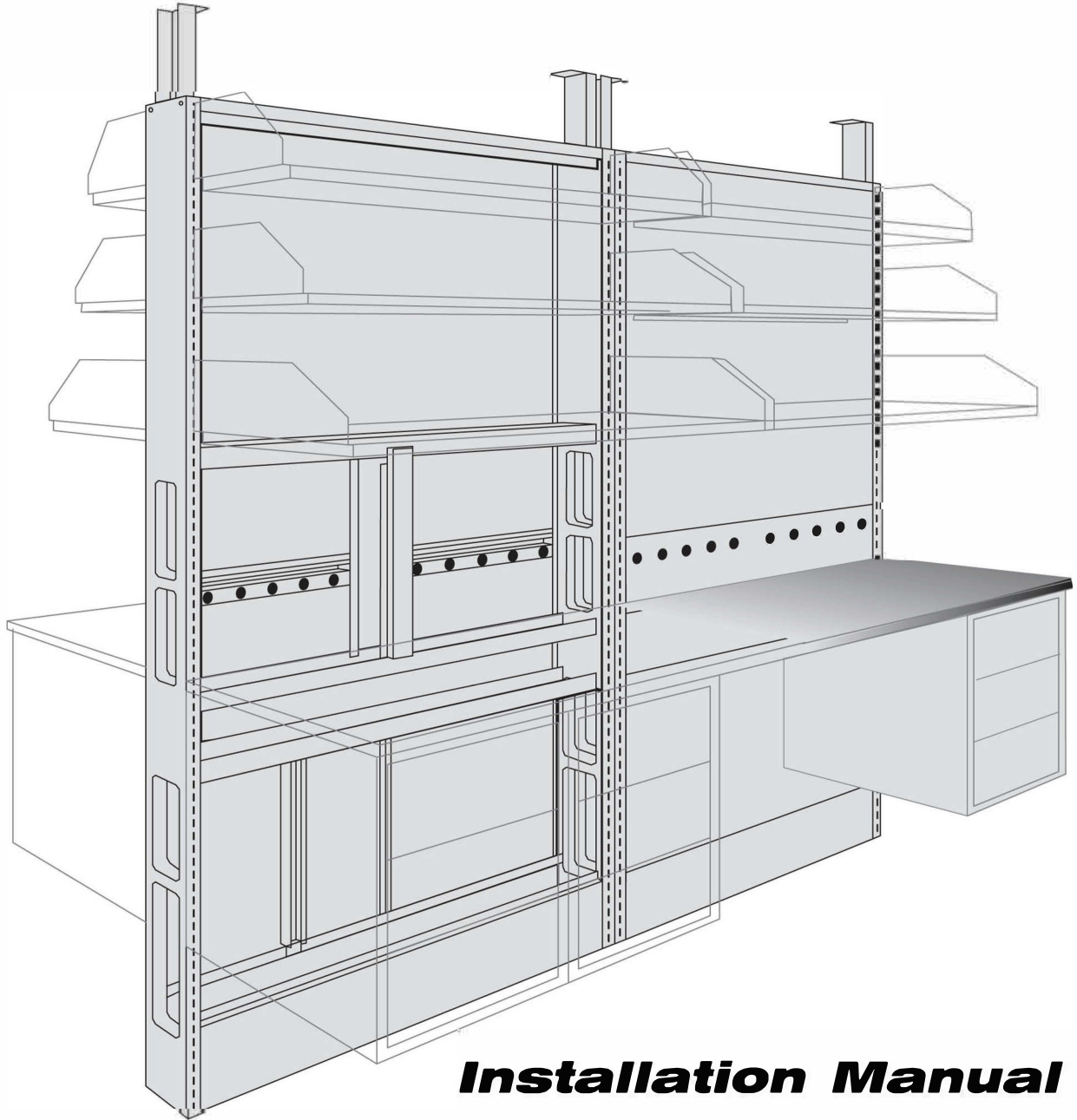


MAX/Wall[®]

Technical Wall System



Installation Manual

MAX/Wall® Technical Wall System

Component Identification

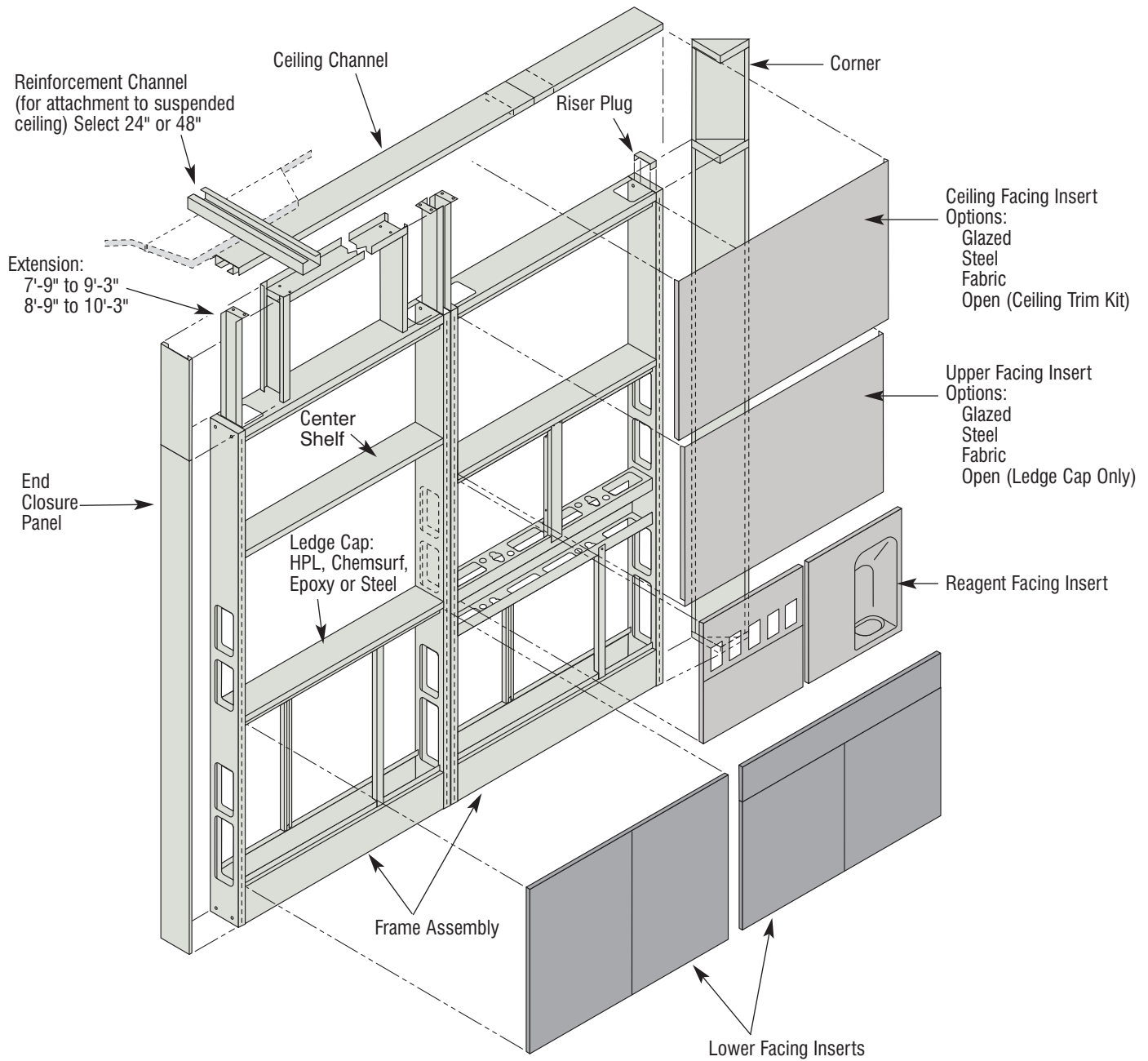


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Section 1 - Introduction

Tools Required:

3/8" Drive socket set, including the following:

Extension (2" or 3")

Universal joint

Hex bits (4" long min.) - 3/16", 5/16".

Combination wrenches - 3/8", 3/16", 1/2", 9/16".

Phillips screwdrivers - (#2 and #3 tips)

1/2" drill motor (Hammer drill preferable)

1/2" masonry drill bit

Torque wrench

Rubber mallet

Jigsaw with metal cutting blade

Chalk line

Carpenter's level (4' min.)

Facing insert removal tool

Flat blade screwdriver

Hammer

Knife

Measuring tape

Optional Tools to speed installation:

Drill motor or cordless drill including: set of drill bits (specifically #12 or 3/16")

1/2" hex shank (2-1/2" long)

2 C-clamps (4" min. throat depth)

Masking tape

This manual is intended as a procedural tool for the installation and assembly of Hamilton ~~GVWbH2W~~ Furniture. It also serves as an aid to designers and planners during layout and cost analysis, and to facility managers to carry out periodic modifications.

Disclaimer and Warning:

Hamilton ~~GVWbH2W~~ disclaims liability for installations (including re-arrangements and additions) not in strict conformity with the instructions contained herein or with other written instruction of Hamilton ~~GVWbH2W~~. Hamilton ~~GVWbH2W~~ further disclaims liability if its products are modified, altered, abused or misused.

