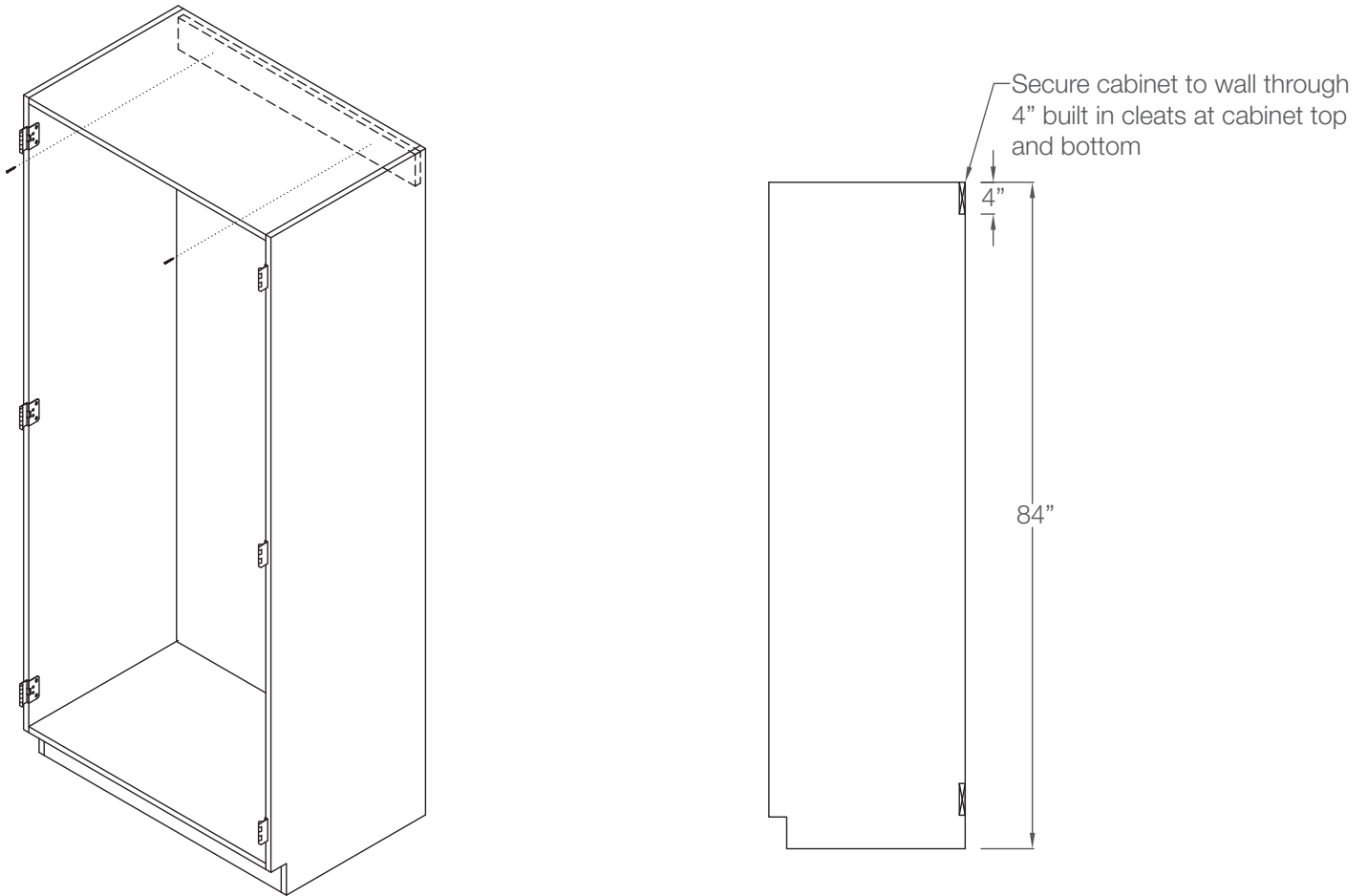


# 6. Installation Procedure

## 6.12 Wood Wall and Tall Cabinets

Figure 6.12C

### Installing Wood Tall Cabinets



# 6. Installation Procedure

## 6.13 Wood Base Cabinets

Establish the high point of the floor. From that point, the first cabinets are set and made level and plumbed in relation to the high point. If conditions of job site indicate more than that 3/4" (19 mm) of leveling requirements between the bottom of the cabinets and the low point of the floor, an immediate notification should be made to the proper authorities at the job site, pointing out this condition. Appropriate action should be initiated promptly to deal with this discrepancy.

Base cabinets should be checked to make sure they are not racked out of square by uneven floors. This is important to insure smooth operation of the drawers and doors.

Base cabinets must be leveled along and across the top frame as the assembly progresses. Leveling is done using either wood or plastic shims. Cabinets must be fastened together as shown in Figure 6.13A.

The cabinets themselves shall be fastened together in a secure manner to preclude inadvertent movement and be ready to receive the tops of the designated material. Use a minimum of four (4) #12 1-1/4" long pan head wood screws.

When determining where to place the screws be considerate of the end user and choose a location that will not cause inadvertent injury during normal use. Each modular cabinet should have secure contact with the floor.

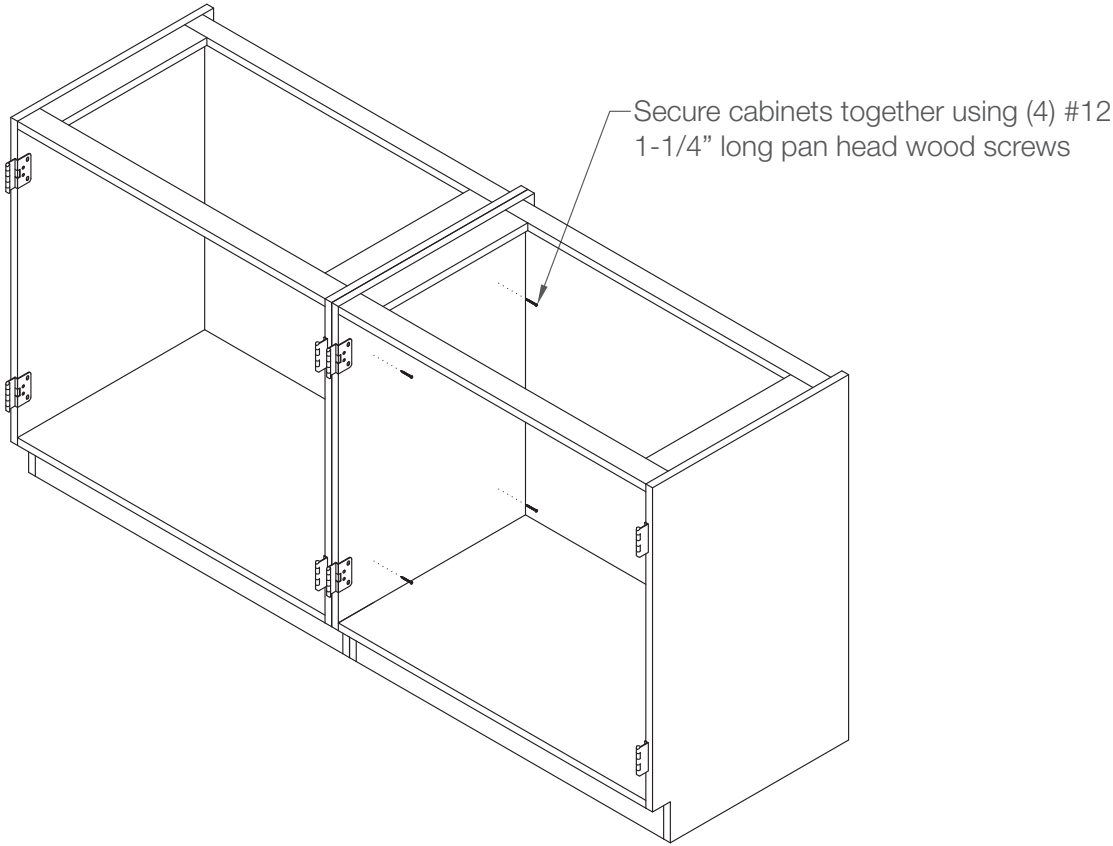
### Hardware Used to Install Wood Base Cabinets

Part/Part Number	Description	Used For:
Commonly Available	Screw, #12 x 1 1/4" wood screw	4 per cabinet to fasten together
ICSC-1	Shelf Clip	4 per shelf

# 6. Installation Procedure

Figure 6.13A

## Installing Wood Base Cabinets at Wall Location



# 6. Installation Procedure

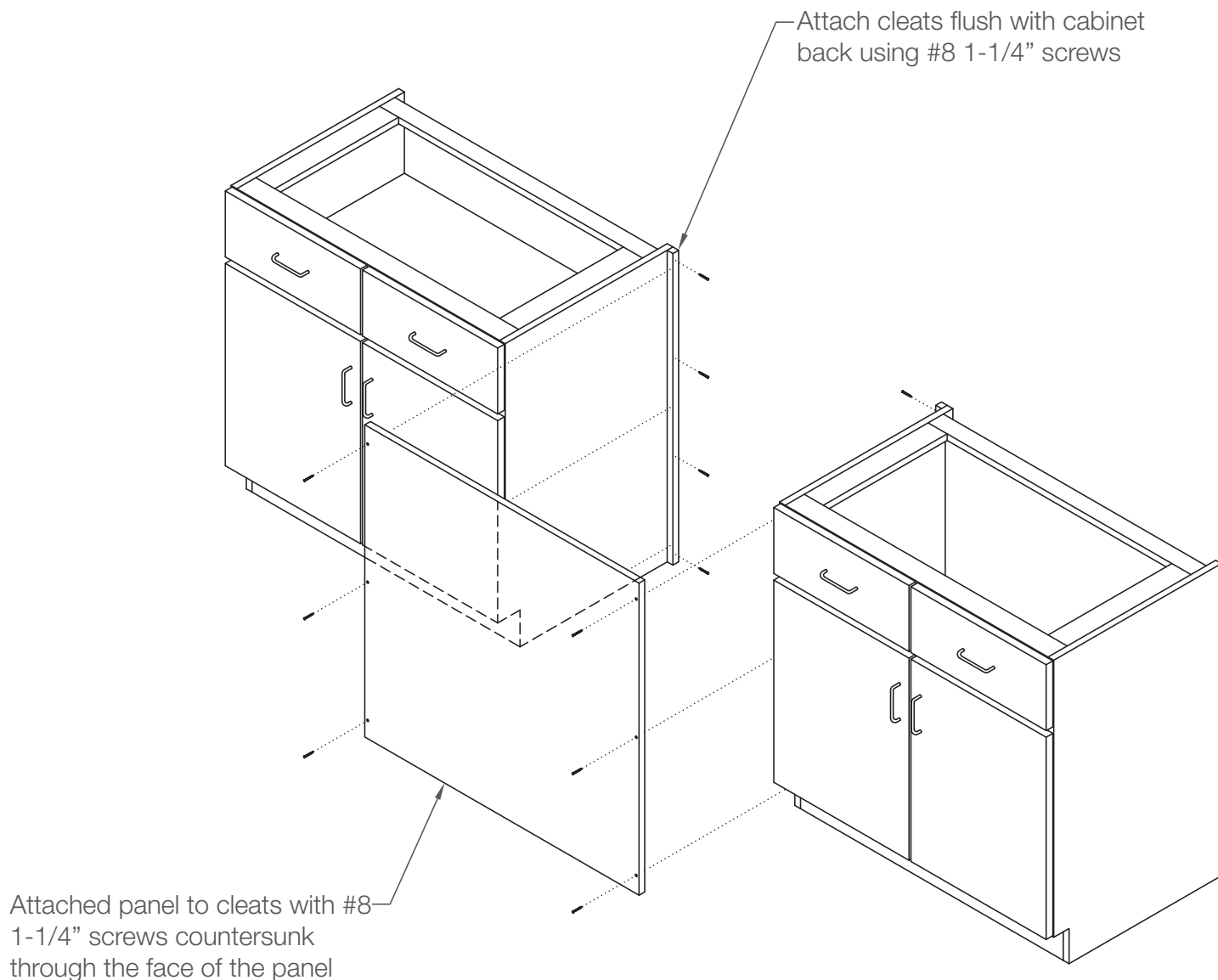
## 6.14 Wood Knee Space Assembly

Before installing knee spaces ensure that the adjacent cabinets are set and level. Cut apron rails to length (if required) and attach 3/4" cleats to cabinet bodies 3/4" back from the face of the frame using #8 1-1/4" long screws. Attach rails to cleats using #8 1-1/4" screws drilled through the back of the cleats into the back of the rail. The front rail should be aligned with the face of the cabinet body.

Secure the knee space panel cleats to the side of the cabinet using #8 1-1/4" screws. Ensure the cleats are flush with the back of the cabinets drill 6 countersunk pilot holes in the face of the removable panel. Secure the panel using #8 1-1/4" wood screws.