1.1 Preparation for Installation

1. Select a staging area as close to the installation as possible. If more than one floor is involved, provide a staging area for each floor.
2. Check actual floor dimensions against the layout print for possible un-planned obstructions. These could include walls, columns, service entrances, or changes in floor elevation such as slopes or steps.
3. Mark the proposed layout on the floor with masking or a chalk line. Find and mark the high spot on the floor by sliding a four foot carpenter's level across the floor.
4. Start the installation of each run at a corner nearest the high point and adjust the leveler out 1-1/4" at that point. Caution: Support structures must be 1-1/4" minimum off the floor to provide adequate clearance for power cables and installation of supported structural table.

Caution: Support structures must be 1-1/4" minimum off the floor to provide adequate clearance for power cables and installation of supported structural table.

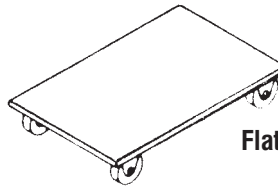
5. If possible, start the installation at the farthest point from the staging area to avoid hauling products through areas already installed.
6. Installation sequence:
 - a. Assemble the panels and cores per to floor plan, making sure adequate support is provided to stabilize the configuration.
If structural tables are to be installed, they should, whenever possible, be attached to individual panels before assembling panels into runs.
 - b. Install the appropriate wiring, and plumbing.
 - c. Attach the base covers and facing inserts.
 - d. Install cantilevered work surfaces, upper and lower storage, and other accessories.
 - e. Move primary tables and any other free-standing furniture into place.
7. To avoid soiling the fabric on fabric covered facing inserts, handling them with white cotton gloves is recommended.
8. When installation of the Max Furniture System is complete, extra hardware and components may have accumulated. It is recommended that all "extra parts" be saved for future additions or re-arrangements to the system.

Section 1 - Introduction

1.2 Material Handling

Flat Carpet-Covered Dolly

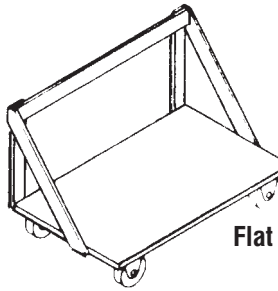
This dolly is used to transport island cores laying on their 12" narrow side, which gives maximum support, and enables the material handler to access most doors. It can also be used to move cartoned materials.



Flat Carpet-Covered Dolly

Flat Dolly with A-Frame

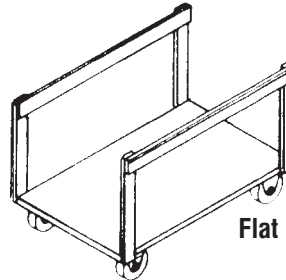
This dolly is used when transporting narrow panels, counter tops, or long cartoned stock. It gives the balance needed to support these materials.



Flat Dolly with A-Frame

Flat Dolly with Side Rails

This dolly serves the same purpose as the A-framed dolly for panels and long stock but is more difficult to unload. It can also be used to move cartons of hardware.



Flat Dolly with Side Rails

1.3 Assembly Guidelines

Support Restrictions

1. The length of straight unsupported run of wall frames **should not exceed 8-feet between end supports**, with a maximum of three wall frames per run.
2. The maximum width of a wall frame which provides support at only one end is 30".

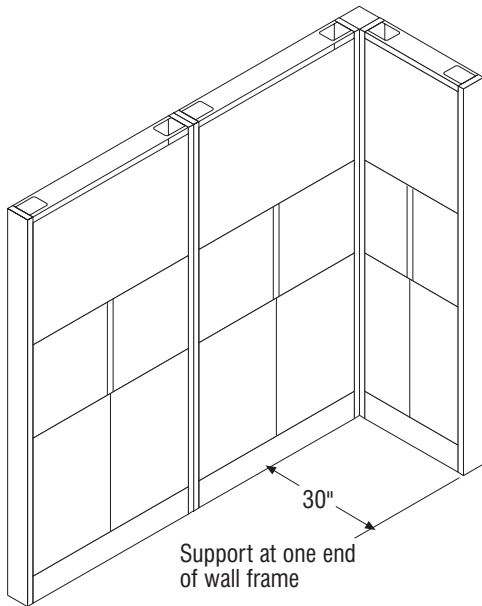


Figure 1-4

1.3 Assembly Guidelines

Support Restrictions (Cont.)

3. End supports are defined as any of the following items which add stability to a single run of wall frames: structural table, 24" or 30" wide wall frames, or support leg. See Figures 1-5, 1-6 and 1-7.
4. Shelves, closed cabinets, and cantilevered work surfaces may only be attached to the supported side of a wall frame or run of wall frames. See dotted lines in Figure 1-5.
5. Cantilevered work surfaces and/or tables of similar height may be bolted together at the front edge for improved rigidity.

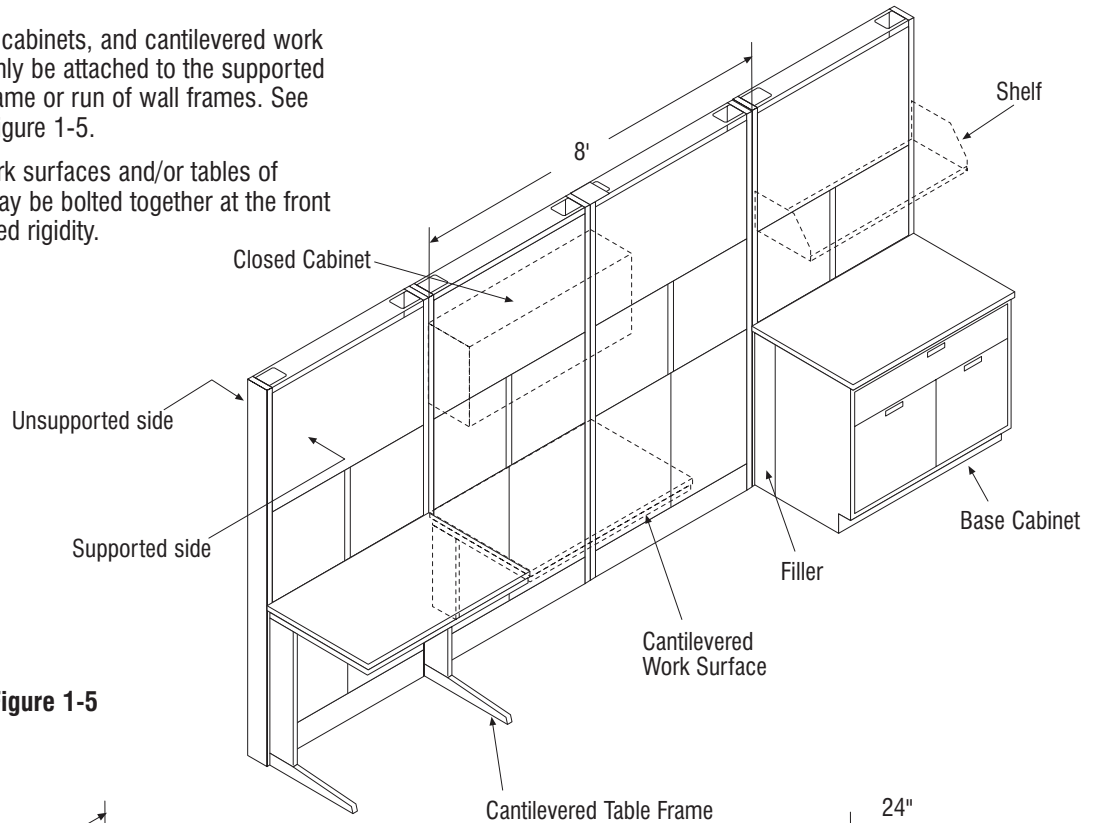


Figure 1-5

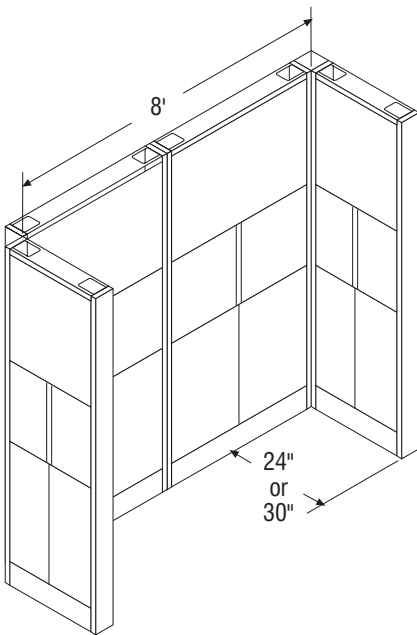


Figure 1-6

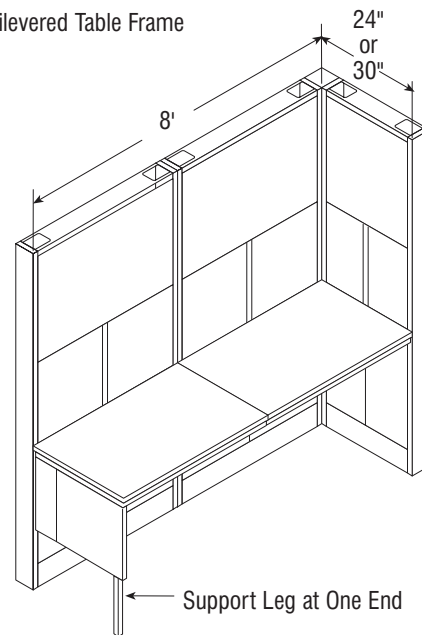


Figure 1-7

1.3 Assembly Guidelines

Support Restrictions (Cont.)

6. A single cantilevered work surface attached to a wall frame must be supported as shown in Figure 1-8.

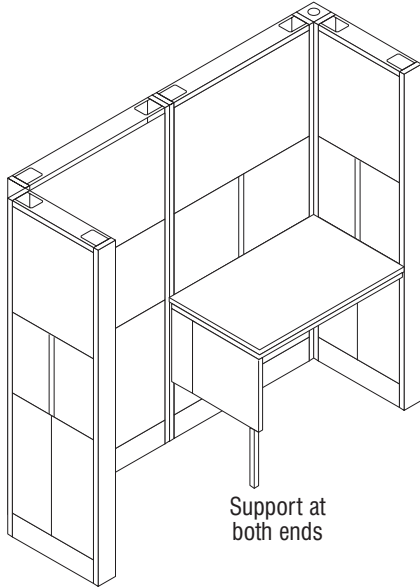


Figure 1-8

7. When two cantilevered work surfaces are next to each other but at different heights, the higher of the two work surfaces must be supported at that juncture. See Figure 1-9.
8. Adjustable support legs cannot be attached to corner tables.
9. Take ceiling height into consideration when using a corner post as a direct power entry source. Power pole height is six-feet. Add lengths of corner post and power pole together for maximum height available.

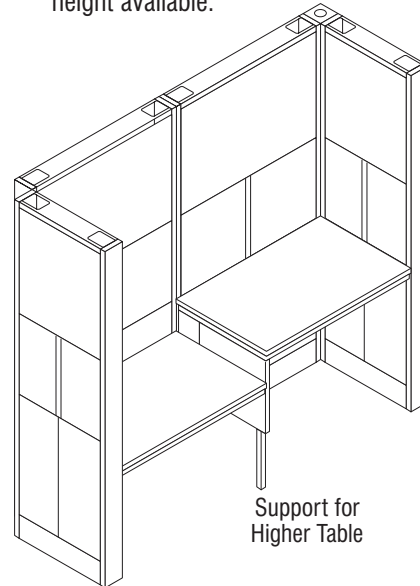


Figure 1-9

1.3 Assembly Guidelines

Support Restrictions (Cont.)

10. Front corner supports are used to help support cantilevered work surfaces and to stabilize wall frame used at the end of a run. They can only be used when the work surface is equal to or deeper than the width of the wall panel. See Figures 1-10 and 1-11.

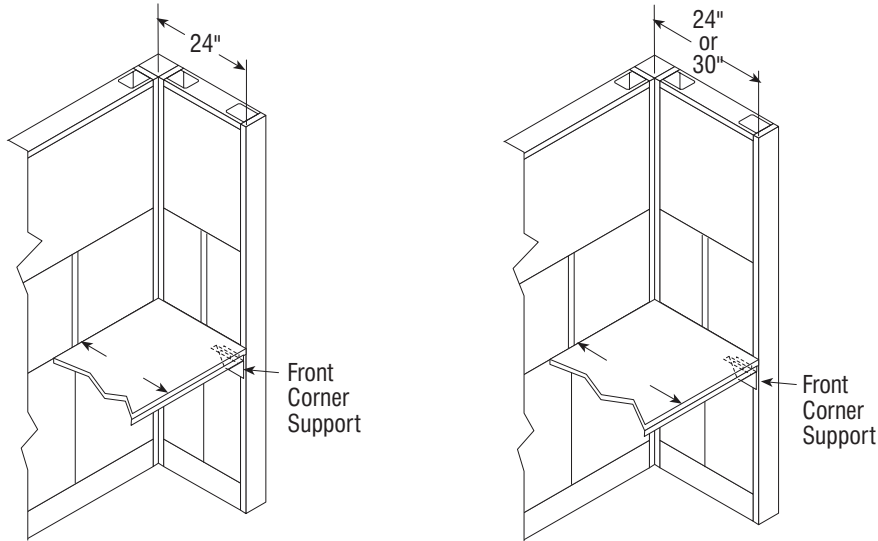


Figure 1-10

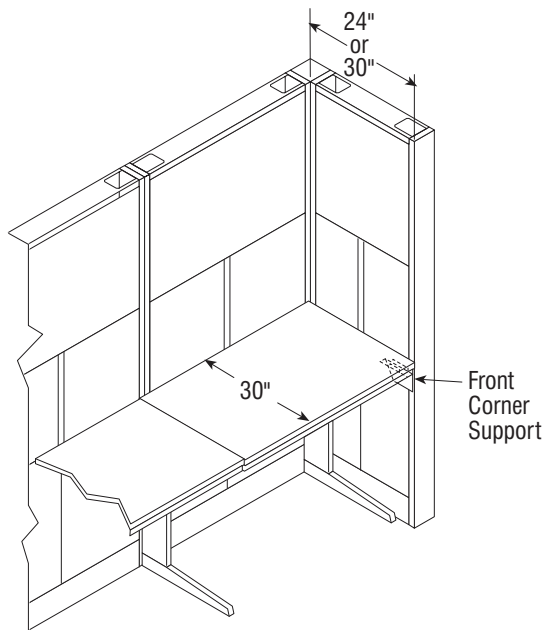


Figure 1-11

1.3 Assembly Guidelines

Support Restrictions (Cont.)

- 11. The addition of a second 24" or 30" wide wall frame to an existing end panel is permissible only when the first end panel is attached to the work surface with a front corner support. See Figure 1-12.

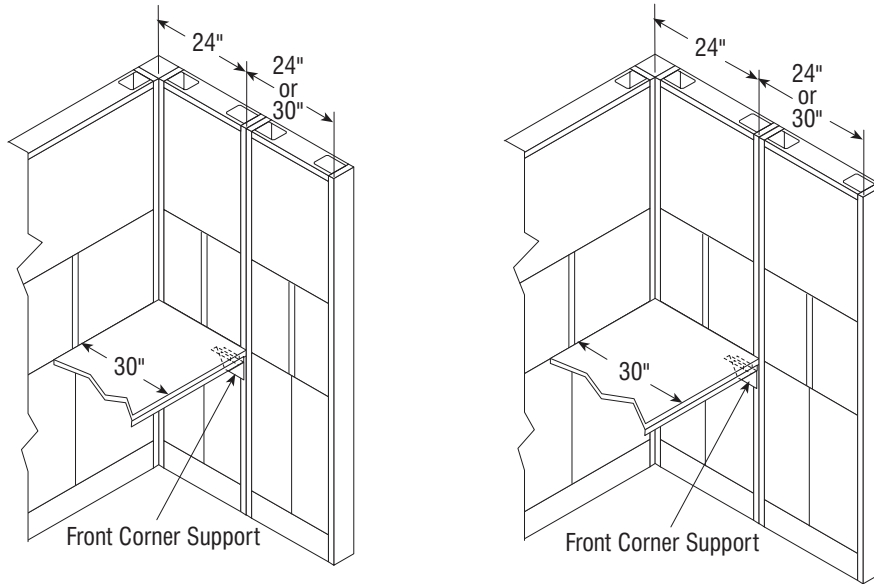


Figure 1-12

Section 2 - Receiving Procedures

2.1 Receiving and Identifying Hamilton Product

Receiving your order involves using proper receiving procedures to ensure that you have accepted the correct quantity and that the product received has been properly identified. Failure to follow these procedures could be costly for you.

To assist in receiving uncrated product, each item is tagged with a colored, numbered tag. Different colors are used in the event more than one order is included in the truckload. The check sheet that accompanies each shipment is to be used in checking off each numbered tag as the product is unloaded.

Crated or cartoned shipments can be accounted for by counting the containers and comparing that number with the quantities shown on the carrier's freight bill or delivery receipt.

The packing list check-off sheet that accompanies all shipments will help you to identify the actual product involved in the shipment.

Checking Uncrated Shipments

1. A check sheet will be furnished for check-off purposes. See Figure 2-1.

Note: Using the check sheet instead of the packing list will speed up the unloading process .

2. The check sheet will state the number of tags used, color of tag, and any number omitted in the number sequence used.
3. These colored, numbered tags (Figure 2-2) are attached to each unit and cross-referenced to the packing list included with each shipment.
4. This checklist is to be used in accepting the equipment as it is being unloaded from the trailer. Any omitted numbers can easily be identified by cross-checking with the packing list check-off sheet (Figure 2-3). Shortages or damages must be noted on the driver's copy of the delivery receipt or truck bill of lading.

Section 2 - Receiving Procedure

2.1 Receiving and Identifying Hamilton Product

5C-024-8 November 24 2003

CHECK SHEET FOR UNLOADING OF FURNITURE VANS

Order No.: _____ Date: _____ # of Pcs: CTN _____
 Carrier: _____ Trailer No.: _____ Tag Color: _____ Pc. _____
 Tag Numbers Used are No. _____ thru _____ inclusive. Skid _____
 Tag Numbers _____ were Voided. BDL _____
 Box _____
 CRT _____
 Roll _____

Please check **Carefully** the tag numbers as the furniture and/or equipment is unloaded from this van. Upon completion, if there are any discrepancies, please notify Customer Service Section, Hamilton **CONCRETE WALL, L.C.**, 8Y DVF, Wisconsin 54941, immediately. Show date of shipment, the name of the carrier, the trailer number, tag color, and the numbers of missing tags.