Figure 6.14A

### Installing Wood Knee Space Assembly

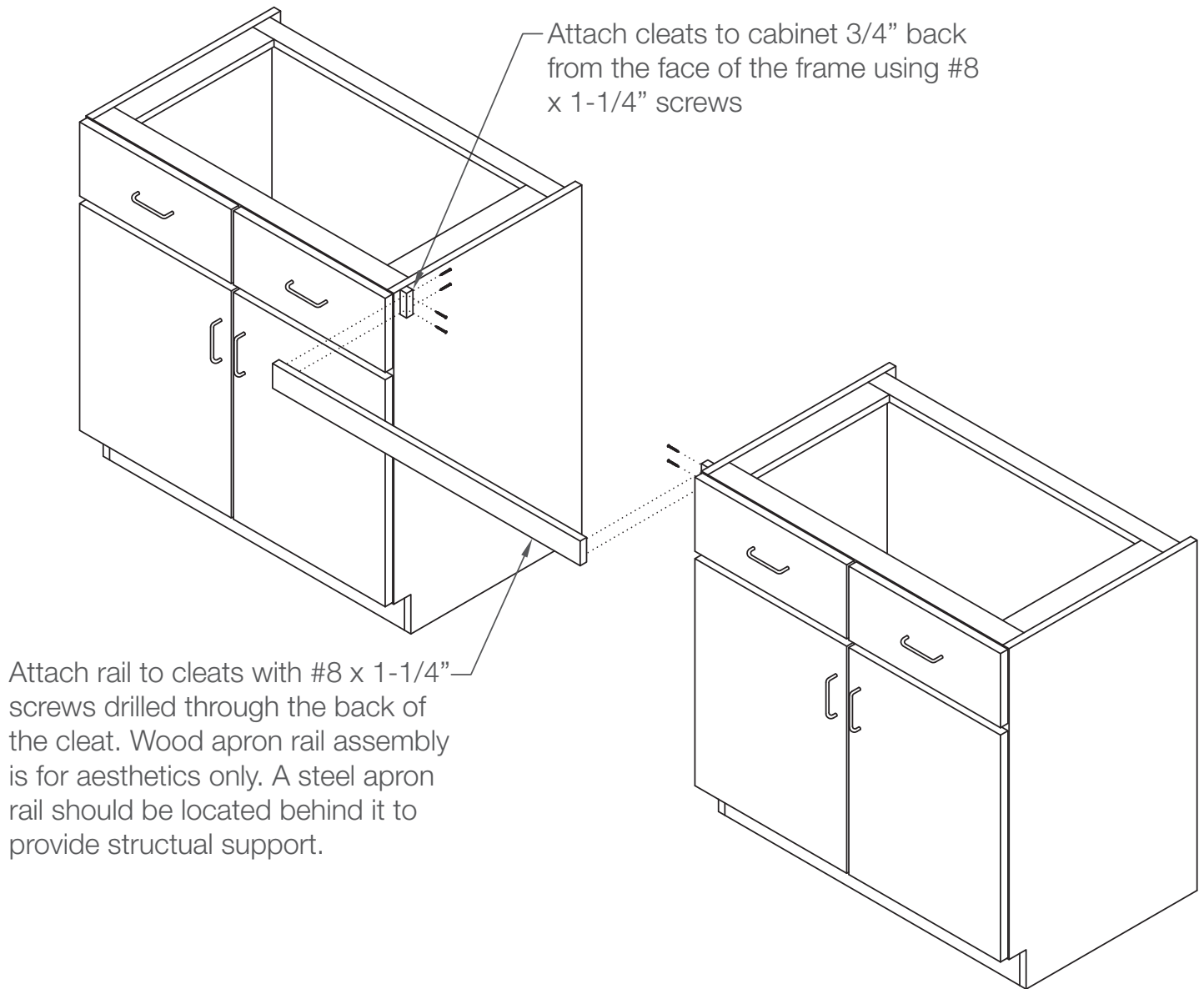


# 6. Installation Procedure

## 6.15 Wood Apron Rail Assembly

Figure 6.15A

### Installing Wood Apron Rail



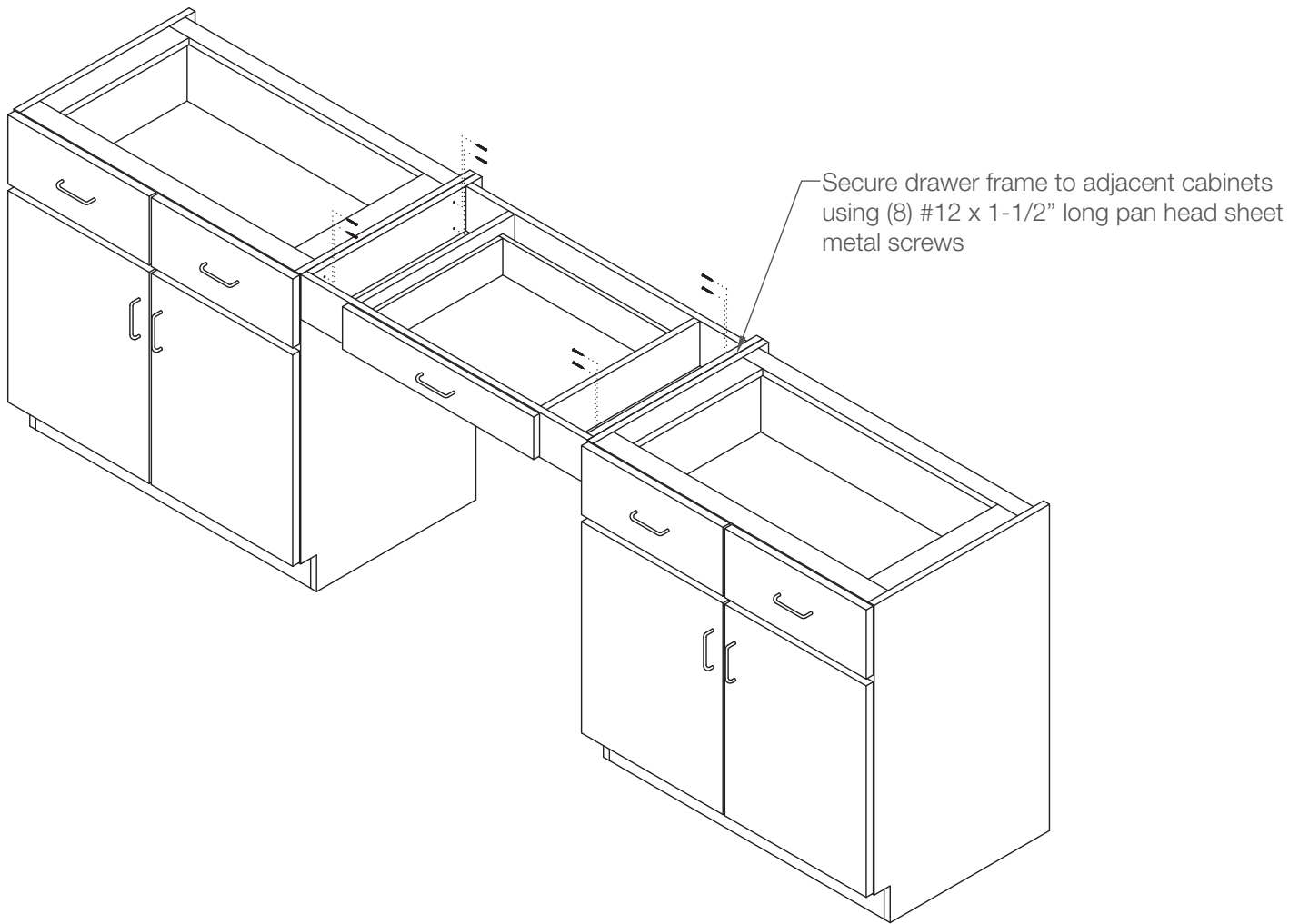
# 6. Installation Procedure

## 6.16 Wood Apron Drawer Frame Assembly

1. Ensure drawer frame sits flush and level with the top of the adjacent cabinets
2. Clamp drawer frame in place and pre-drill pilot holes
3. Attach drawer frame to adjacent cabinets using #12 x 1-1/2" pan head screws.
4. Remove clamps then install and adjust drawer for proper operation as needed.

Figure 6.16A

### Installing Wood Apron Drawer Frame Assembly



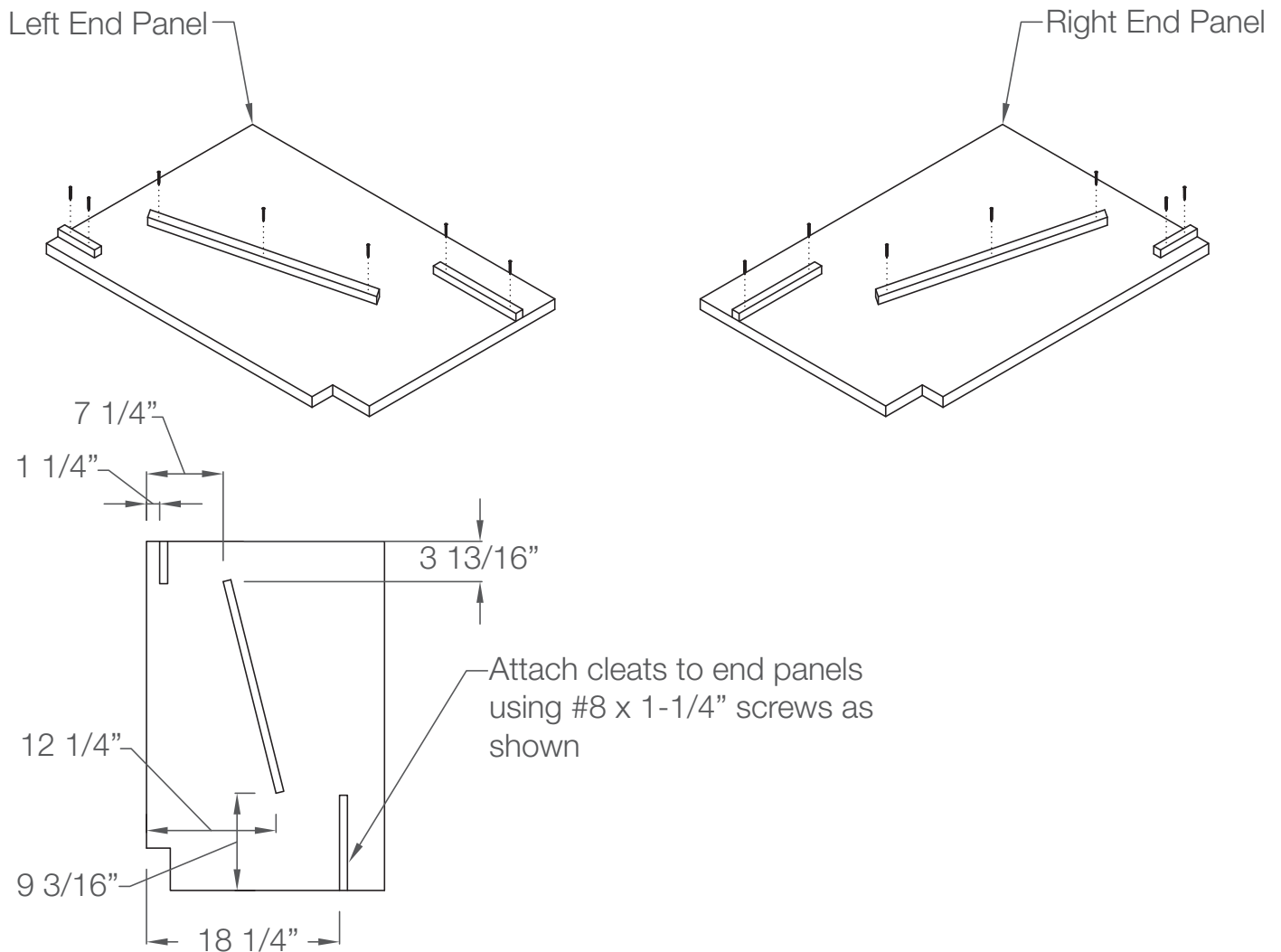
# 6. Installation Procedure

## 6.17 Wood ADA Sink Assembly

1. ADA sink cabinets consist of 2 side panels and 3 front panels. The 3 front panels are secured to the sides using the included 3/4" x 3/4" cleats
2. Layout the cleats on the left and right panels as shown in Figure 6.17A. Attach cleats to panels using #8 x 1-1/4" screws
3. ADA sink cabinets consist of 2 side panels and 3 front panels. The top and bottom front panels are considered "fixed" and should be secured with the screws concealed. The center panel is intended to be removable for plumbing access and should be secured with countersunk screws through the face of the panel.

Figure 6.17A

### Installing Wood ADA Sink Assembly



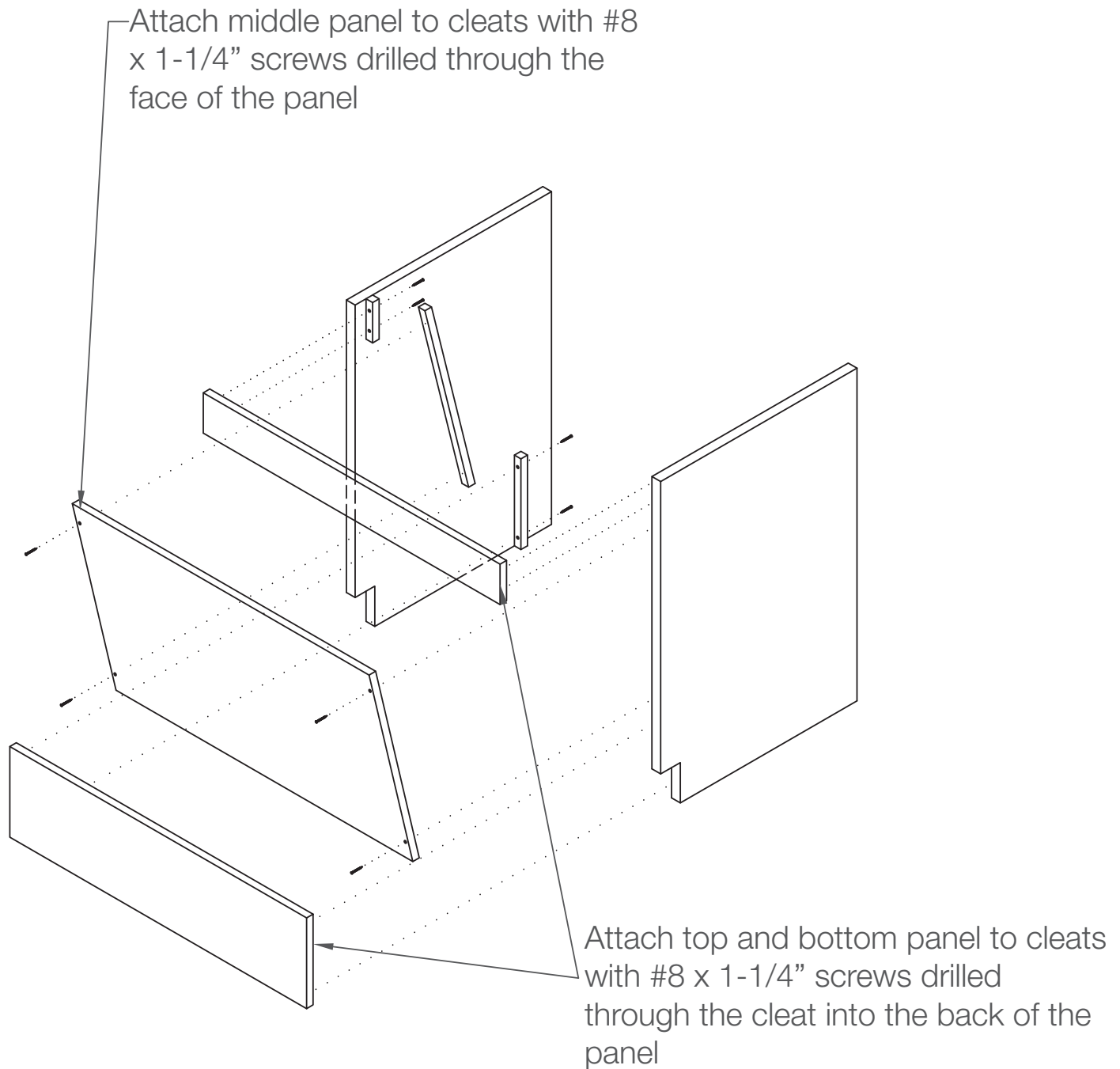


# 6. Installation Procedure

## 6.17 Wood ADA Sink Assembly

Figure 6.17B

### Installing Wood ADA Sink Assembly



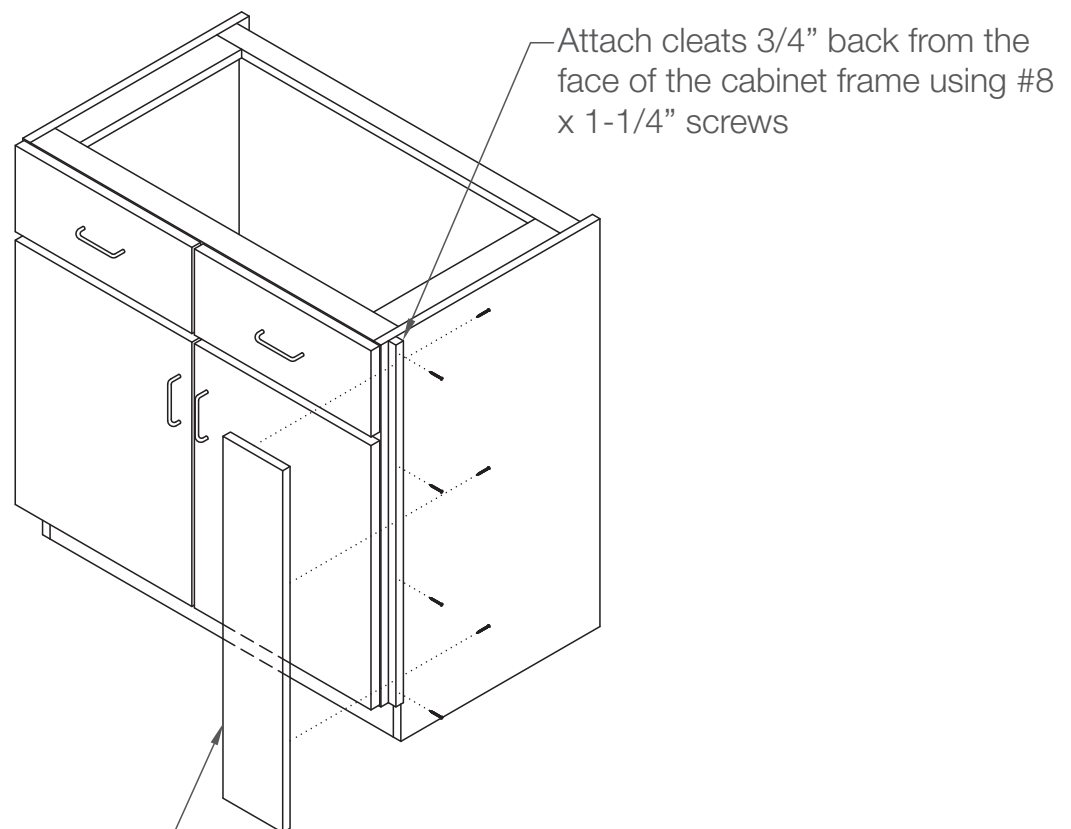
# 6. Installation Procedure

## 6.18 Wood Fillers

1. To attached front and corner fillers secure 3/4" x 3/4" cleats to the side of the cabinet 3/4" back from the face of the cabinet body use #8 x 1-1/4" screws
2. Corner fillers consist of (2) front fillers attached together with screws and 3/4" clears as shown in Figure 6.18B
3. To attach rear fillers secure 1-1/4" x 3/4" cleats to back of cabinets using #8 x 1-1/4" screws as shown in Figure 6.18C
4. Note that this is easier to do before cabinet is set in final location and leveled. Attached 3/4" cleat to wall even with the cleat in the back of the cabinet.
5. Attach the rear filler panel to the cleats using #8 x 1-1/4" counter sunk screws

Figure 6.18A

### Installing Wood Front Filler



# 6. Installation Procedure

## 6.18 Wood Fillers

Figure 6.18B

### Installing Wood Corner Filler

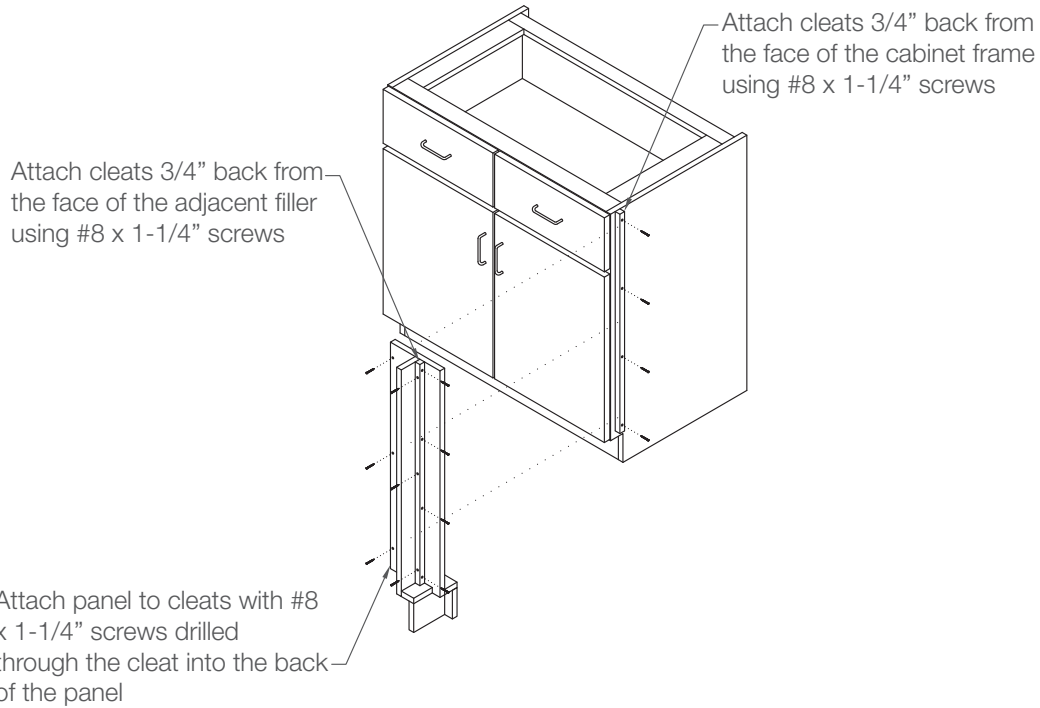
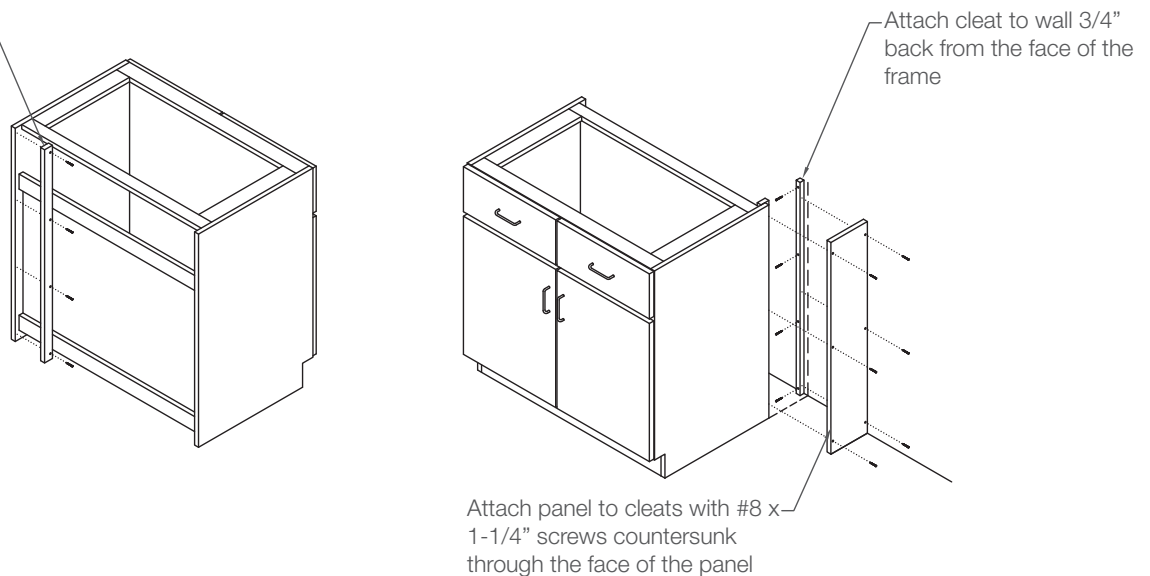


Figure 6.18C

### Installing Wood Rear/Center Filler

Attach 1-1/2" x 3/4" cleats to rear of cabinet side panels using #8 x 1-1/4" screws



# 6. Installation Procedure

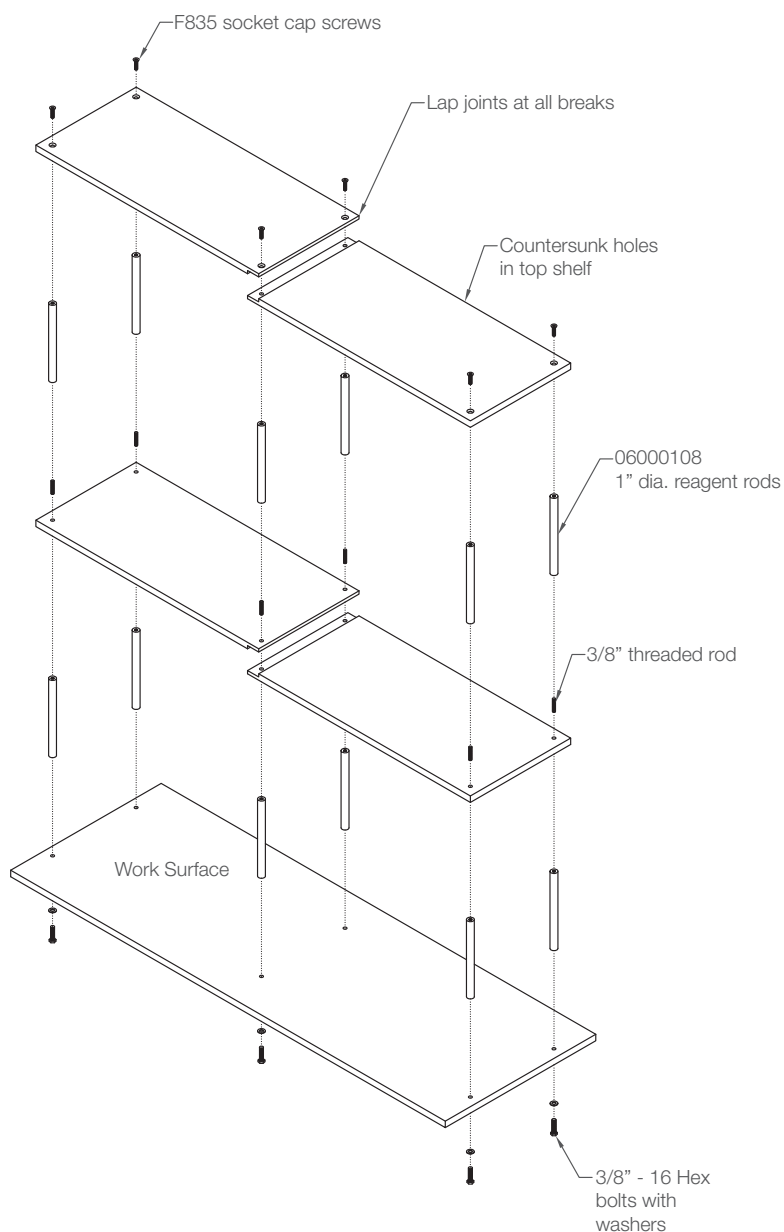
## 6.19 Reagent Rod Shelving System Installation

Reagent rod shelving is made up of 1" dia. steel rod supports. Shelving should be installed once the work surface is completely set and secured. These are secured in place with 3/8" hex bolts and washers from beneath the work surface. Single tier shelving systems attach the shelves to the rods using 3/8" dia. flat head socket cap screws through pre-drilled countersunk holes on top of the shelves. Attach together multiple tiers of shelving via 3/8" dia. 2<sup>3</sup>/<sub>4</sub>" long threaded rods as noted in Figure 6.19A.

Figure 6.19A

### Installing Reagent Rod Shelving System

All hardware should be included



# 6. Installation Procedure

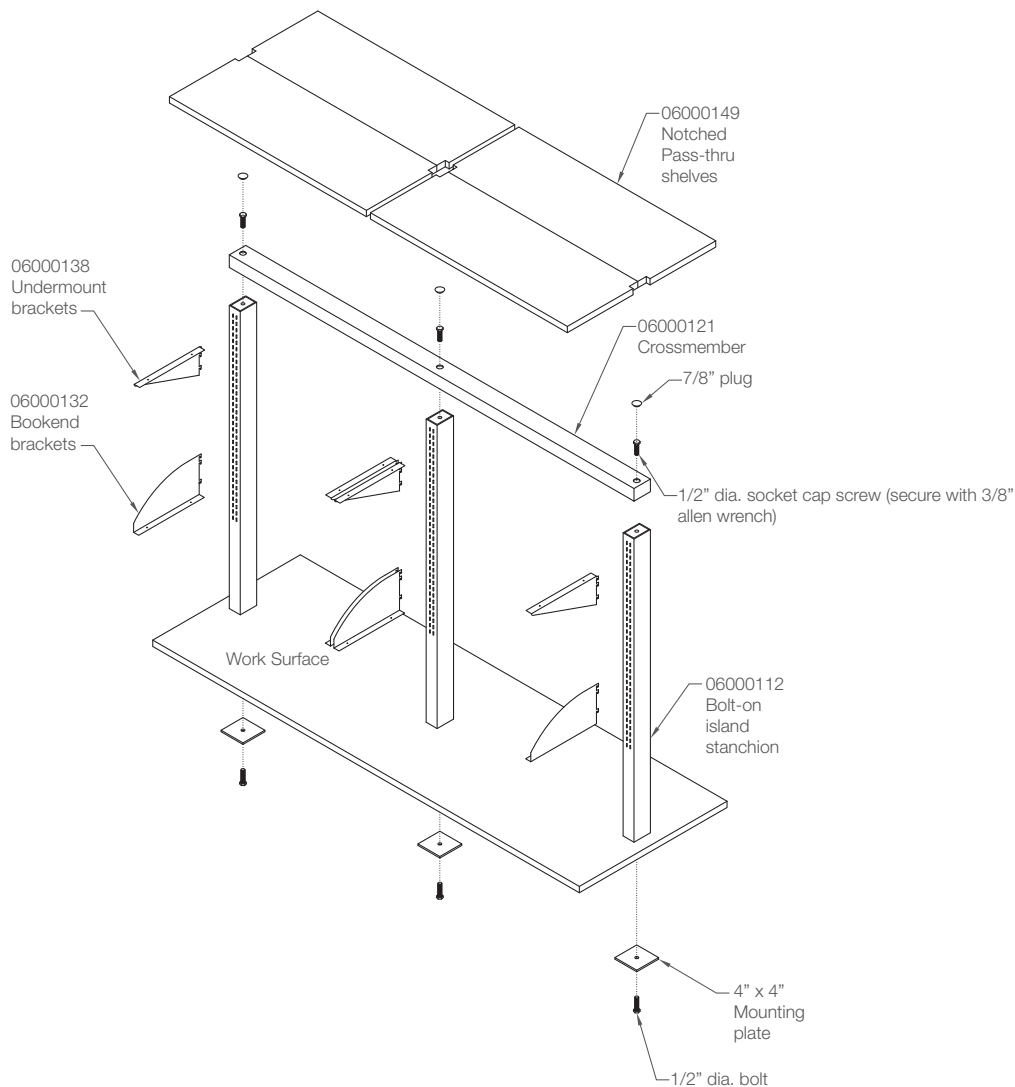
## 6.20 Bench Top Mounted Island Pass-Thru Shelving Installation

Secure island stanchions to work surface w/ 1/2" dia. bolts and 4"x4" plate washers from underneath the work surface as noted in Figure 11. Do not tighten fully into place. Attach stanchions across the top using included cross member by bolting through the pre-drilled holes. Ensure that the 7/8" hole is facing up. The bolt should pass through this hole. Once secure adjust stanchions to ensure they are level and plumb then tighten all fasteners into place and install plastic plugs in the exposed holes of the cross member. To attach shelves to brackets dry set them in place and mark the mounting hole locations on the shelves. pre-drill the shelves with a 1/8" pilot hole 3/4" deep and secure w/ 4 ea. 3/4" long, #8 sheet metal screws. Shelves should not have an unsupported length greater than 48".

Figure 6.20A

## Installing Bench Top Mounted Island Pass-Thru Shelving

All hardware should be included

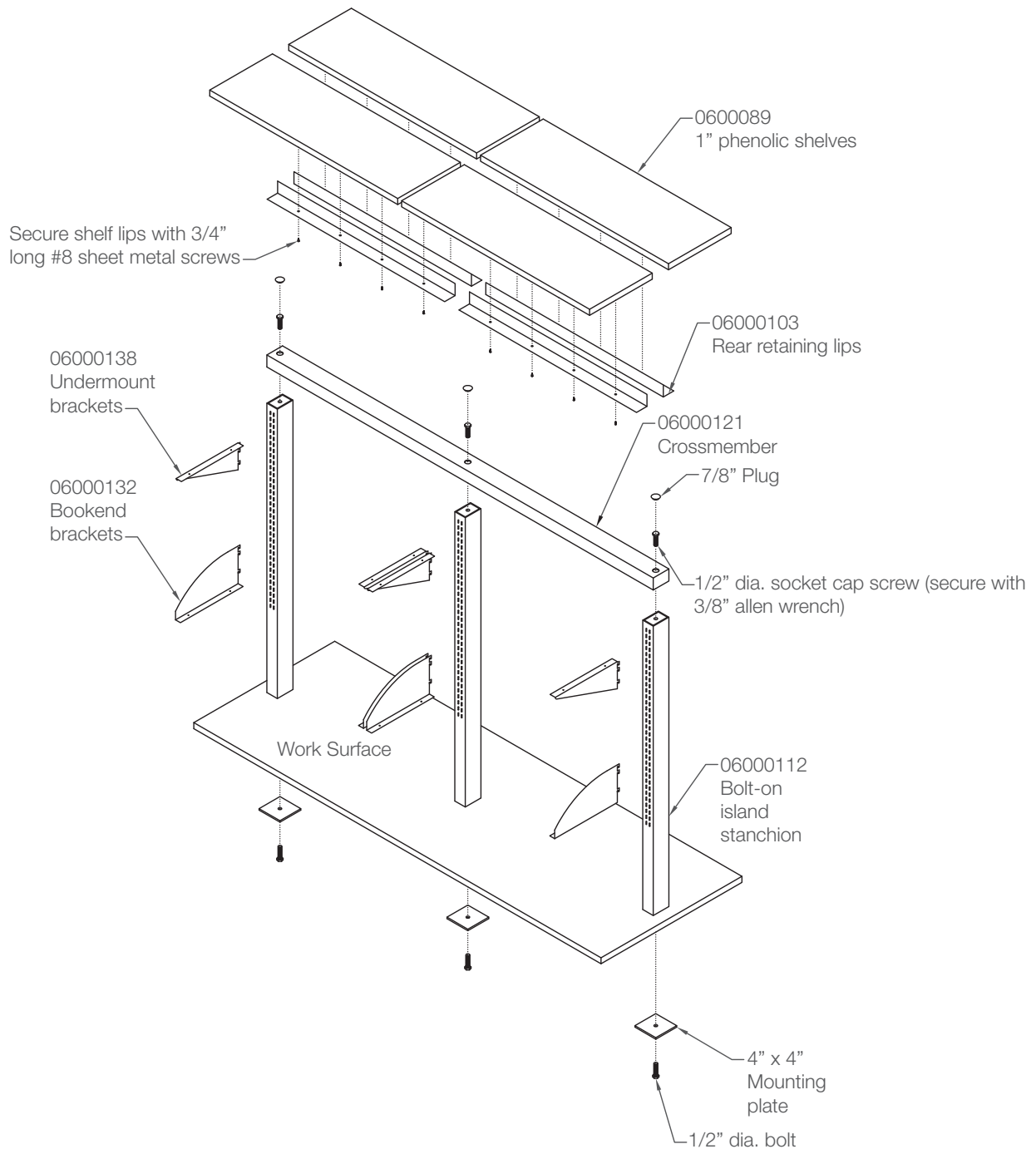


# 6. Installation Procedure

## 6.21 Bench Top Mounted Island Shelving with Rear Retaining Lips

Figure 6.21A

### Installing Bench Top Mounted Island with Rear Retaining Lips



# 6. Installation Procedure

## 6.22 Base Molding

1. If cabinets are leveled to more than  $\frac{3}{4}$ " above the floor flashing will need to be installed to support the base molding. Install 4" high galvanized 18 gauge flashing w/ a 1" return. Ensure return is turned so it faces under the cabinet. To attach the flashing to the cabinets use  $\frac{3}{4}$ " self-tapping flat head screws or flush rivets.
2. Remove paper backing from back of self adhesive base molding strips
3. Position base molding on cabinet and roll with a small hand roller. **Always roll back to starting point to prevent stretching the wall base.**