1	28	55	82	109	136	163	190	217	244	271	298	325
2	29	56	83	110	137	164	191	218	245	272	299	326
3	30	57	84	111	138	165	192	219	246	273	300	327
4	31	58	85	112	139	166	193	220	247	274	301	328
5	32	59	86	113	140	167	194	221	248	275	302	329
6	33	60	87	114	141	168	195	222	249	276	303	330
7	34	61	88	115	142	169	196	223	250	277	304	331
8	35	62	89	116	143	170	197	224	251	278	305	332
9	36	63	90	117	144	171	198	225	252	279	306	333
10	37	64	91	118	145	172	199	226	253	280	307	334
11	38	65	92	119	146	173	200	227	254	281	308	335
12	39	66	93	120	147	174	201	228	255	282	309	336
13	40	67	94	121	148	175	202	229	256	283	310	337
14	41	68	95	122	149	176	203	230	257	284	311	338
15	42	69	96	123	150	177	204	231	258	285	312	339
16	43	70	97	124	151	178	205	232	259	286	313	340
17	44	71	98	125	152	179	206	233	260	287	314	341
18	45	72	99	126	153	180	207	234	261	288	315	342
19	46	73	100	127	154	181	208	235	262	289	316	343
20	47	74	101	128	155	182	209	236	263	290	317	344
21	48	75	102	129	156	183	210	237	264	291	318	345
22	49	76	103	130	157	184	211	238	265	292	319	346
23	50	77	104	131	158	185	212	239	266	293	320	347
24	51	78	105	132	159	186	213	240	267	294	321	348
25	52	79	106	133	160	187	214	241	268	295	322	349
26	53	80	107	134	161	188	215	242	269	296	323	350
27	54	81	108	135	162	189	216	243	270	297	324	

Equipment Used			
BLANKETS	PLYWOOD	BARS	BLANDEX

CHECKED BY: _____

Figure 2-1 Sample Checksheet



Figure 2-2 Sample Bar Code

Section 2 - Receiving Procedures

2.1 Receiving and Identifying Hamilton Product

WSH270 Hamilton Laboratory Solutions LLC FOR: BUCKNELL UNIV
 SHIP: 7/08/91 TRUCK: X8202 **PACKING LIST CHECK OFF SHEET** ORDER: 156281 PAGE 6

TAG	GROUP	ROOM	ITEM	QTY	PRODUCT	DESCRIPTION	SKID/CARTON
080	--	C1-M	125	51	1	BU1562810092	x136r232t WOOD BASE UNIT
081	--	C1-M	123	44	1	BU1562810092	x136r232t WOOD BASE UNIT
082	--	C1-M	125	52	1	BU1562810081	x944r304t WOOD BASE UNIT
083	--	C1-M	123	42	1	BU1562810081	x944r304t WOOD BASE UNIT
084	--	C1-M	125	51	1	BU1562810049	x136r232t WOOD BASE UNIT
085	--	C1-M	125	51	1	BU1562810095	x137r232t WOOD BASE UNIT
086	--	C1-M	125	49	1	BU1562810090	x947r304t WOOD BASE UNIT
087	--	C1-M	123	44	1	BU1562810095	x947r304t WOOD BASE UNIT
088	--	C1-M	125	51	1	BU1562810095	x136r232t WOOD BASE UNIT
089	--	C1-M	125	44	1	BU1562810049	x136r232t WOOD BASE UNIT
090	--	C1-M	121	52	1	BU1562810095	x944r304t WOOD BASE UNIT
091	--	C1-M	125	42	1	BU1562810095	x944r304t WOOD BASE UNIT
092	--	C1-M	121	17	1	BU1562810049	x136r232t WOOD BASE UNIT
093	--	C1-M	115	51	1	BU1562810092	x137r232t WOOD BASE UNIT
094	--	C1-M	113	49	1	BU1562810095	x947r304t WOOD BASE UNIT
095	--	C1-M	123	44	1	BU1562810095	x947r304t WOOD BASE UNIT
096	--	C1-M	33	51	1	BU1562810029	x136r232t WOOD BASE UNIT
097	--	C1-M	106	8	1	BU1562810063	x136r232t WOOD BASE UNIT
098	--	C1-M	121	14	1	BU1562810053	x944r304t WOOD BASE UNIT
099	--	C1-M	121	42	1	BU1562810091	x944r732t WOOD BASE UNIT
100	--	C1-M	115	51	1	BU1562810049	x136r832t WOOD BASE UNIT
101	--	C1-M	125	51	1	BU1562810095	x137r232t WOOD BASE UNIT
102	--	C1-M	121	8	1	BU1562810090	x947r304t WOOD BASE UNIT
103	--	C1-M	123	14	1	BU1562810036	x947r432t WOOD BASE UNIT

Figure 2-3 Sample Packing List Check-Off Sheet

Section 2 - Receiving Procedures

2.2 Receiving/Damage

At Time of Delivery

1. **Verify Count** – Make sure you are receiving as many cartons as are listed on the delivery receipt. If any shortage is discovered, note exactly how many cartons are short on the carrier's delivery receipt and have the driver note the shortage and sign both copies.
2. **Carefully Examine Each Carton for Damage** – If damage is visible, note it on the delivery receipt and have the driver clearly note that fact and sign both copies. If the carton looks as if the contents inside may be damaged, insist that it be opened at that time; both you and the driver should make joint inspection of the contents. Any damage discovered should be noted on delivery receipt and your copy. Be sure to retain your copy.
3. **Immediately after delivery, inspect all cartons for concealed damage** – Even though the driver has already left, all cartons should be opened and the contents inspected for concealed damage.

When Damage is Discovered

1. **Retain damaged items** – Not only must the damaged items be held at the point where received, but the containers and all inner packing materials must also be held until an inspection is made by a carrier inspector.
2. **Call carrier to report damage and request inspection** – The call should be placed immediately upon discovery of the damage, but under no circumstances should it be put off longer than 15 days after delivery. Failure to report concealed damage within this 15-day period will almost certainly result in the carrier's denying your claim.
3. **Confirm call in writing** – Although it is not mandatory, for your own protection in establishing that the carrier was notified within the 15-day period, confirm all calls to the carrier in writing. Be sure to retain a copy of your letter.
4. Any damage on **Uncrated shipments must be noted on the delivery receipts**. The driver should initial your copy as well as the driver's copy. Inspections are made only in cases of extensive damages.

When Carrier Makes Inspection of Damaged Items

1. **Hold damaged items in receiving area** – Make certain the damaged items have not been moved from the receiving area.
2. **Before signing the inspection report, read it carefully** – If you do not agree with the facts or the conclusions on the report, do not sign it. Unless repairs will be completely satisfactory, be sure the report specifies replacement. A new item can be ordered only if the inspection report specifies "Replace".

After the Inspection has been made

1. **Continue to retain damaged merchandise** – Even though the inspection has been completed, damaged items cannot be used or disposed of without written permission from the carrier.
 - a) **Do not return damaged items to shipper** – Return of such items should not be made without written authorization from Hamilton or other supplier.
 - b) **Secure receipt from carrier if damaged items are picked up for salvage** – If you surrender damaged merchandise to a carrier for salvage, because it is valueless to you, be sure to secure a receipt from the driver. Retain that receipt.

Section 2 - Receiving Procedures

2.3 Unloading

Shipping rates provide for delivery to a dock, pier, platform, or area adjacent to the tailgate of the truck. The driver is to unload the vehicle unless the items are too large or too heavy for one person to handle. If so, the receiver is to provide the additional help. (All Hamilton loads require help by the installer). In the event a driver attempts to evade unloading, request the help.

2.4 Phone Calls

The bill of lading instructs the driver to call you 24 hours before delivery. All calls should be prepaid - not collect. If you receive a collect call, refuse it and advise the operator to inform the driver to read the bill of lading.

2.5 Delivery Schedule

The carrier is required only to perform reasonable delivery. Early arrivals at the job site do not have to be unloaded until the scheduled date unless the installer is willing to accept the material. Late arrivals are not the responsibility of the carrier unless it is unreasonable (extended delay).

A driver is not required to deliver at the job site if conditions make it impractical to operate the carrier's vehicle there.

2.6 Receiving Purchased Items

It is your responsibility to check all purchased items and to inform Hamilton if they have been received at the job site and if they have been turned over to the general contractor or any specific person or trade.

Hamilton needs to know if the purchased items arrived in good condition and if they are operable. Advise us immediately of any damage so that items can be repaired or replaced in time to avoid job delays.

Section 3 - Installing Wall Frames

3.1 Overview of Anchoring the Walls to the Ceiling

1. Determine where the wall frames will be located on the floor. Mark the center lines of the assemblies.
2. Use a plumb line to transfer the center line locations to the ceiling.
3. Fasten the ceiling channels to the ceiling.
 - a) If the ceiling is structural, channel may be mounted directly to the ceiling.
 - b) If the ceiling is suspended, it will require reinforcement channels to be installed above the ceiling tiles to support the ceiling channel. Reinforcement channels must be oriented at a right angle to the ceiling channel and lay between ribs of suspended "T" grid system. See Figure 3-1.