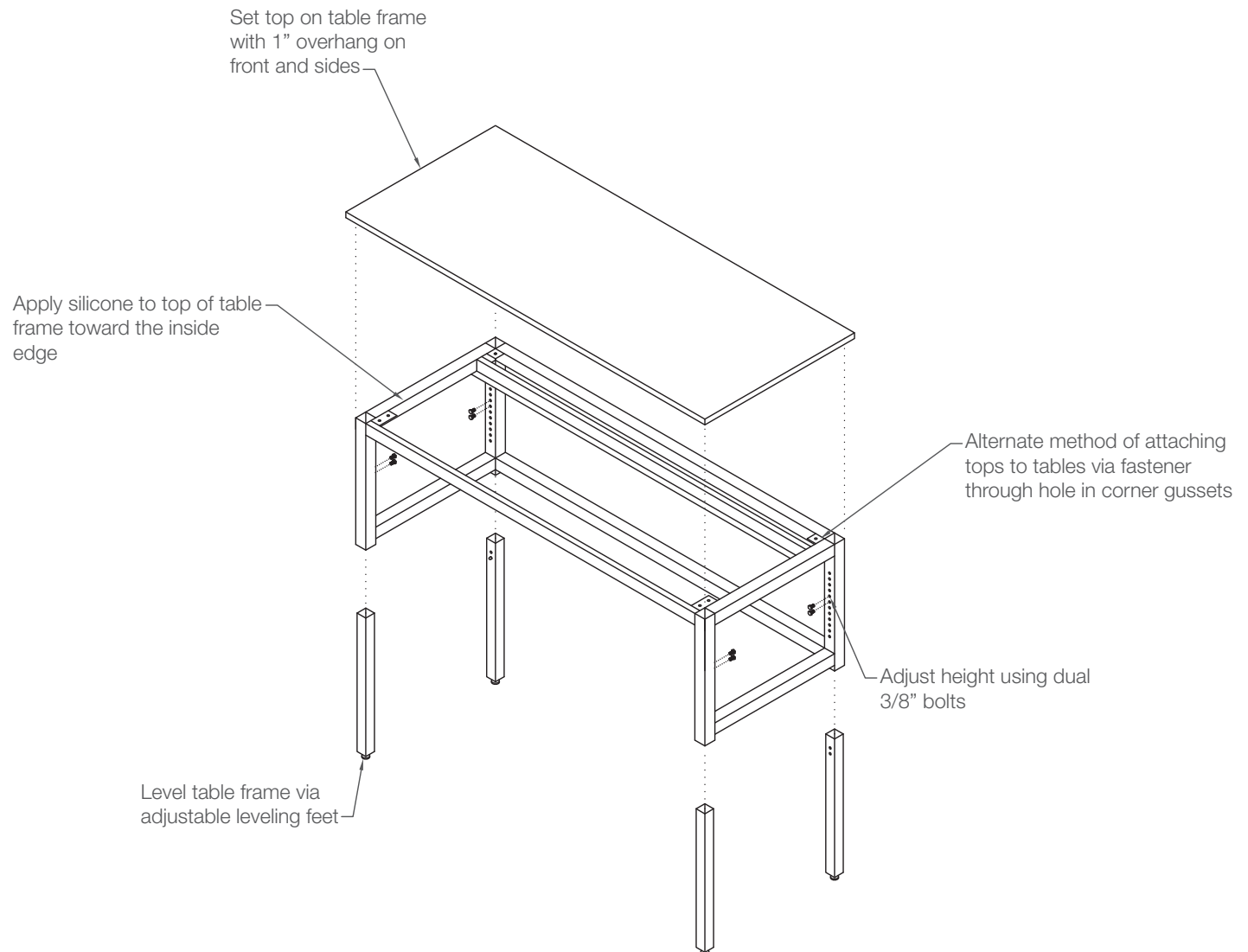
# 6. Installation Procedure

## 6.23 Basic Work Bench

These tables require two people to adjust. Ensure that there is no equipment sitting on top of the table. Remove the 3/8" bolts from the two of the table legs. While one person lifts that side of the table raise or lower the legs one at a time. Once both legs have been set to the desired position replace and tighten the bolt, repeat on the opposite side and replace and tighten all 3/8" bolts. The tables leveling glides can be used to make any final minor height adjustments.

Figure 6.23A

### Installing Basic Work Bench





# 6. Installation Procedure

## 6.24 Basic Work Bench with Uprights

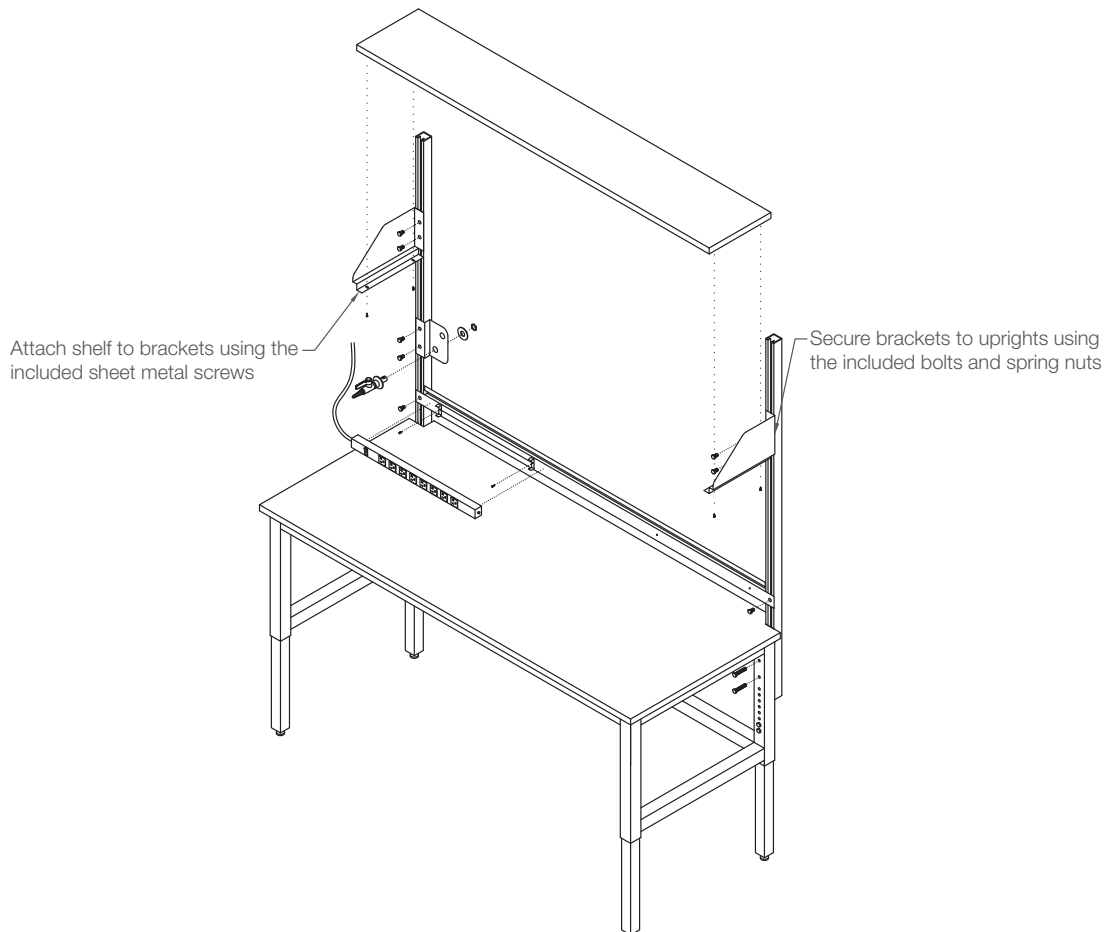
These tables require two people to adjust. Ensure that there is no equipment sitting on top of the table. Remove the 3/8" bolts from the two of the table legs. While one person lifts that side of the table raise or lower the legs one at a time. Once both legs have been set to the desired position replace and tighten the bolt, repeat on the opposite side and replace and tighten all 3/8" bolts. The tables leveling glides can be used to make any final minor height adjustments.

Shelving uprights and accessories may come pre-installed or shipped loose. If shipped loose the uprights can be installed at any desired height by fastening the uprights to the table using the included bolts and spring strut nuts. Loosely attach shelf brackets, power bar and plumbing brackets in the same way and check for level. After making any needed height adjustments fully tighten all bolts. Secure steel shelves to brackets using the included screws through the bottom of the shelf brackets. Attach the raceway mounting clips using the included screws through the pre-drilled holes in the power bar. Then snap the raceway into the clips.

Insert the shank of the plumbing service fixture through the hole in the mounting bracket and secure with the washer and nut. Once secure wrap the 1/4" MNPT end of the service line hose with Teflon tape and thread into the side tap in the mounting shank. Once the table has been moved into its final location, insert the male end of the quick connect into its corresponding female fitting in the ceiling service panel.

Figure 6.24A

### Installing Basic Work Bench with Uprights



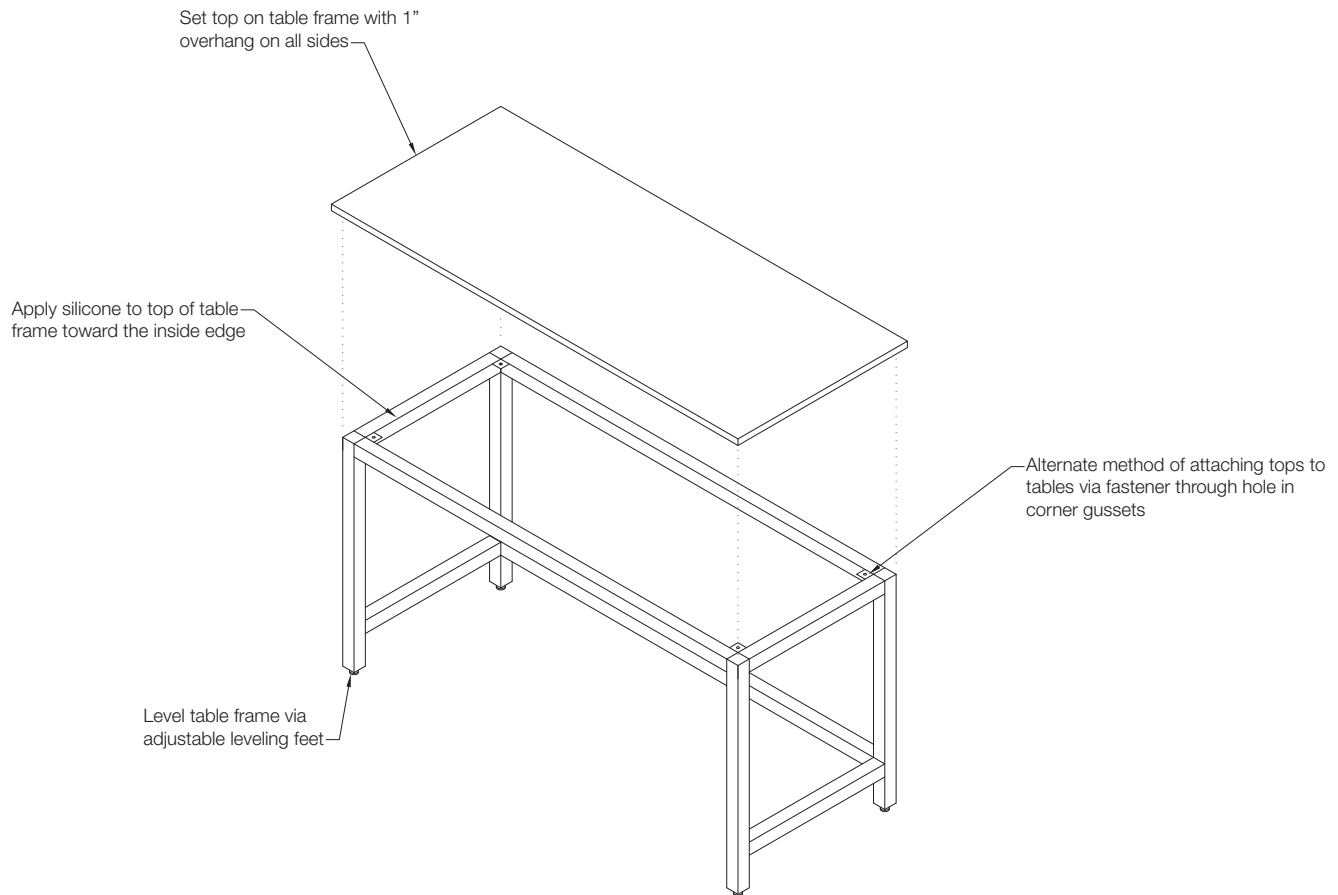
# 6. Installation Procedure

## 6.25 Fixed Height Heavy Duty Steel Tables

1. Table frames ship fully welded and assembled
2. Level tables using the included leveling feet
3. Attach the work surface to the tubular steel table frame by applying a bead of silicone or construction adhesive along the top of the table frame. The adhesive will hold once it has dried. Another option of fastening the work surface to the table frame is with fasteners through the corner gussets welded to the table. Use #10, pan head sheet metal screws sized to stop at least 1/8" (3mm) short of the finished work surface face. Pre-drill the work surface with an 11/64" diameter high speed drill bit.
4. Tables may include optional ratchet style casters with rubber isolation leveling pads. To set casters to a mobile position, jack the rubber pad up allowing the wheel to make contact with the floor. To set a stationary position and/or level the table, jack the rubber pad lower than the wheel so pad will make contact with the floor. These adjustments can be made using the telescoping ratchet arm located on the caster.

Figure 6.25A

## Installing Fixed Height Heavy Duty Steel Tables



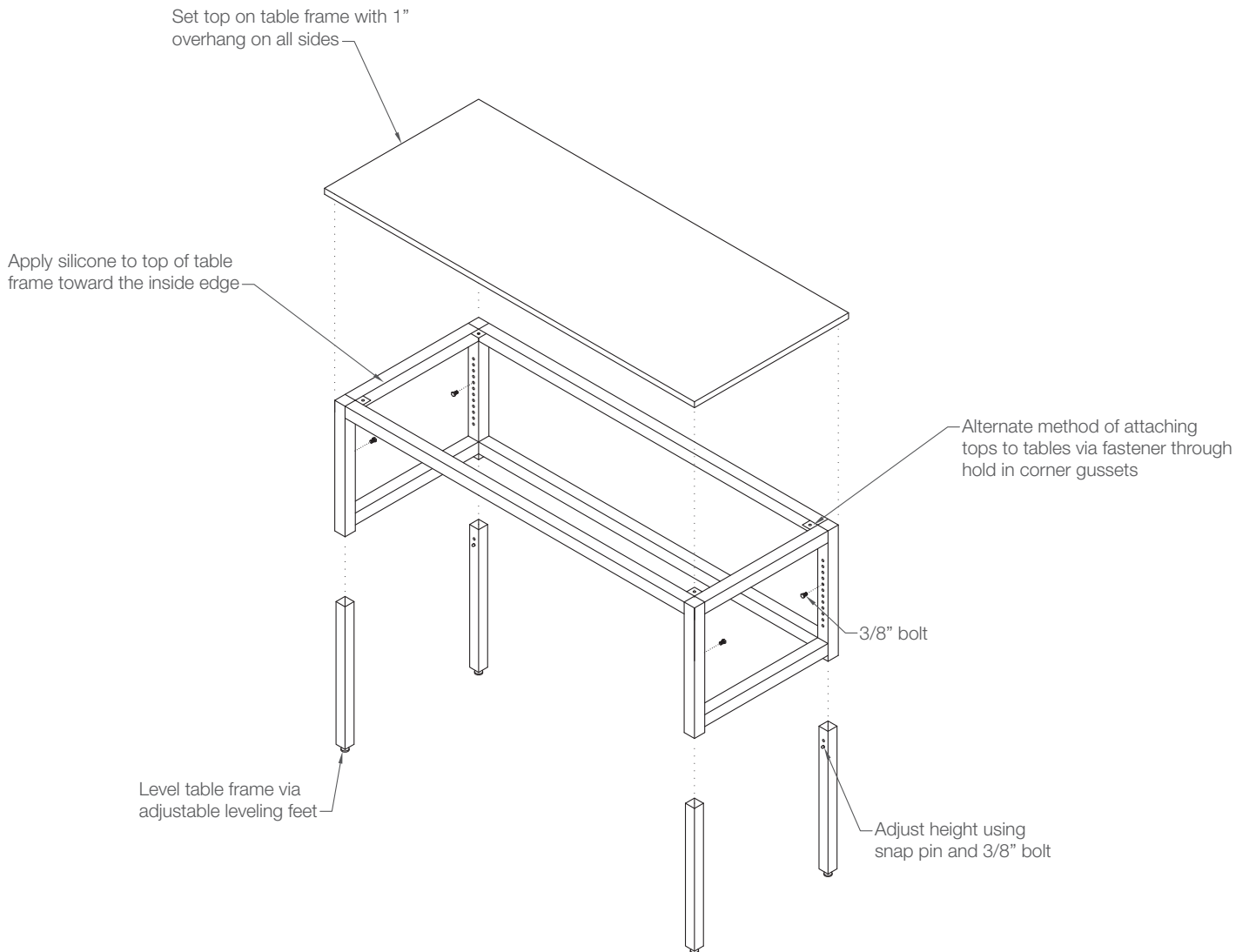
# 6. Installation Procedure

## 6.26 Adjustable Height Heavy Duty Steel Table

These tables require 2 people to adjust. Ensure that there is no equipment sitting on top of the table. Remove the 3/8" bolts from the table legs. While one person lifts one side of the table raise or lower the legs one at a time by pressing in the snap pin. Once both legs have been set to the desired position repeat on the opposite side and replace and tighten all 3/8" bolts. The tables leveling glides can be used to make any final minor height adjustments.

Figure 6.26A

### Installing Adjustable Height Heavy Duty Steel Table



# 6. Installation Procedure

## 6.27 Lab Workstations

Attach workstation shelves to shelf brackets using  $\frac{3}{4}$ " sheet metal screws. Attach the rear wire retaining rods to all shelves using the included mechanical screws. At this point you can also attach the side rods to the undermount upper shelf brackets and the front rods to the lower bookend brackets. Attach the work surface to the bench using the method outlined in the table instructions. Finally set the table in place and adjust the leveling feet to bring the table into its final position.

### Installation of Optional Task Lights

The task lights attach to the bottom of the lowest shelves using the integral magnetic mounts. Typically these are mounted towards the front of the shelf but can be adjusted to suit the end user's needs. Place the transformer into its magnetic mounting cradle and attach it to the underside of the shelves. Position this so it is out of the way and will not interfere with the use of the raceway. Plug the transformer into one of the outlets on the raceway and plug the other end into either end of the task light. For the 60" and 72" benches attach the second light to the adjacent shelf and attach lights together using the included daisy chain cord. To complete the installation coil any excess cables and secure with zip ties.

### Installation of Optional Gas Services

To attach the needle valve service turrets to the side posts remove the outer side panels by lifting the cover up and pulling back away from the table. Ensure you are working on the correct side of the table. The gas turret angle should point towards the front of the table. Remove the plastic plugs for whichever services are being provided. (Typically these start from the bottom up) Insert the turret mounting shank through the hole, position the shank so that the  $\frac{1}{4}$ " side inlet is facing up and hold in place using the washer and nut. This should only be finger tight. (See Figure 19). Attach the  $\frac{1}{4}$ " male end of the service hose to the side inlet on the mounting shank. Make sure to wrap the threads with Teflon tape to prevent the threads from leaking. Once secured rotate the turret  $10^\circ$  clockwise so that the handle of the turret sits plumb and tighten the mounting shank into its final position using the included offset wrench. (See Figure 20)

Repeat the steps above to install any additional turrets while routing the hoses through the top of the side post. Once all fixtures have been installed replace the cover panel on the post.

Figure 6.27A-B

## Installing Lab Workstations Services

6.27A



6.27B

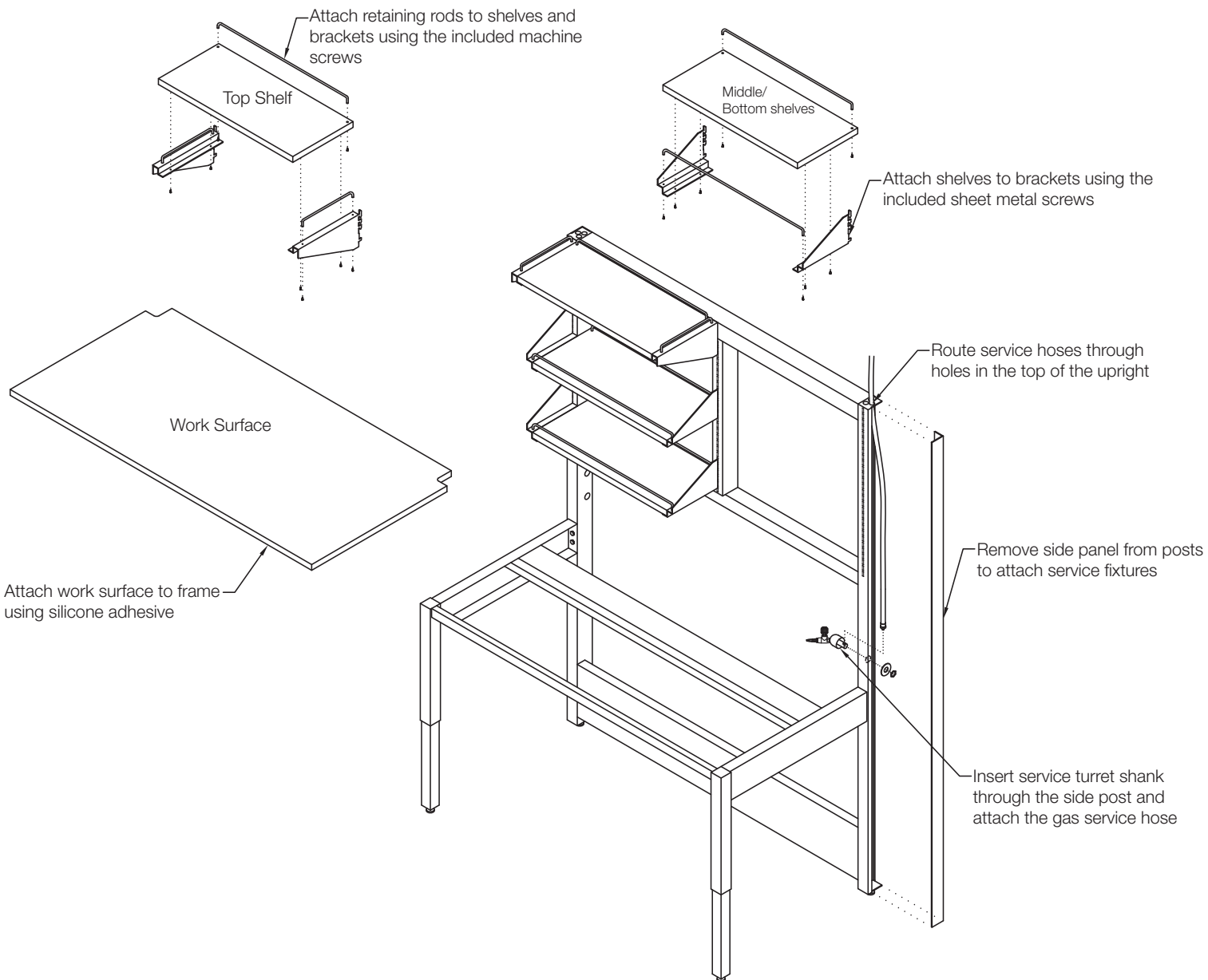


# 6. Installation Procedure

## 6.27 Lab Workstations

Figure 6.27C

### Installing Lab Workstations



# 6. Installation Procedure

## 6.28 Mobile Lab Equipment Workstations

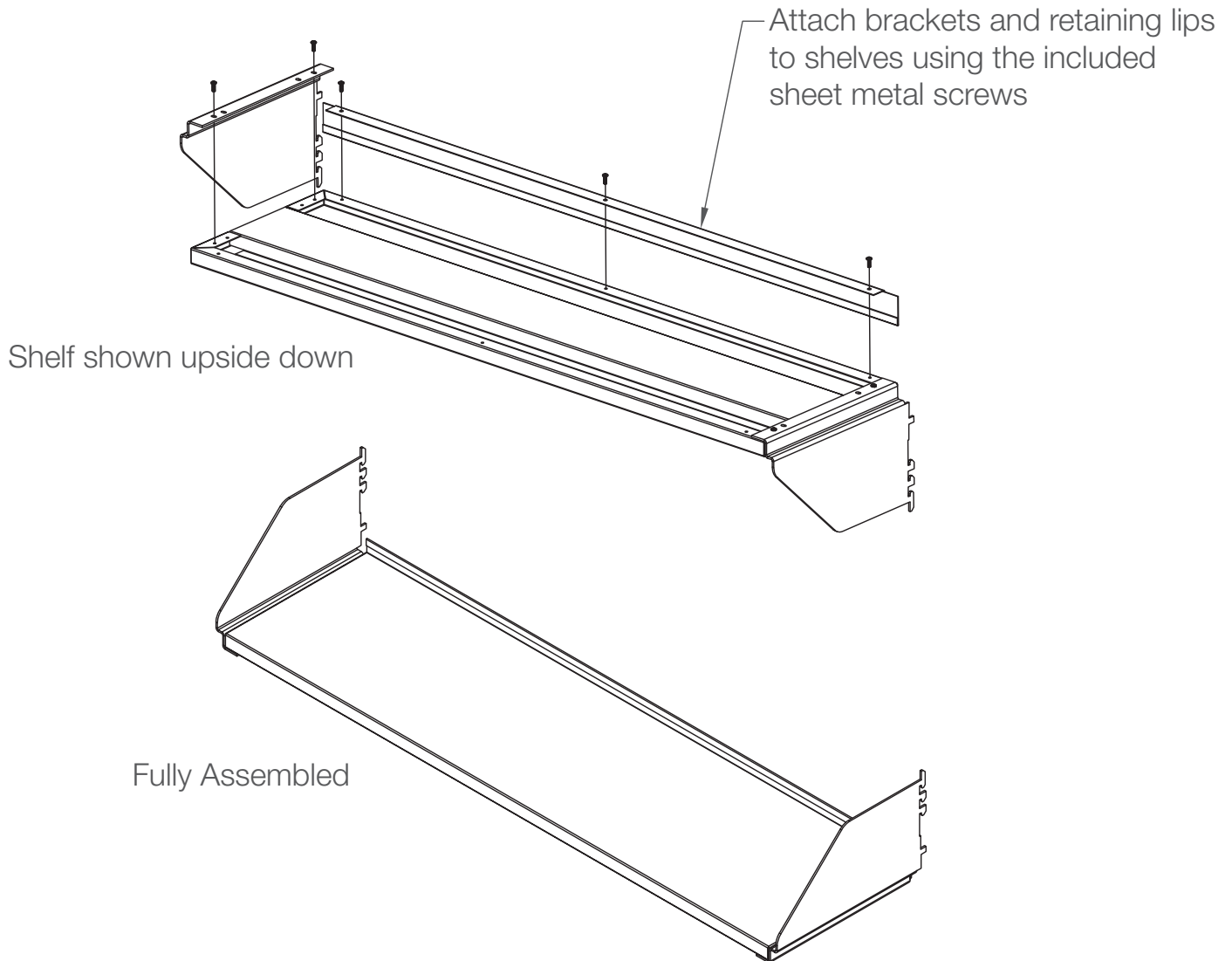
1. Begin assembly by assembling the cantilevered table frame.
2. Loosely attach each leg with 3 ea. 3 1/2" long 3/8" bolts, lock washers, flat washers and cantilever bolt plate to the back of the table frame. Ensure the mounting teeth face out.
3. Insert the teeth of the assembled cantilevered frame into the upright leg assembly.
4. Ensure that both legs are at an even height and adjusted to reach the desired work surface height.
5. Ensure that the legs are plumb and tighten the cantilever frame bolts fully into place then screw out the locking/leveling pin to prevent the frame from being removed.
6. Please note that we recommend screwing the pin out to the point where the work surface is raised 1/16" to 1/8" above being level so as load is applied to the work surface it will be level.
7. Flip the shelves upside down and place on a clean protected work area.
8. Attach the bookend brackets and shelf lips as shown in Figure 6.28A using the included #10 pan head screws.
9. Hang shelves on uprights in desired locations
10. Raceway brackets can be positioned either behind or in front of the uprights. Place brackets in desired position and make sure that both sides are even. Then place raceway on the brackets and secure from the backside of the raceway using self-tapping screws.
11. Attach the work surface to cantilever frame by applying a bead of silicone or construction adhesive along the top of the frame. The adhesive will hold once it has dried.

# 6. Installation Procedure

## 6.28 Mobile Lab Equipment Workstations

Figure 6.28A

### Installing Mobile Lab Equipment Workstation Shelves

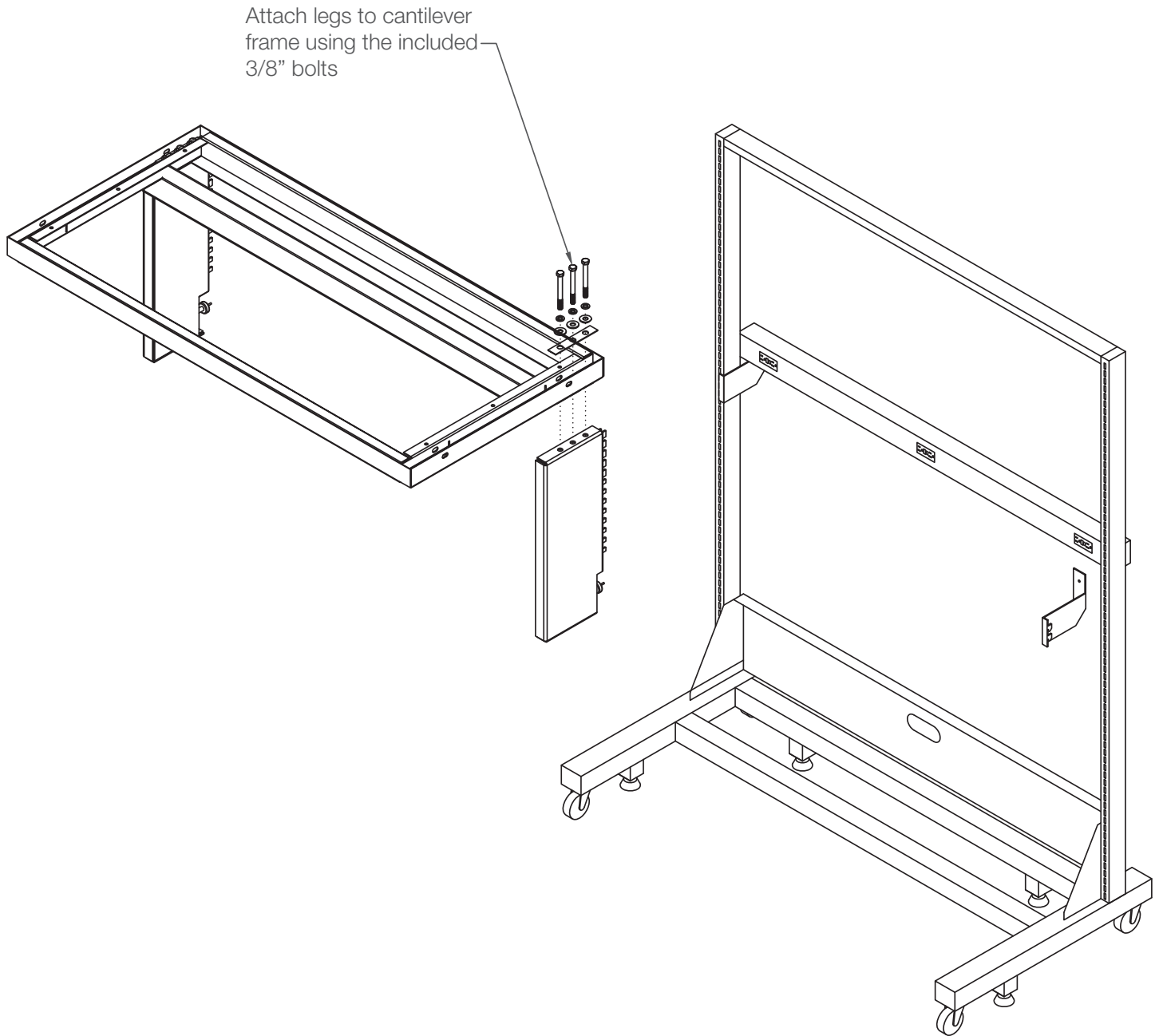


# 6. Installation Procedure

## 6.28 Mobile Lab Equipment Workstation

Figure 6.28B

### Installing Mobile Lab Equipment Workstation





# 6. Installation Procedure

## 6.29 Suspended Drawer or Cabinet Frame

Please note that we recommend installation of suspended cabinets prior to the installation of the work surface.