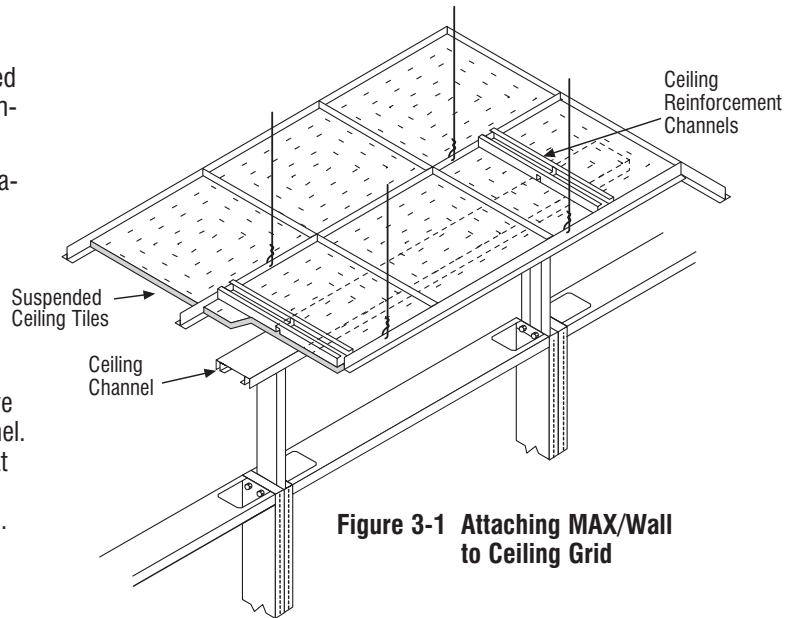


Figure 3-1 Attaching MAX/Wall to Ceiling Grid

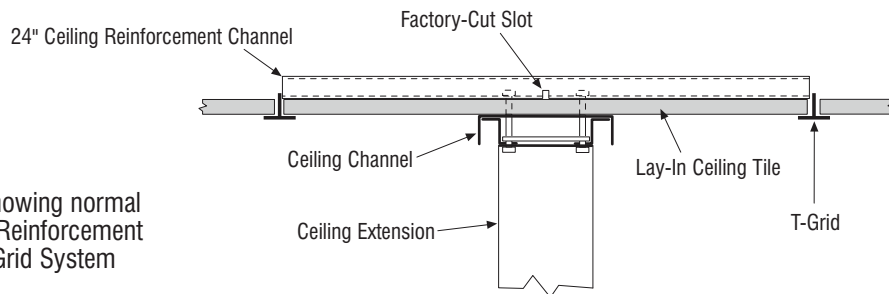


Figure 3-1 Detail showing normal installation - Ceiling Reinforcement Channel between T-Grid System

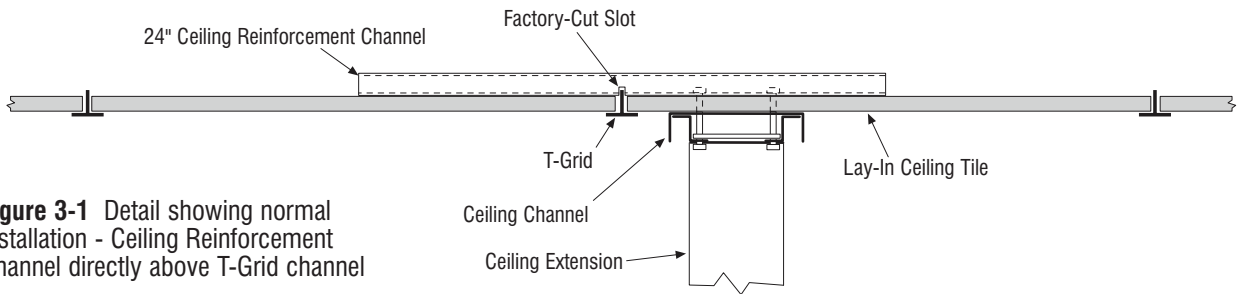


Figure 3-1 Detail showing normal installation - Ceiling Reinforcement Channel directly above T-Grid channel

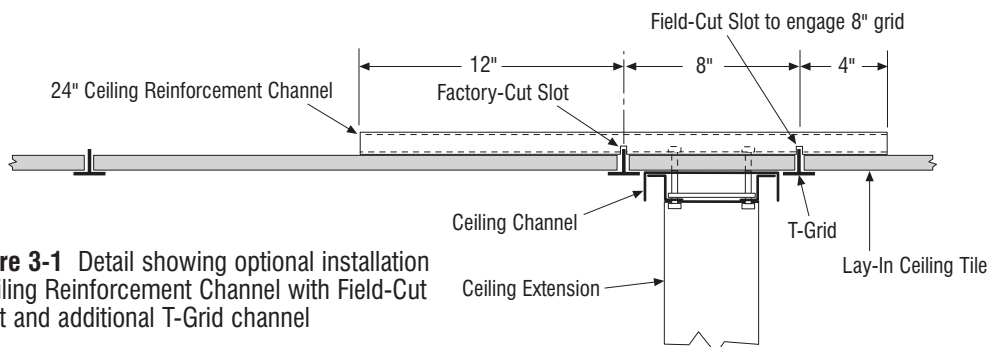


Figure 3-1 Detail showing optional installation - Ceiling Reinforcement Channel with Field-Cut slot and additional T-Grid channel

Section 3 - Installing Wall Frames

3.1 Overview of Anchoring the Walls to the Ceiling (Cont.)

4. Install ceiling extensions into the top of the frame risers. Stop angles on the side of the extension must be below the bolt holes.
5. Place the wall frames in position. Engage the ceiling extensions with the ceiling channel to stabilize the wall frames. See Figure 3-2.

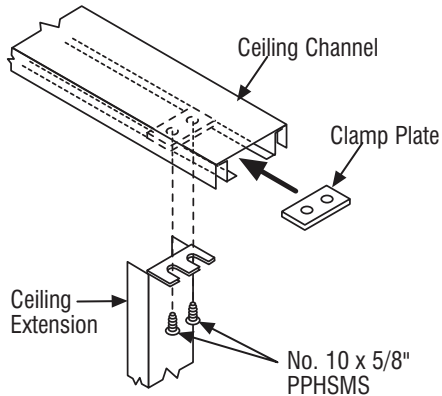


Figure 3-2 Attaching to Ceiling Channels

6. Start the screws into the clamp plate as shown.
7. Insert the clamp plate into the center opening of the ceiling channel.
8. Slide the plate to engage the screws into the slots in the top flange of the riser extension.
9. Level the wall frames.
10. Add ceiling channel splices and corner splices at each splice and corner location. See Figure 3-3.

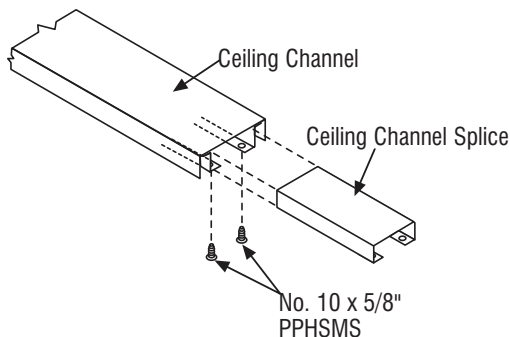


Figure 3-3 Ceiling Channel Splice

11. Fasten them together, and anchor to the floor according to Section 3-4 *Anchoring Wall Frames to the Floor*.

3.2 Overview of Anchoring Cabinet Supported Walls

1. Determine the location of the wall frames on the floor and mark the center line of all assemblies.
2. Anchor the wall frames to the floor and to each other as instructed in the following sections.
3. Anchor the wall frames to the cabinets.
4. Anchor the cabinets to the floor.

Use riser plugs at the top of the frames in lieu of riser extensions. This prevents crushing the risers when they are bolted together. See Figure 3-4.

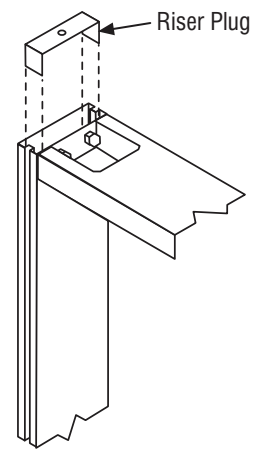


Figure 3-4 Riser Plug

Section 3 - Installing Wall Frames

**3.3 Overview of Construction
Free-Standing Units**

1. Determine the location of wall frames on the floor and mark the centerline of the assemblies.
2. Anchor the wall frames to the floor and to each other as instructed in this manual. Use riser plugs at the top of the frames in lieu of riser extensions. See Figure 3-5. This prevents crushing of the risers when they are bolted together.
3. **Do not exceed 8-feet between outrigger wall frames.**