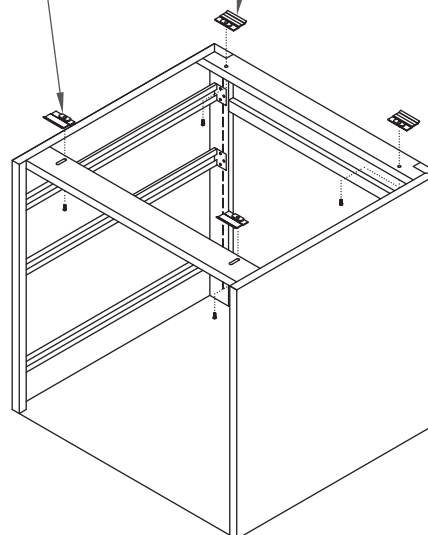
1. Remove the drawers from the suspended cabinet.
2. Loosely attached the cabinet hanger clips to the front and rear cross rails of the cabinet using the included 3/8" bolts.
3. Ensure that the bent lip edge of the clip faces up. This end of the clip should point towards the front of the cabinet on the front rail and the back of the cabinet on the back rail.
4. Position the cabinet under the table frame and lift the back of the cabinet into place. Ensure that both of the rear clips catch the table cross rail.
5. Slide the front clips all the way back and raise the front of the cabinet into place.
6. Once positioned slide both of the front clips forward to catch the front cross rail.
7. Make any minor adjustments to cabinet position and tighten bolts fully into place and replace the drawers.

Figure 6.29A

### Installing Suspended Drawer or Cabinet Clips

Attach front clips through the slotted holes in the cabinet frame and slide clips as far back as possible

Loosely attach cabinet hanger clips using the included 3/8" bolts

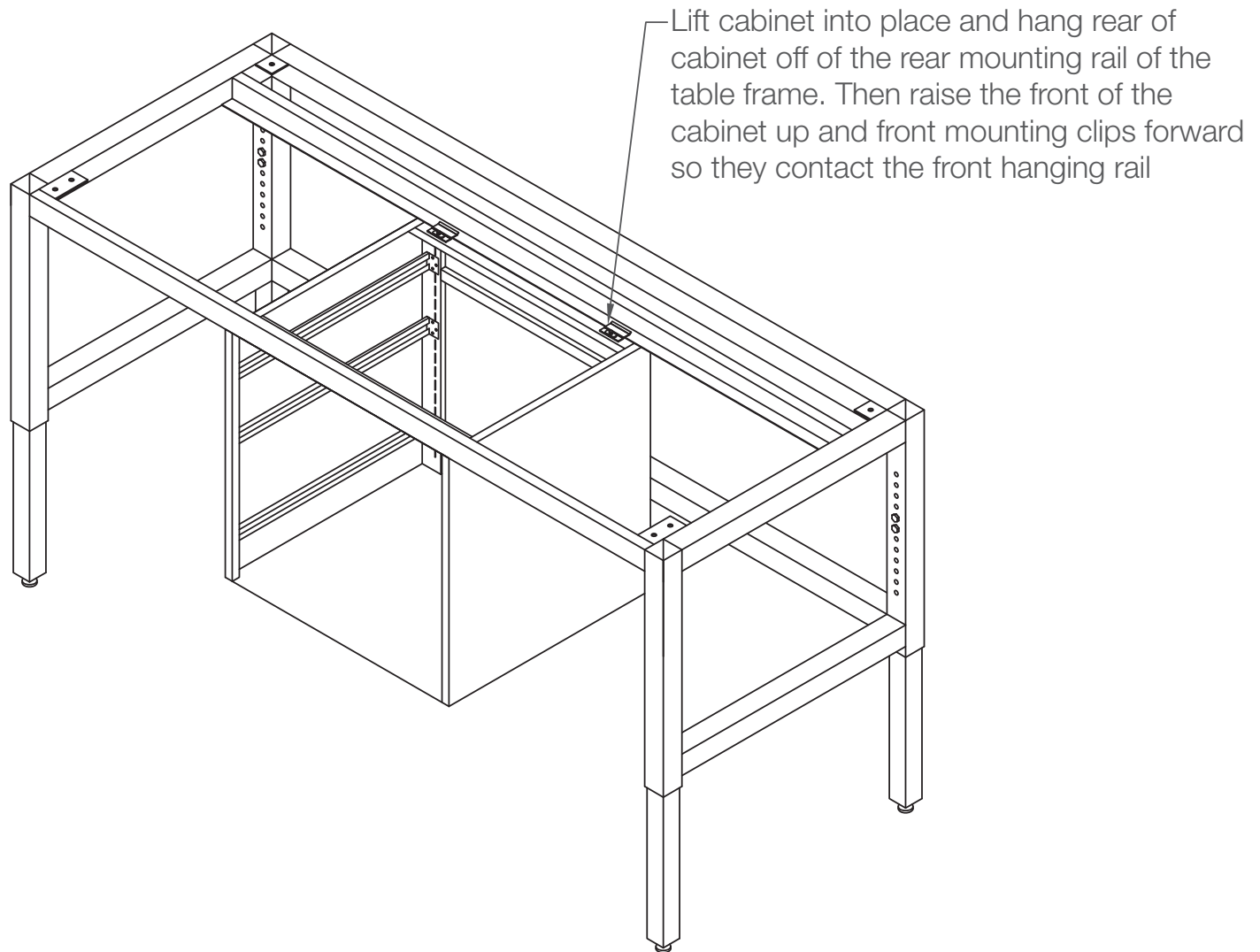


# 6. Installation Procedure

## 6.29 Suspended Drawer or Cabinet Frame

Figure 6.29A

### Installing Suspended Drawer or Cabinet Frame



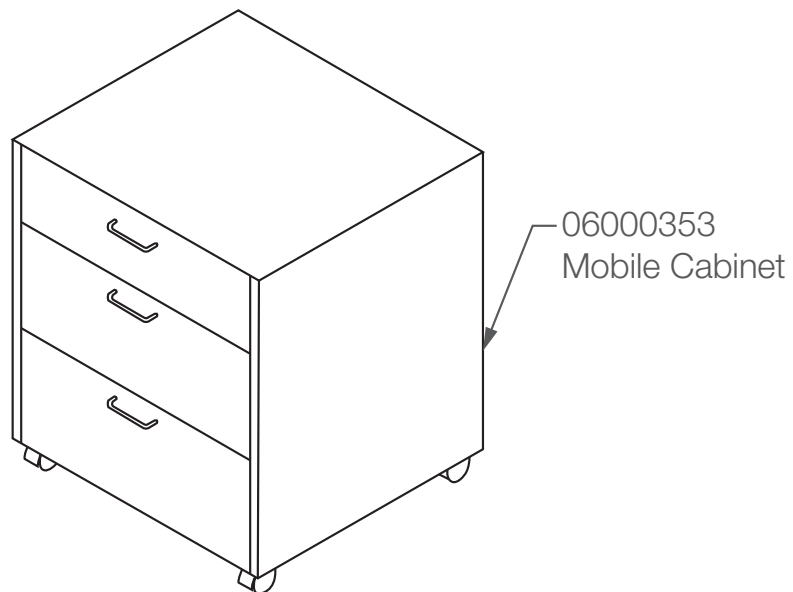
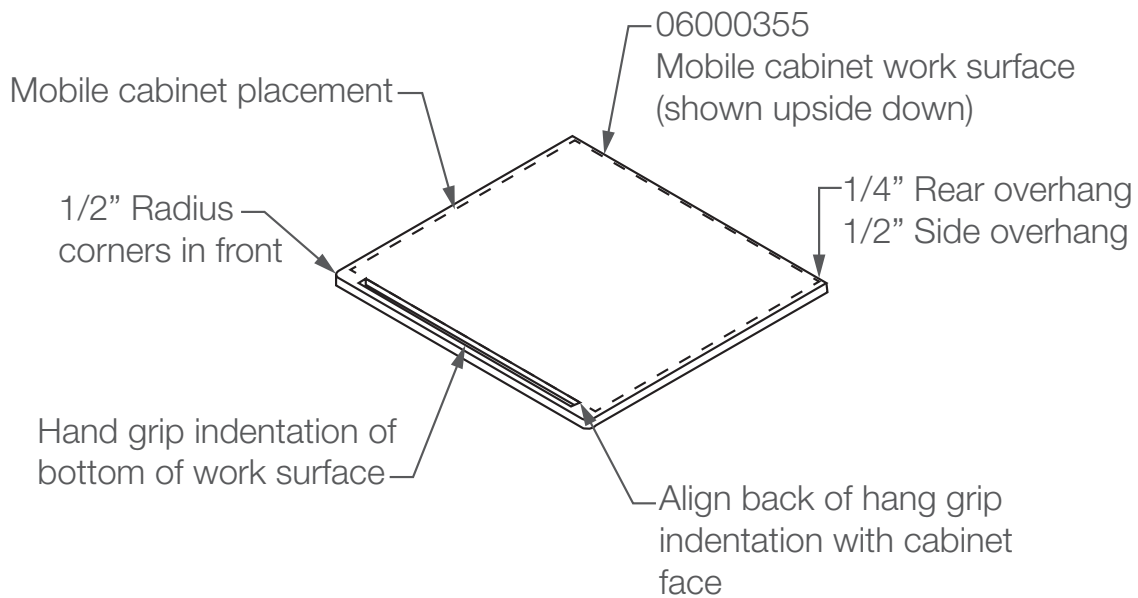
# 6. Installation Procedure

## 6.30 Mobile Cabinet

Mobile cabinets ship fully assembled and may include an optional phenolic resin work surface. To attach work surface to cabinet apply a 1/4" bead of silicone on top of the cabinet 3/4" from the outside edge. Carefully lower the work surface into place. The work surface should be centered left to right across the cabinet with the rear of the hand grip indentation aligned with the face of the cabinet. See Fig 21 below

Figure 6.30A

### Installing Mobile Cabinet



# 6. Installation Procedure

## 6.31 Phenolic and Epoxy Resin Work Surfaces

Once the tops have reached the job site please handle them with great care. Dropping or dragging could result in irreparable damage.

Epoxy or Phenolic resin work surfaces should be installed in the final stages of construction. This will reduce the risk of damage by other trades. Work surfaces should be stored inside in a dry, well ventilated area. When stacking panels horizontally, use Styrofoam spacers to allow air to circulate. Phenolic panels come with a protective film on the top; leave this film in place until the installation is complete to help protect the surface from incidental damage by other trades. Remove the film prior to client use.

To avoid problems later in the installation, take the time to check all cabinet runs to insure that they are squared and level.

### **“Dry-checking” the work surfaces, curbs and sinks**

- Caution: Epoxy resin work surfaces are heavy. Always have assistance when moving and placing them and always use proper lifting techniques.
- Place the work surface pieces on the cabinets and slide them into place.
- Note: Care should be taken to prevent anything abrasive from coming into contact with work surfaces.
- When installing work surfaces with under mount sinks, line the sinks up below the proper cutouts with an even overhang on all sides.
- Put the curbs in place and make sure they are the correct length.
- Inspect each section of top before applying adhesive.
- Some tops may be shipped long to be cut in field if accurate field dimensions are unavailable

- To make field cuts of Phenolic resin, cut from the underside using either a circular saw or table saw with a fresh carbide toothed blade
- To make field cuts of Epoxy Resin use a diamond tipped saw blade. Note that diamond grit blades can be used however they will not produce a smooth finish and may chip the finished surface
- OSHA regulations require that all field cuts of epoxy resin work surfaces be done with dustless tools. This can be met using either dust shrouds or wet saws.
- After you have checked the cabinets and inspected the sinks and work surfaces you are ready to begin the final installation.

### **Mixing epoxy adhesive**

- The 2-part epoxy adhesive is the material you will use to install epoxy or phenolic resin work surfaces. It is vital that you mix it properly.
- Always use a separate stick to scoop each part of the epoxy adhesive and use the same stick each time to avoid “mixing” and contaminating the unused portion.
- Mix, at a 1 to 1 ratio, on a clean 12” x 12” piece of stiff cardboard only what you need for the number of work surface pieces at hand.
- Mix the two parts thoroughly.

# 6. Installation Procedure

## 6.31 Phenolic and Epoxy Resin Work Surfaces

### Setting the work surfaces

- Using a straight edge or level, be sure that the two adjoining work surface pieces form a flat surface. Use shims if necessary to adjust the height of either piece.
- Lift and prop up the first two work surface pieces. Place small dabs of epoxy adhesive or silicone at 24" intervals along the front and back edges of the cabinet top below the first work surface piece, remove the prop and lower the work surface into place.
- Put a few dabs of epoxy adhesive or silicone along the lower edge of the first work surface piece where the next work surface piece will abut.
- Repeat the above steps for the second work surface piece and carefully lower it into place leaving a 1/8" to 1/16" seam between pieces.
- Use a clean damp rag to wipe away any excess adhesive.
- Repeat this process for the remaining work surface pieces in each run.

### Filling the seams

- Apply a length of 2" wide masking tape to each side of the seam directly on the edge of the joint.
- Using a putty knife, press the epoxy adhesive down and into the seam.
- Beginning at the back of the work surface, drag the putty knife toward you holding it at a 45° angle.
- Scrape the excess epoxy adhesive off of the masking tape approximately 1/16" from the center of the seam on both sides.

- Drag a clean putty knife across the masking tape one more time and then remove the tape.
- Use lacquer thinner on a clean rag to smooth out the epoxy adhesive for finished seams.
- Use a separate clean damp rag to wipe away any excess adhesive.
- Note: Never attempt to sand seams or scratches.
- Allow adhesive to harden overnight at +65° F.

### Installing the back splashes

- Cover the work surfaces with cardboard to protect the top surfaces from scratching. Place the splash upside down on the cardboard.
- Fill a putty knife with epoxy adhesive or silicone and use a smooth stroking motion to run a bead along the bottom of the splash and along the edge that abuts another splash.
- Set the splash in their proper location and press in place.
- Note: If you have uneven walls you will need to shim the curbs to have an even front. If you have a bow in the wall you can eliminate the problem with a prop and clamp.
- Wipe off excess epoxy adhesive at the bottom of the curbs with a rag wet with lacquer thinner.
- To insure that the work surfaces and curbs will stay in place, block and clamp the seams and allow the adhesive to harden overnight at +65° F.

# 6. Installation Procedure

## 6.32 Sinks, Cup Sinks and Sink Outlets

### Installing a Drop In Epoxy Sink

- Using a rag wet with lacquer thinner, clean the rim of the Drop In Sink and the area around and inside the rabbeted work surface cutout.
- Lower the sink into the cutout and inspect the fit.
- Remove the sink and apply 6-7 dabs of epoxy adhesive or silicone around the bottom of the rabbeted cutout.
- Carefully lower the sink back into the cutout.
- Gently press the sink rim until it is level with the bottom of the 1/8" rabbeted cutout bevel.
- Use a wet rag with lacquer thinner to wipe away excess adhesive.
- Allow epoxy adhesive to harden overnight at +65° F.
- After the dabs of epoxy adhesive harden, fill the seam with epoxy adhesive.
- Using a rag wet with lacquer thinner, smooth off the seam.
- Use a separate clean damp rag to wipe away any excess adhesive.
- Allow epoxy adhesive to harden overnight at +65° F.
- Gently press the sink rim until it is level with the bottom of the 1/8" rabbeted cutout bevel.
- Use a wet rag with lacquer thinner to wipe away excess adhesive.
- Allow epoxy adhesive to harden overnight at +65° F.
- After the epoxy adhesive has hardened, carefully fill in the sealant seam with adhesive.
- Using a wet rag with lacquer thinner, smooth off the seam. Use a separate clean damp rag to wipe away any excess adhesive and allow to harden overnight.