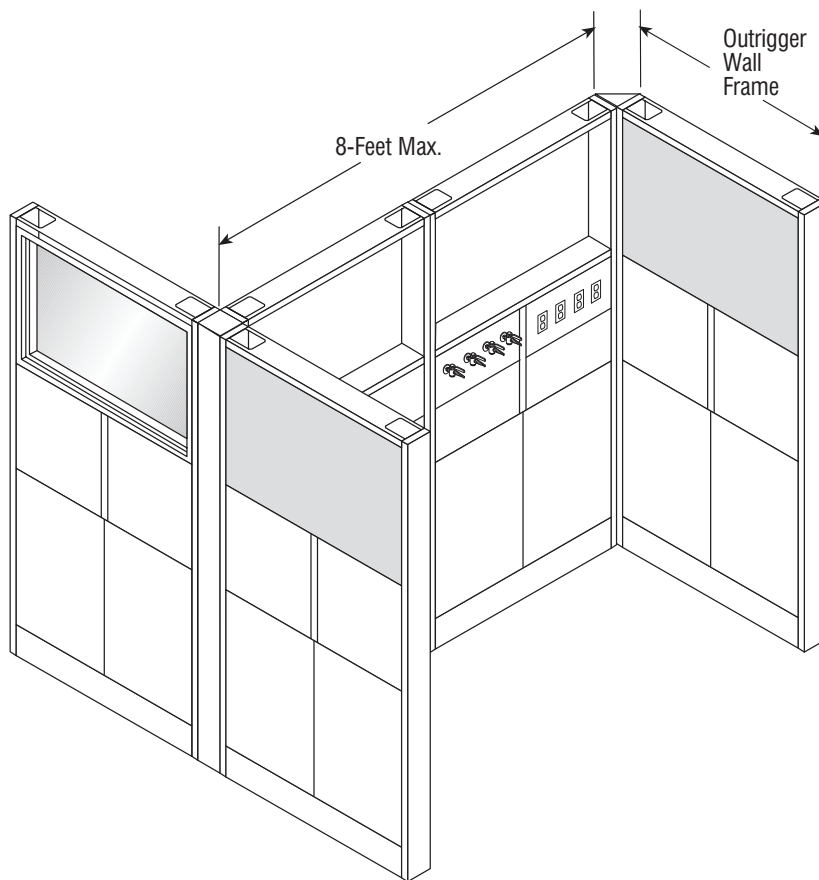


Figure 3-5 Free-Standing Construction

Section 3 - Installing Wall Frames

3.4 Anchoring MAX/Wall Frames to Floor

Tools Required:

- 1/2" Drill motor (hammer drill preferred)
- 1/2" Masonry drill bit
- Socket set with 9/16" socket
- 9/16" combination wrench
- Hammer
- Facing insert removal tool

Hardware Included:

Bag No. 831974, consisting of:

- 4 Nuts, 3/8-16
- 4 HHCS, 3/8-16 x 3-1/2"
- 8 Washers, 3/8" ID
- 4 Floor Anchors, 1/2 x 2-3/4"
- 2 Floor Clamps

Procedure:

- All floor anchors must be installed in order to achieve the maximum load ratings.
- The lower and upper facing inserts are not attached to the MAX/Wall frame when shipped from the factory.
- See Attaching Adjoining Walls for attaching adjoining MAX/Wall frames before securing floor clamps to floor.

1. Place first MAX/Wall frame in position, level it and attach floor clamp. Align "V" notch in clamp with the chalk line on the floor. See Figure 3-6.

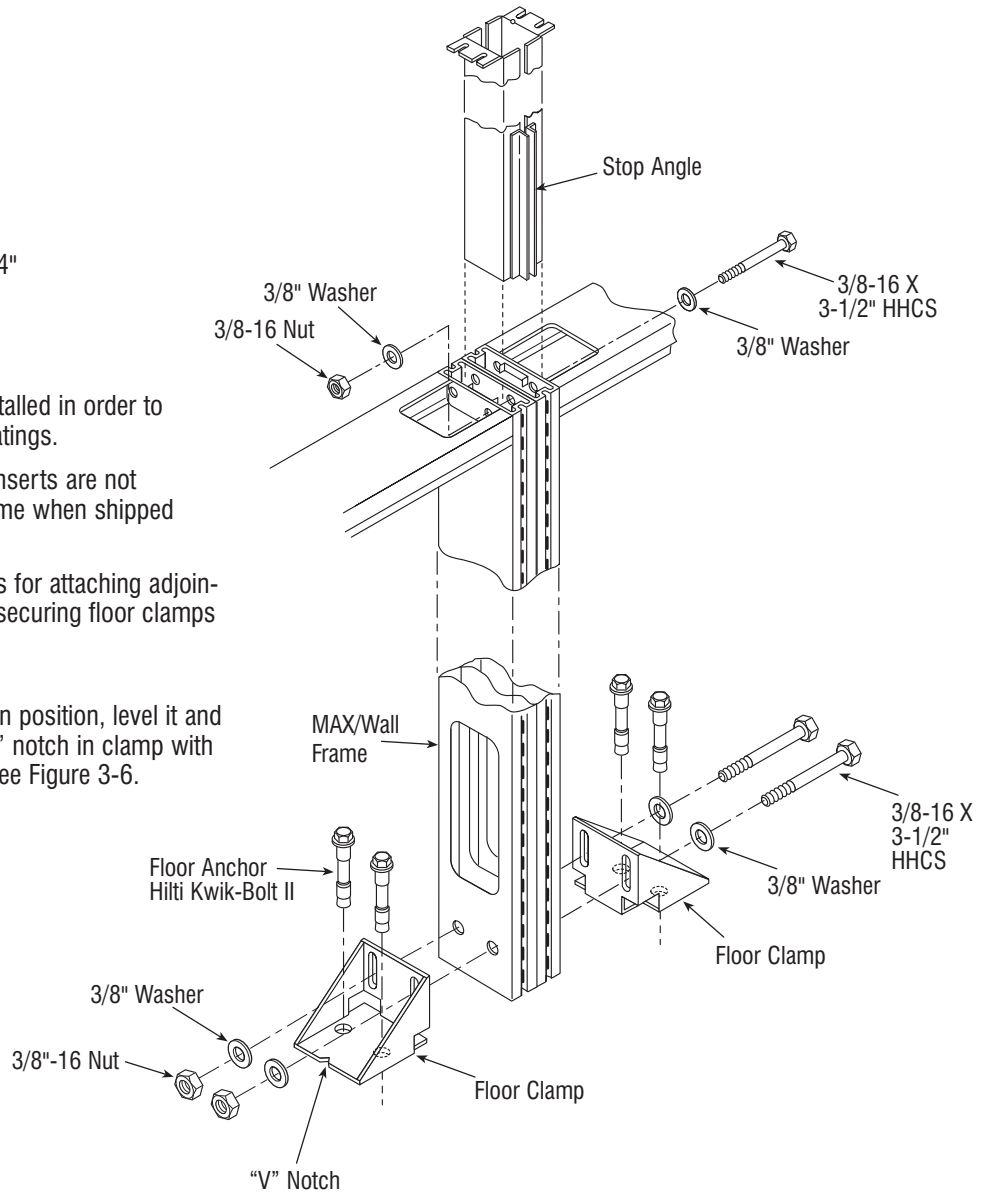


Figure 3-6 Attaching the MAX/Wall frame to the Floor

Section 3 - Installing Wall Frames

3.4 Anchoring MAX/Wall Frames to Floor (Cont.)

2. Using the floor clamp as a template, drill two (2) 1/2" diameter holes in the floor through the holes in the clamp. The holes must be at least 3-1/4" deep into the floor (not including the clamp). See Figure 3-7.
3. Clean the dust from the floor and holes. The dust can be blown from the hole.
4. To insure proper depth of embedment, position nut on anchor so that only one thread is visible above the nut. Insert anchors into drilled holes and tap down until the washer and nut are seating against the floor clamp. See Figure 3-8.
5. **Repeat Steps 1, 2, and 3 for the holes on the opposite end of the MAX/Wall frame. The wall frame is now pinned into position.**

Note: If base molding is required, add the base molding floor angles at this time. See *Installing Base Molding Support* for instructions.

6. Tighten floor anchors "Hilti Bolts" with wrench to 65 Ft. Lbs. Torque. (Part No. 12100, "Hilti" No. 45367). See Figure 3-9.
7. Repeat the above procedures for additional MAX/Wall frames until all are fastened in place.
8. Level MAX/Wall frame assembly and attach the floor clamps to the wall frames with 3/8"-16 x 3-1/2" HHCS and 3/8"-16 nuts.

Note: Bolt length changes when wall frame attaches to corner angles, or end covers.

9. Rough in electrical and plumbing if required.
10. Refer to *Installing Lower Facing Inserts*.

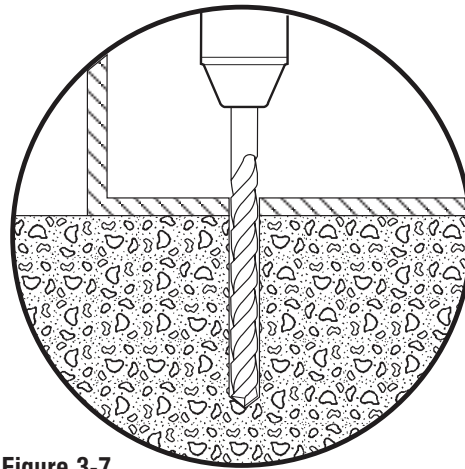


Figure 3-7

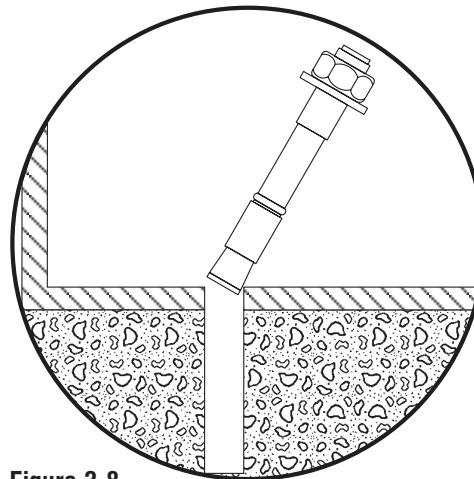


Figure 3-8

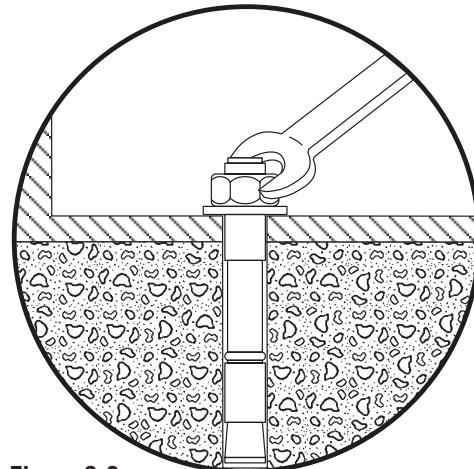


Figure 3-9

Section 3 - Installing Wall Frames

3.5 End Closure Panels

Tools Required:

- 9/16" wrench or socket
- Jigsaw with metal cutting blade

Hardware Included:

Bag No. 831976, consisting of:

- 4 HHCS, 3/8-16 x 2-1/2" Grade 5
- 4 Nuts, 3/8-16
- 2 Offset Plates
- 8 Washers

Procedure:

1. Fasten end of wall core to floor clamp using 3/8-16 x 2-1/2" HHCS. Offset plate should be under the head of the 3/8" screw and on the outside of the riser. See Figure 3-6.
2. Refer to *Installing Floor Clamp* instructions. Repeat for top of wall.