### Installing Undermount Sinks

- Using a level, without the work surface in place, check to make sure the top of the undermount sink is flush with the top edge of the cabinet.
- Adjust the sink supports if necessary from under the sink.
- After the sink is positioned, be careful not to move it as you set the work surface.
- Wipe the rim of the sink and the contact points on the bottom of the work surface with a rag wet with lacquer thinner.
- Apply a small bead of silicone sealant to the top edge of the sink.
- Apply a dab of epoxy adhesive or silicone at each corner of the sink cabinet.
- Carefully lower the sink work surface into place.
- Follow the steps outlined on for installation of work surfaces, filling the seams and installing curbs.

### Installing a cup sink

- Scuff the contact surfaces under the cup sink rim to increase adhesion. Clean the rim of the cup sink and the area around and inside the work surface or fume hood top cutout with lacquer thinner.
- Apply a dab of epoxy adhesive or silicone on four sides of the cutout in the work surface.
- Position the cup sink directly over the work surface cutout and lower it into position.

# 6. Installation Procedure

## 6.32 Sinks, Cup Sinks and Sink Outlets

### Installing Sink Outlets

- Clean both the outlet and the recessed hole in the sink with lacquer thinner.
- Apply black silicone or epoxy adhesive to the outlet in a 1/4" bead around the bottom edge.
- Insert the outlet directly into the recessed hole in the sink.
- Be sure the outlet is centered in the hole.
- From under the sink, thread the retaining nut all the way up and carefully hand tighten until the upper outlet flange is flush with the sink basin. Give the outlet a 1/4 turn after you make contact.
- Note: Do not use tools or over-tighten the plastic retaining nut.
- Wipe off any excess epoxy adhesive in the sink. Using a rag wet with lacquer thinner, smooth out the edges of the sealant seam.

### Installing Sink Outlets

- Lower the sink into the cutout and inspect the fit.
- Remove the sink and apply a bead of clear silicone around the outer lip of the sink rim.
- Carefully lower the sink back into the cutout and press into place.
- Allow silicone adhesive to harden overnight at +65° F.

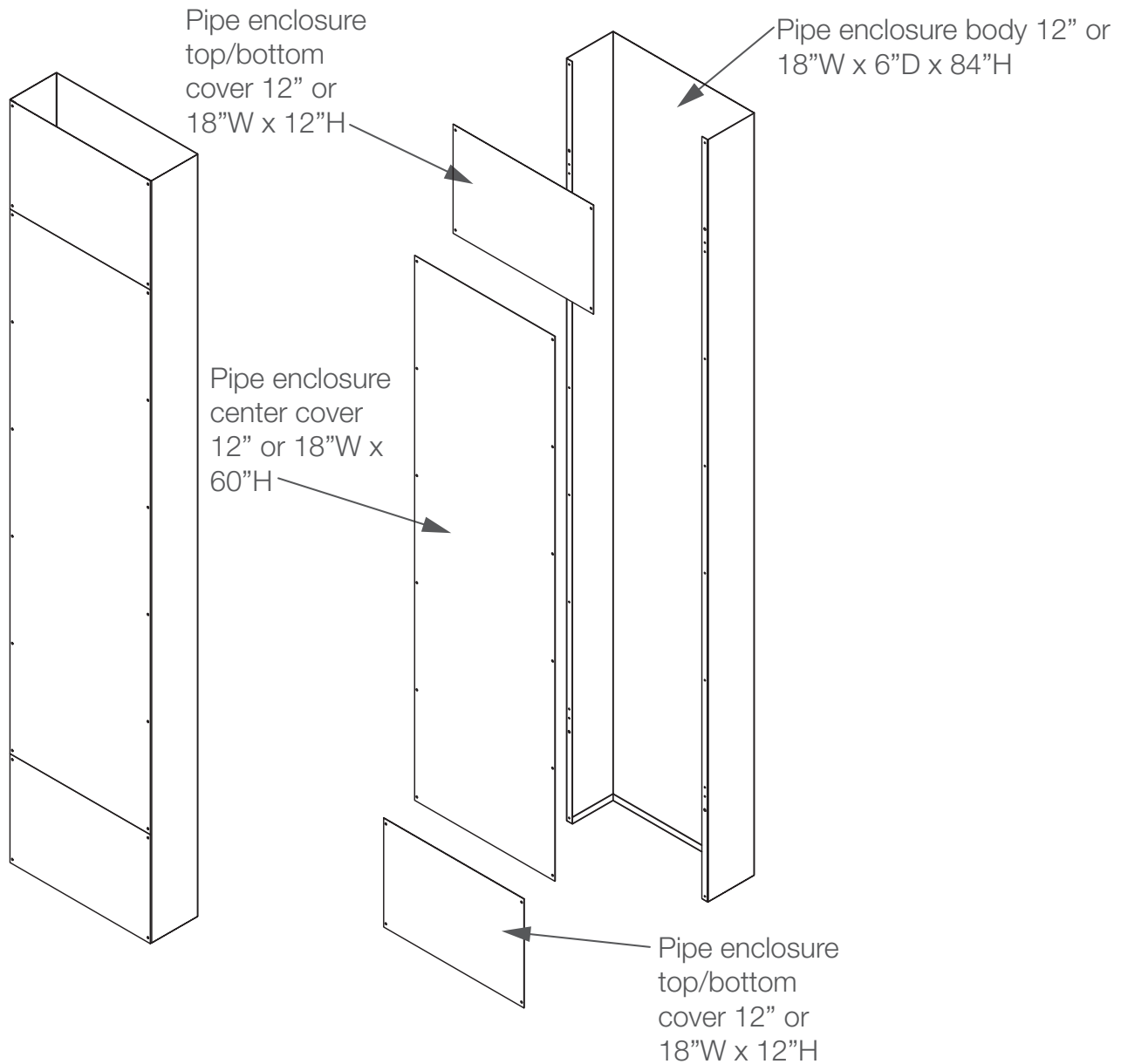
# 6. Installation Procedure

## 6.33 Pipe Enclosures

Remove front covers from enclosure and set in place on work surface. The precut opening in the work surface should allow  $\frac{3}{4}$ " on all sides of the enclosure for mounting. Position the chase so that the center panel can be removed to allow access to the enclosure for any maintenance needs. Secure the enclosure to the work surface using #10 sheet metal screws. Make sure to drill  $\frac{11}{64}$ " pilot holes. Re-attach the upper and lower cover plates to secure the top of the enclosure to the ceiling structure and attach the back splash, if used. The center cover can be held in place using a couple of screws. Final installation should be completed once all electrical and plumbing connections have been made.

Figure 6.33A

### Installing Pipe Enclosures





# 6. Installation Procedure

## 6.34 Pegboards

### Installation of Stainless Steel Pegboards to wall

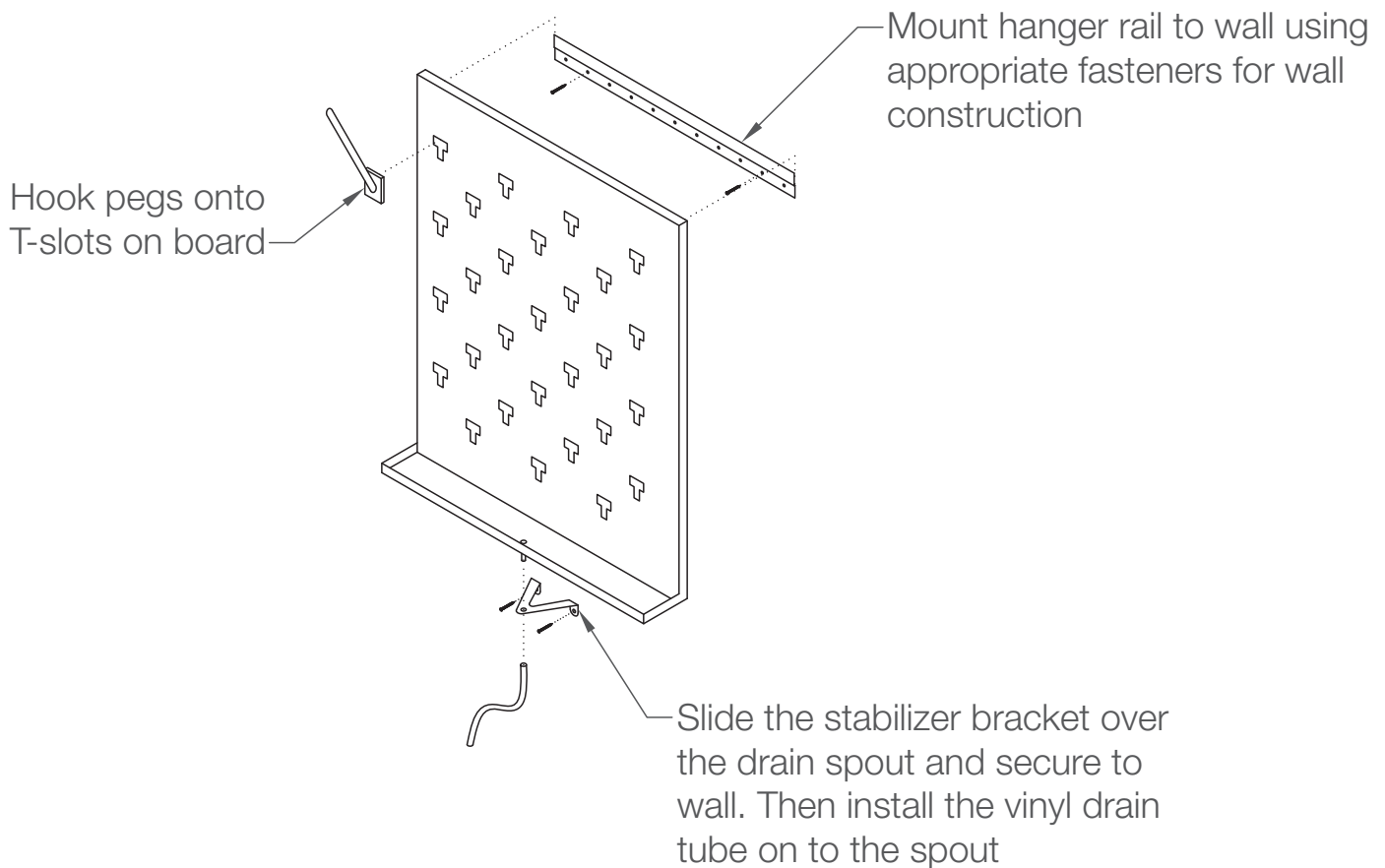
Mark the desired location for the pegboard and scribe a level line across the top. Typical mounting locations are centered over a sink bowl with the bottom of the trough 18" above the counter top.

Once marked attach the hanger rail using the appropriate fasteners for the wall construction.

Position the board over the rail and set into place. Then slide the lower stabilizer bracket over the drain spot and attach it to the wall. Once the pegboard has been secured, slip the vinyl drain tube over the spout and hook the pegs onto the T-slots.

Figure 6.34A

### Installing Stainless Steel Pegboards to Wall



# 6. Installation Procedure

## 6.34 Pegboards

### Installation of Stainless Steel Pegboards onto Finished Back Panels

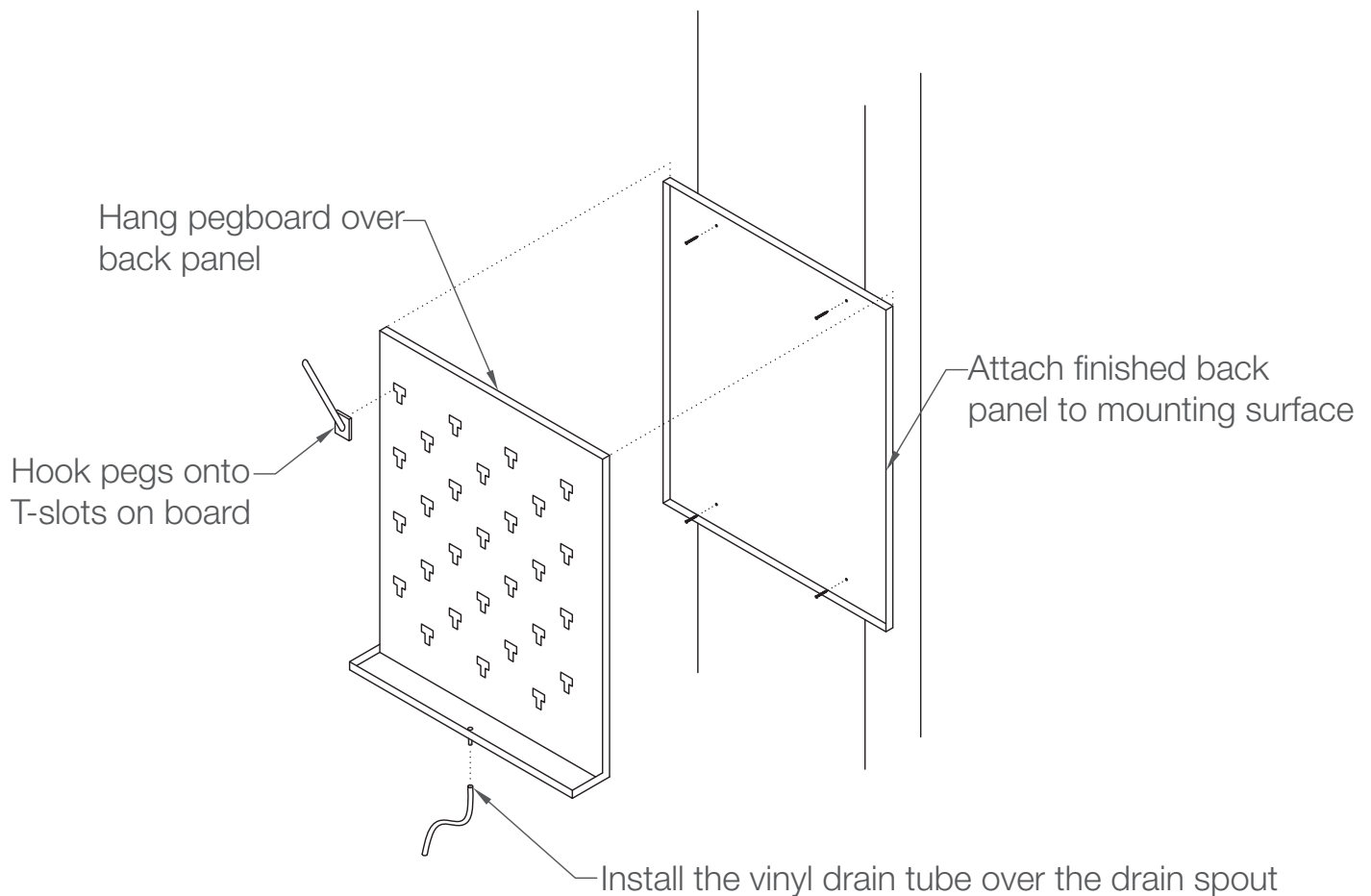
Mark the desired location for the pegboard and scribe a level line across the top. Typical mounting locations are centered over a sink bowl with the bottom of the trough 18" above the counter top.

Once marked attach the finished back panel using the appropriate fasteners for the mounting location.

Position the board over the panel and hook into place. Then slide the lower stabilizer bracket over the drain spot and attached it to the mounting location. Once the pegboard has been secured, slip the vinyl drain tube over the spout and hook the pegs onto the T-slots.