Note: If base molding is required, add base molding floor channel at this time. See *Attaching Base Molding Supports*.

3. Attach end closure panel by hooking panel over offset plates. Press down firmly. See Figure 3-10.

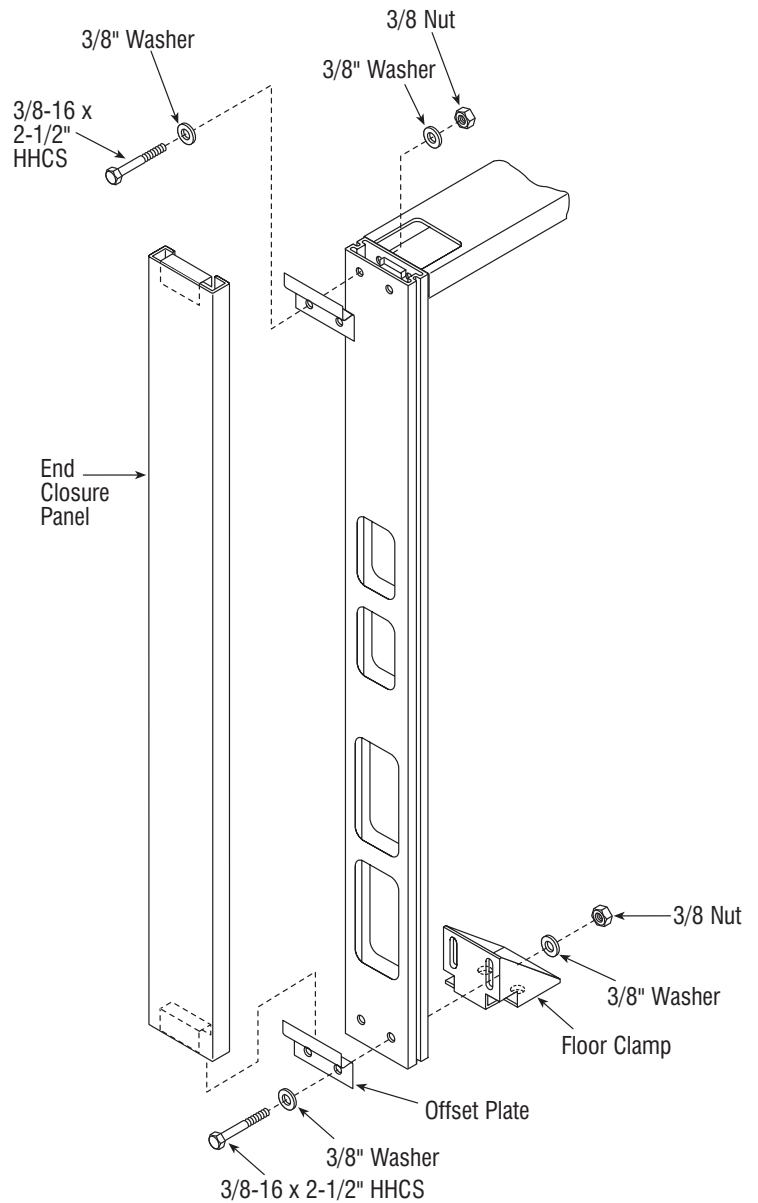


Figure 3-10

Section 3 - Installing Wall Frames

3.5 End Closure Panels (cont.)

4. To attach ceiling end panel, trim panel to fit between top of wall and ceiling. Align panel with lower end closure panel. Fasten to ceiling extension with four 10 x 5/8" PPHSMS.

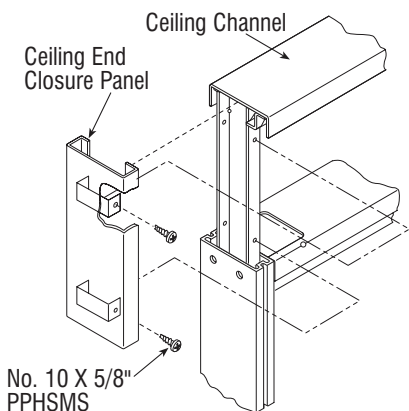


Figure 3-11 End Closure Panel

3.6 Joining Wall Frames

Tools Required:

- Socket set with 9/16" socket
- 9/16" Combination wrench
- Facing insert removal tool

Procedure:

Refer to Figure 3-12:

1. Place the wall frames side-by-side.
2. Attach the frames at the base with 3/8-16 x 3-1/2" HHCS, Gr. 5, through the floor clamp and frames.
3. Attach the frames at the top with 3/8-16 x 3-1/2" HHCS, Gr. 5, through the frames.

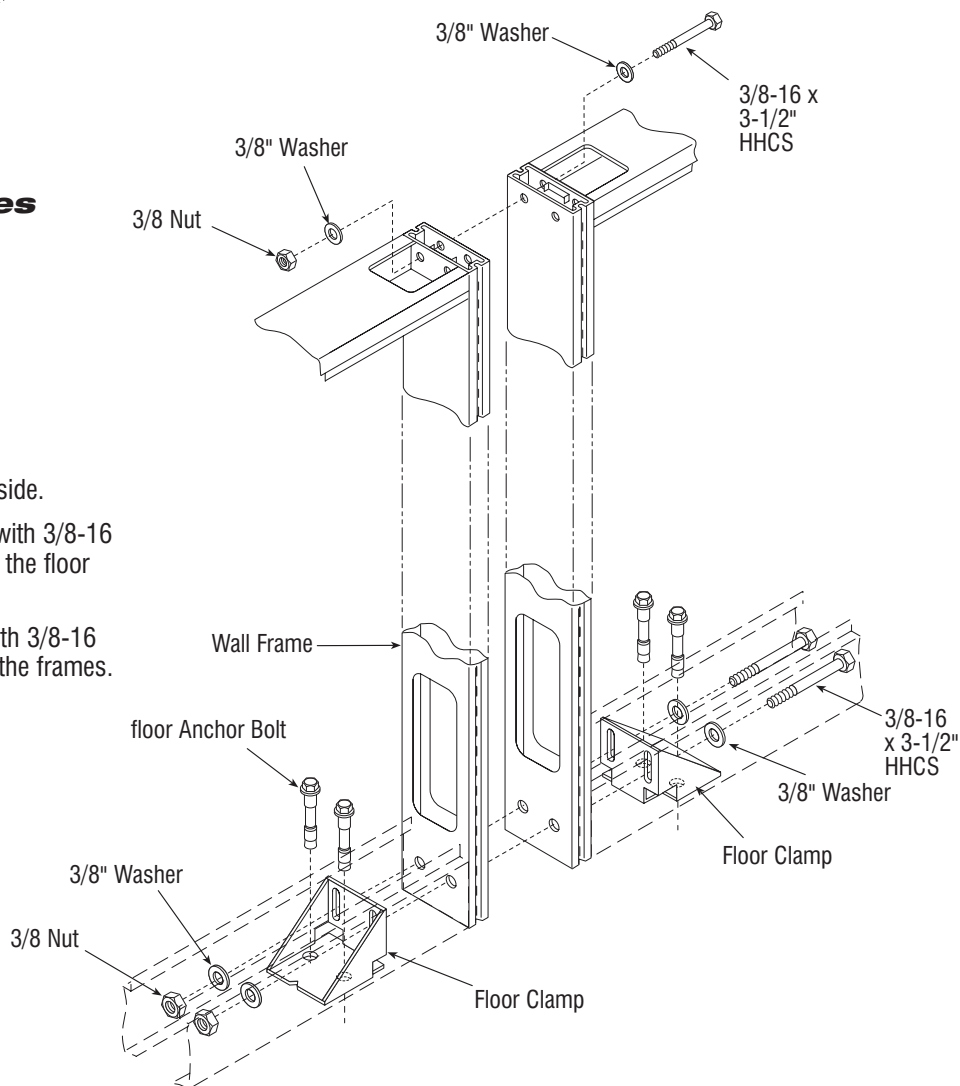


Figure 3-12 Joining Wall Frames

Section 3 - Installing Wall Frames

3.7 Base Molding

Tools Required:

9/16" Wrench
1/2 Wrench

Procedure:

Refer to Figure 3-13:

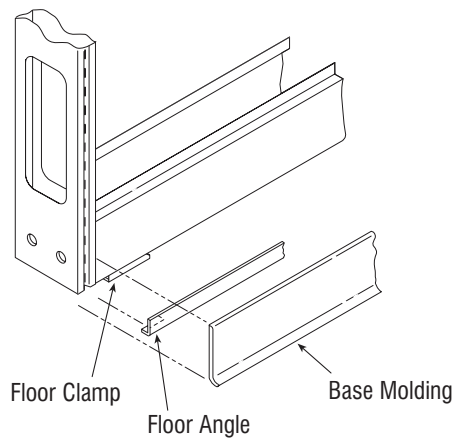


Figure 3-13 Base Molding

1. Loosen the anchor bolts on the floor clamps.

Note: On new installations, locate the floor clamp, drill a hole for the anchor and insert the anchor. Next, insert the floor angle and securely tighten the anchor bolts.