Figure 6.34B

### Installing Stainless Steel Pegboards to Finished Back



# 6. Installation Procedure

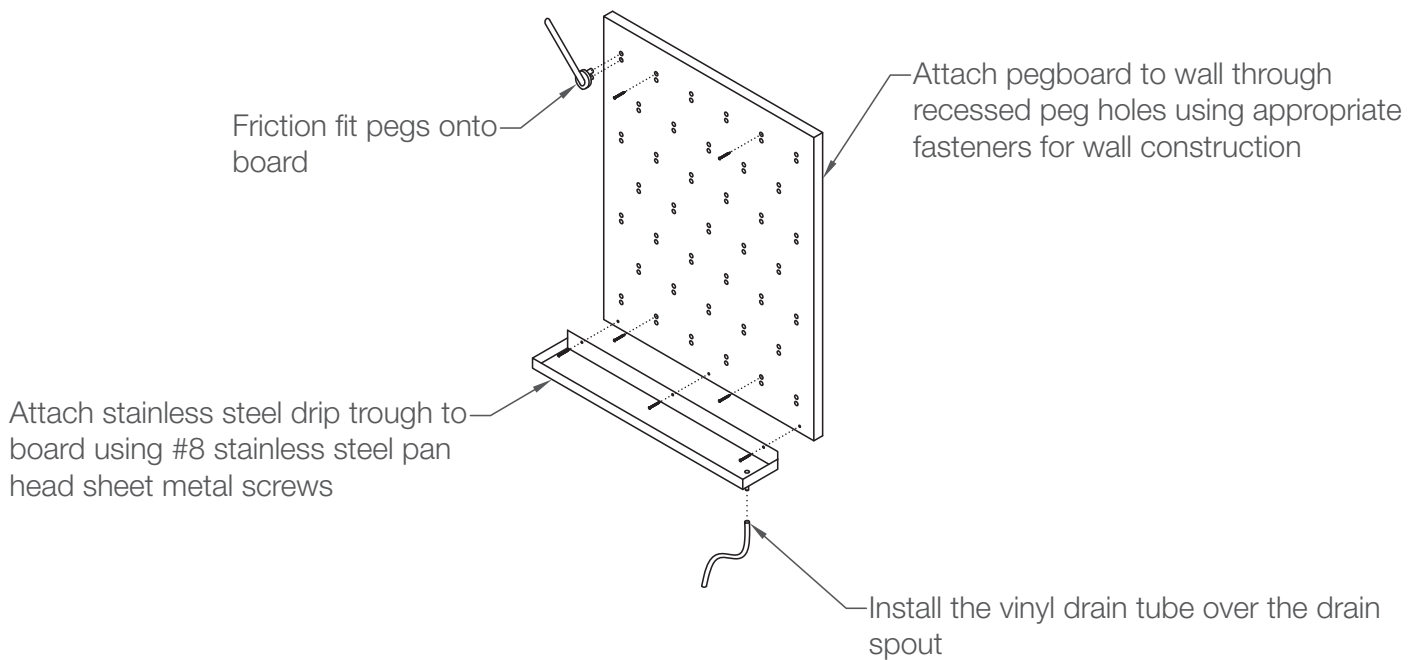
## 6.34 Pegboards

### Installation of Phenolic Pegboards

Attach the stainless steel drip trough to the bottom of the board using stainless steel pan head screws as shown (see Figure 6.35C). Position the pegboard at the desired mounting location. Typical mounting locations are centered over a sink bowl with the bottom of the trough 18" above the counter top. Drill pilot holes through the peg holes at the desired mounting location and attach pegboard to wall using appropriate fasteners for the wall construction. Once pegboard has been secured slip the vinyl drain tube over the spout and friction fit the pegs onto the board.

Figure 6.34C

### Installing Phenolic Pegboard



# 6. Installation Procedure

## 6.35 Task Lights

### Installation Below Painted Steel Cabinets or Shelves

Clip magnetic angle mounts to the back of the fixture housing. Place one side of the clip against the fixture housing and press the opposite side down until it snaps into place. Plug DC cord to either end of the fixture and route to power supply. Locate fixture to the desired position on the metal shelf or cabinet and set it in place. Friction fit the DC power inverter into the magnetically mounted bracket and attach bracket to shelf or cabinet in an inconspicuous location.

### Installation Below Wood, Stainless Steel or Phenolic Resin Cabinets or Shelves

Clip magnetic angle mounts to the back of the fixture housing. Place one side of the clip against the fixture housing and press the opposite side down until it snaps into place. Plug DC cord to either end of the fixture and route to power supply. Temporarily locate fixture to the desired position on the shelf or cabinet and mark the desired location. Attach painted steel mounting plate to the bottom of the cabinet or shelf at the marked location using 3/4" long pan head screws. Then attach the fixture to the plate. Friction fit the DC power inverter in to the power bracket and attach bracket to shelf or cabinet in an inconspicuous location using 3/4" long, pan head screws.

### Connecting Multiple Fixtures

Route interconnect cord from one end of a fixture to either end of an adjacent fixture. The maximum distance between the interconnected fixtures is determined by the length of the cord provided. Note: Route cords as to not kink or pinch, which may cause damage to the cord. When connecting more than one fixture, total wattage of fixtures must not exceed power supply rating. See the below chart to determine the maximum number of connected fixtures.

16.4" L Lights	23.3" L Lights	30.1" L Lights	43.7" L Lights
6	0	0	0
5	0	0	0
4	1	0	0
4	0	0	0
3	1	0	0
3	0	1	0
3	0	0	0
2	2	0	0
2	1	0	0
2	0	1	0
2	0	0	1
2	0	0	0
1	2	0	0
1	1	1	0
1	0	1	0
1	0	0	1
0	3	0	0
0	2	0	0
0	1	1	0
0	1	0	1
0	0	2	0

# 6. Installation Procedure

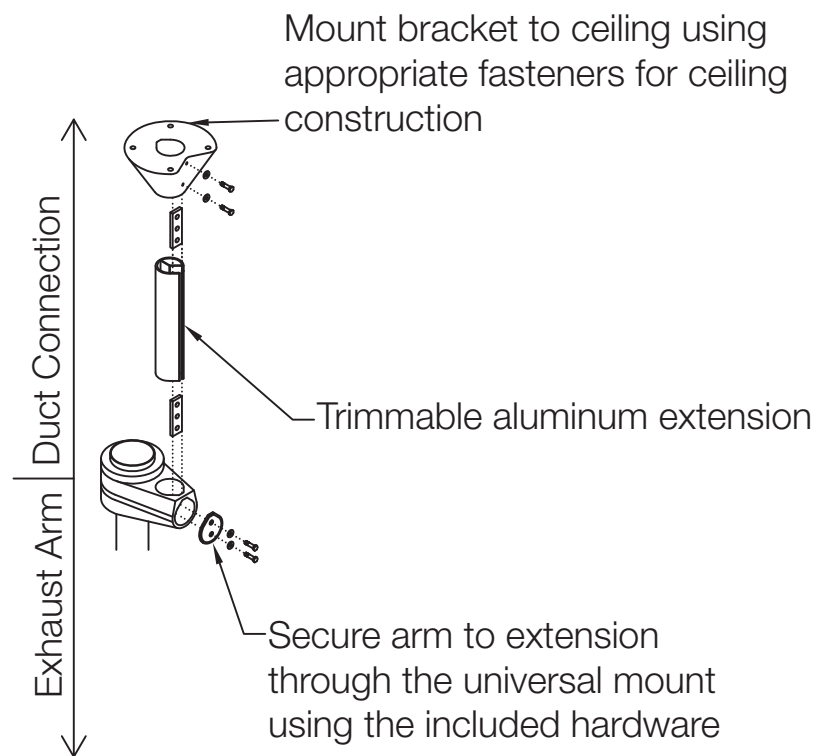
## 6.36 Exhaust Arms

All Fisherbrand exhaust arms include a universal Wall/Ceiling mount with a trimmable 43" aluminum extension. Wall mounting is recommended if snorkel will be located within 12" of a wall. Attach wall/ceiling bracket to mounting surface using appropriate fasteners for wall/ceiling construction. Fasteners should each withstand 1,650 lbs of torque.

1. Trim aluminum extension to desired length and attach to mounting bracket with hex bolts washers and threaded mounting plate.
2. Attach the exhaust arm to the aluminum extension in the same way. Please note that this exhaust arm required the duct connection to face up in order to function properly.
3. To attach one of the optional hoods to the exhaust arm punch out the holes in the mini hood using a screw driver and/or utility knife.
4. Attach the hood using the included bolts and finished caps.

Figure 6.36A

### Installing Exhaust Arm - Ceiling Mount

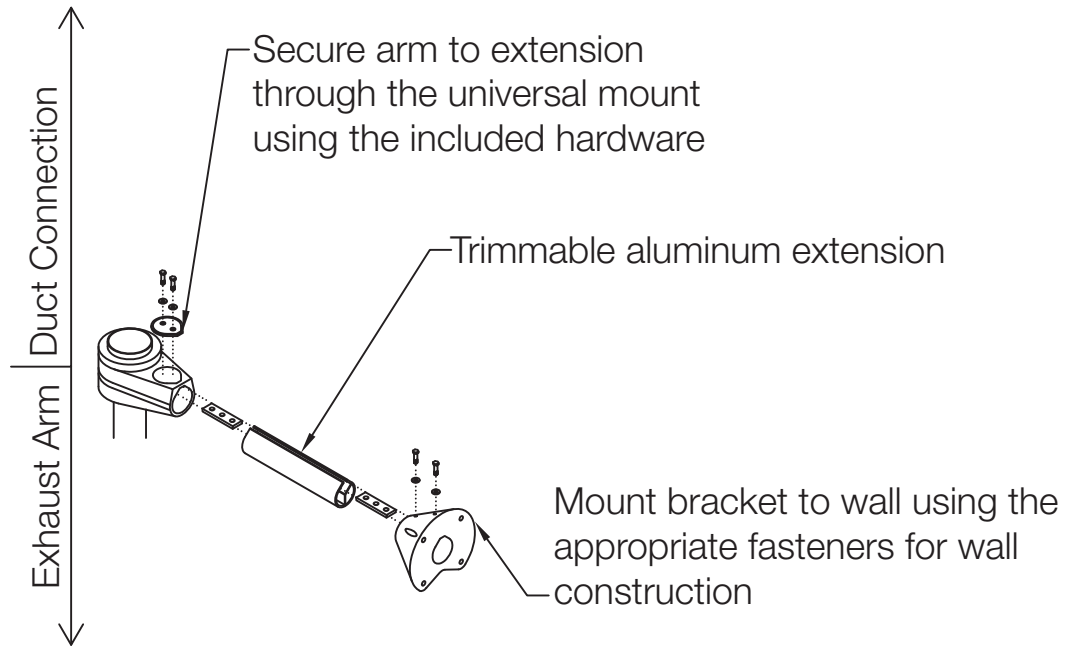


# 6. Installation Procedure

## 6.36 Exhaust Arms

Figure 6.36B

### Installing Exhaust Arm - Ceiling Mount



# 7. Care and Maintenance

## 7.1 Painted Steel Casework

Powder coating materials can be easily cleaned in a way similar to most painted surfaces. For cleaning, a solution of mild soap in water should be used. Application of the solution should be with a soft cloth, or with other non-abrasive cleaning applicators. Other non-abrasive cleaning agents can also be used, however, some cleaning agents can be very aggressive on painted surfaces and should be spot tested on an inconspicuous part of the coatings surface before being used. Abrasive cleaning agents should never be used to clean powder coatings.

## 7.2 Stainless Steel Casework, Tops, Pegboards and Sinks

Clean stainless steel surfaces using general purpose detergent and warm water. Restrict or avoid contact with the chemicals listed below, as well as any chemical in the Halogen family, because they will discolor stainless steel. Aqua Regia, Dakins Solution, Hydrofluoric Acid, Phosphoric Acid, Chlorine Bleach, Ferric Chloride, Iodine, Sodium Bisulfate, Chloride (wet), Hydrochloric Acid, Mercuric Chloride, and Sulfuric Acid

## 7.3 Wood Casework

Clean all exposed wood casework surfaces and hardware on a regular basis using a mild detergent and clean, warm water. Please make certain all surfaces are thoroughly dried after each cleaning. Once the casework has dried, apply a coating of good quality, commercially available wood furniture polish. If you casework is heavily soiled, you may need a strong detergent to remove stubborn stains. Don't forget to check drawers and cupboards often for chemical spills or leaks. Prompt cleanup is the key to preventing permanent damage.

## 7.4 Phenolic Work Surfaces and Pegboards

Clean the surface just with pure hot water and use a soft sponge - (DO NOT use the abrasive "green" side of the sponge), use a soft cloth or a soft brush (e.g. nylon brush). Use common household cleaners without abrasives like detergent or window cleaner.

# 7. Care and Maintenance

## 7.5 Epoxy Work Surfaces and Sinks

Epoxy resin work surfaces are durable non-porous, man-made stone products that are relatively unaffected by most chemicals, heat, flame and moisture. These super-tough surfaces' physical properties are seldom compromised; however, they do require periodic care and maintenance throughout the life of the lab or school room to keep the surfaces looking like new. Whether you are a facility owner, manager, custodian or lab user, it is helpful to know how to maintain the good appearance of your lab's work surfaces.

### **Regular Care Procedures**

We recommend instituting a regimen of monthly or quarterly inspections of all surfaces, sinks and joints, plus daily or weekly cleanings to maintain your epoxy resin's original finish and to help ensure a safe, uncontaminated working environment. The following list contains items you may wish to have on-hand for regular cleaning and to handle most problems that may occur.

- Acetone or Paint Thinner
- Crystal Simple Green
- White Scotch Brite Pads (always use moist or wet)
- Finish Oil (Mineral Oil)
- Murphy's Oil
- Clean Rags or Sponges
- Chamois Cloth
- Mild Soap or Household Cleaner
- Two-part Smooth-On Epoxy Grout

Note: Never use wax or polish containing wax on epoxy resin work surfaces or sinks. Also never use abrasive pads, powders or liquids (such as Soft Scrub) as dulling the surface will result.

### **Work Surface Care**

Promptly wipe up all spills. Acetone should be used (where allowed) to thoroughly clean surfaces. Apply and wipe away with a paper towel or a clean rag. As an alternative, Crystal Simple Green (or comparable household cleaning product) can be used to clean surfaces.

An occasional application of finish oil or Murphy's Oil can restore the luster to the surface, but remember; too much oil can cloud the surface.

- Apply oil by pouring the minimum amount of oil necessary to cover the surface area onto a clean rag.
- Thoroughly rub in oil using a circular motion.
- Wipe away excess oil with a clean rag.
- A chamois can be used to buff the surfaces to the desired sheen.

### **Epoxy Resin Sink Care**

Laboratory sink areas usually present the greatest cleaning and maintenance challenges. Sinks are a collection point for dirty and wet lab ware which leaves liquids, residue and chemicals on the surface for extended periods of time. Sink areas will require a more thorough cleaning regimen than dry bench tops as well as more frequent inspections. Sink inspections should include all sink surfaces and joints in sink area including the outlet joint and the sink run join above and below the work surface. Cracked or pitted joints should be filled immediately with two-part Smooth-On epoxy grout to prevent leaking and damage to the supporting casework. If there is a more serious cleaning issue it is important to identify the problem before trying to remedy it.



# 7. Care and Maintenance

## 7.5 Epoxy Work Surfaces and Sinks

### **Marring**

Most metals are softer than the work surfaces and can leave a mar if pulled across the top. Marring is matter left on the surface that appears as a line and remains smooth to the touch. Marring can almost always be removed with acetone or with mild cleaning products and elbow grease. Always try the softest cloth and the weakest solution (soap and water) first. If marring persists, progress to a white Light Duty Scotchbrite Pad moistened with stronger solutions. Never use a dry Scotchbrite pad or a more abrasive pad and always apply the minimum amount of pressure required on the surface to remove the mar.

### **Scratches**

Harder metals, abrasives and heavy or sharp items can dig into the surface resulting in a scratch. Scratches usually appear as a lighter shade of the surface and will be rough to the touch. Scratches in epoxy resin are permanent but will not affect work surfaces performance. An aesthetic remedy for scratches is coloring in the void with a permanent marker. This option will never perfectly match the color and gloss of the surrounding surfaces.

### **Stained Surfaces**

Staining can be caused by chemicals left to dry on the surface. Chemical stains usually lighten or bleach the surface but can also roughen and even crack the top. Like scratches, chemical stains are permanent and, if they have caused too much damage, you may need to replace the top.

### **Special Care Issues**

Epoxy resin products (especially glued in sinks) are subject to thermal shock and are not warranted against damage from liquid nitrogen or dry ice. Possible effects caused by the improper disposal of these materials include join failure and/or sink fractures.

By following these simple guidelines your laboratory work surfaces will look good for the life of the lab. Please take time to share this document with your lab workers and cleaning personnel and institute a maintenance program to help ensure the safety and beauty of your lab.

## 7.6 Exhaust Arms

Maintenance is recommended at least once a year.

- Dismantle the arm. Clean the whole arm internally and externally.
- Adjust the links.
- Check the mounting of the arm on wall, bench or ceiling.
- Check the airflow. If it is reduced, the ventilation system must be inspected.

## 7.7 Task Lighting

If the fixture is used in a dusty area, an occasional wipe with a dry cloth may be needed. The task lights contain LEDs with a rated lifespan of greater than 50,000 hours, unless otherwise noted. Provided the light was installed correctly, there is no need for care and maintenance of the fixtures.

Find out more at [fishersci.com/fisherbrandlabfurnishings](https://fishersci.com/fisherbrandlabfurnishings)

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