2. Slide the floor angle between the floor and the floor clamp. Adjust the floor angle so the vertical flange is flush with the front surface of the risers. Use appropriate anchors or adhesive to secure the angle to the floor.
3. Attach the base molding to the floor angle.

Section 3 - Installing Wall Frames

3.8 Corner Filler - Two-Way

Tools Required:

9/16" Wrench

Hardware Included:

8 HHCS, 3/8-16 x 2-1/2" Grade 5

8 Nuts, 3/8-16

16 Washers

Procedure:

Refer to Figure 3-14:

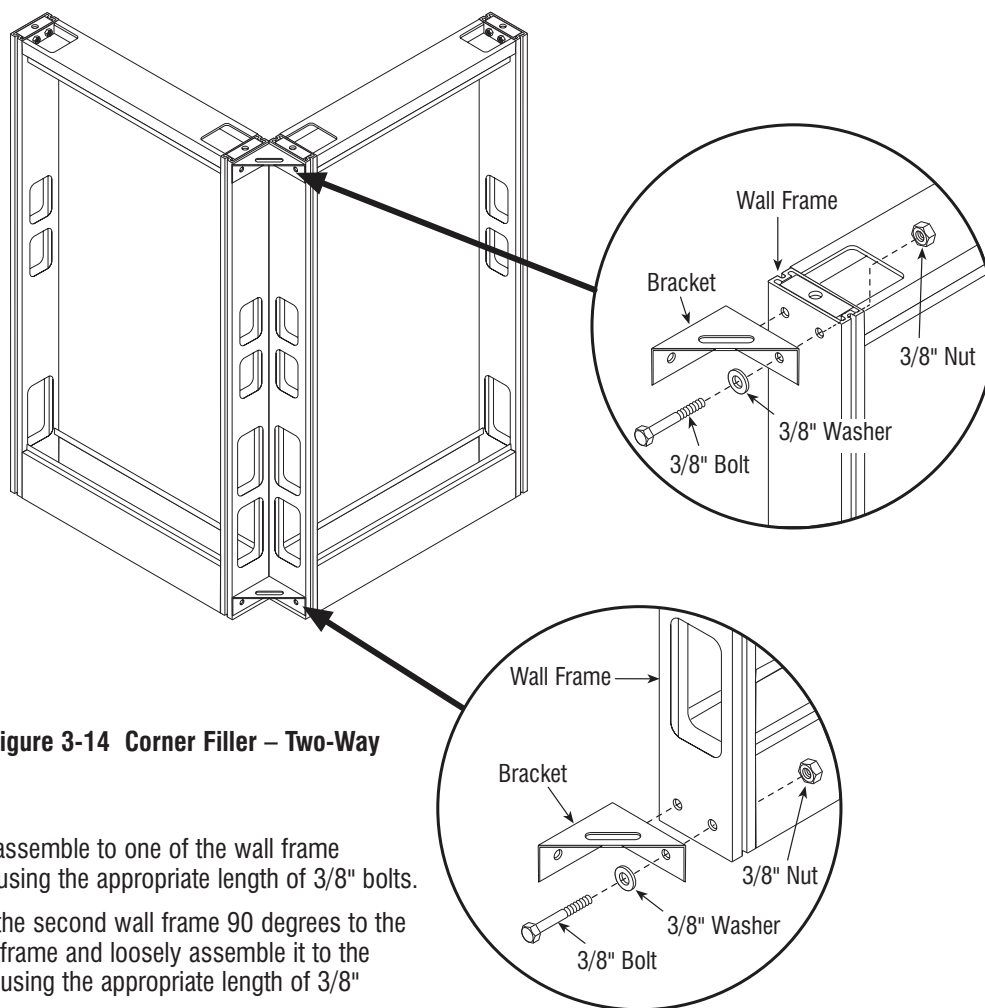


Figure 3-14 Corner Filler – Two-Way

1. Loosely assemble to one of the wall frame uprights using the appropriate length of 3/8" bolts.
2. Position the second wall frame 90 degrees to the first wall frame and loosely assemble it to the brackets using the appropriate length of 3/8" bolts.
3. Align and level the two wall frames checking that they are square and tighten all 3/8" bolts.

Section 3 - Installing Wall Frames

3.8 Corner Filler - Two-Way (Cont.)

Refer to Figure 3-15:

6. Position the filler panel so the tabs on the back side of the filler panel are over the slots in the brackets. Slide the filler panel down to insert the tabs into the slots.

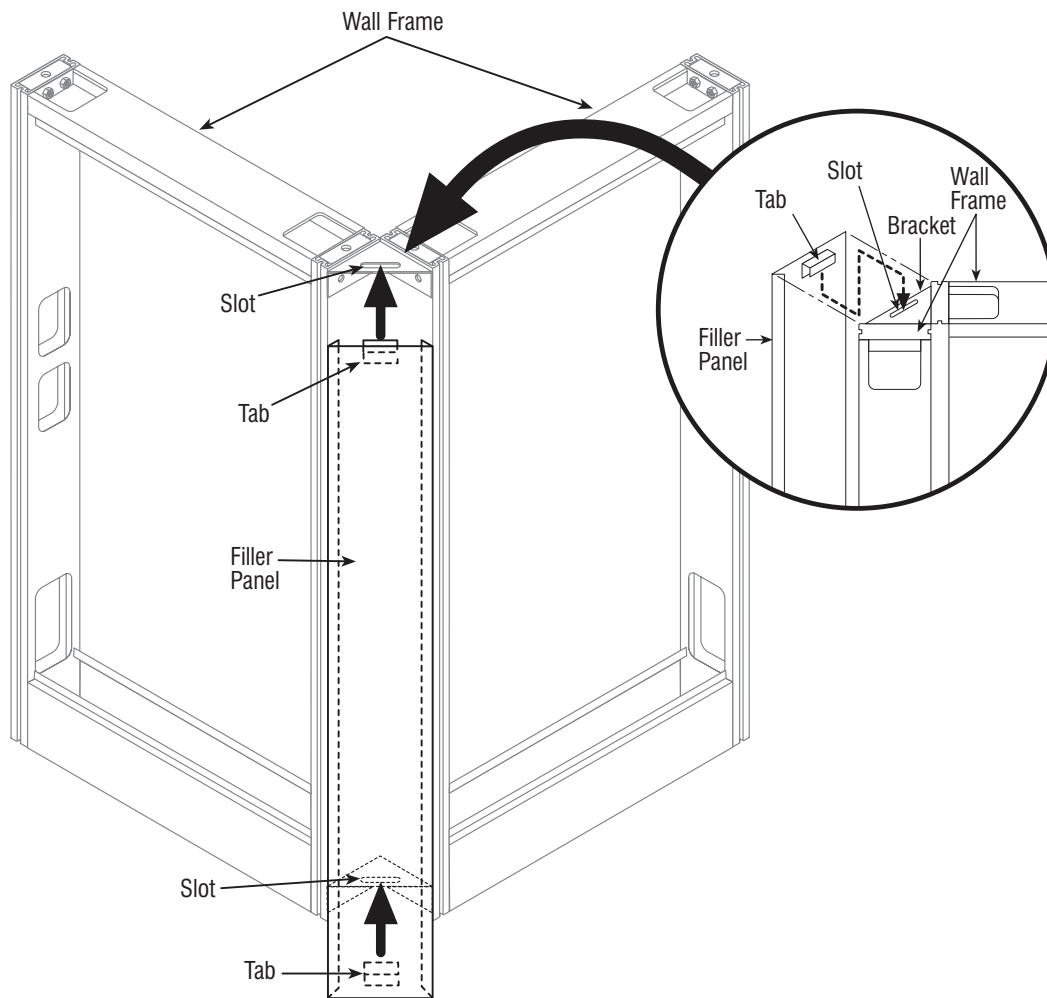


Figure 3-15 Corner Filler – Two-Way

Section 3 - Installing Wall Frames

3.9 Corner Filler - Three- and Four-Way Connector/Fillers

Tools Required:

9/16" Wrench

Hardware Included – Three-Way:

- 12 HHCS, 3/8-16 x 2-1/2" Grade 5
- 12 Hex Nut, 3/8-16
- 24 Washers

Hardware Included – Four-Way:

- 16 HHCS, 3/8-16 x 2-1/2" Grade 5
- 16 Washers

Procedure:

Refer to Figure 3-16:

1. Loosely assemble the brackets to one of the wall frame uprights using the appropriate length of 3/8" bolts.
2. Position the remaining two or three wall frames against the brackets on the first wall frame and loosely assemble them to the brackets using the appropriate length of 3/8" bolts.
3. Align all of the wall frames checking that they are square and level, and tighten all the 3/8" bolts.

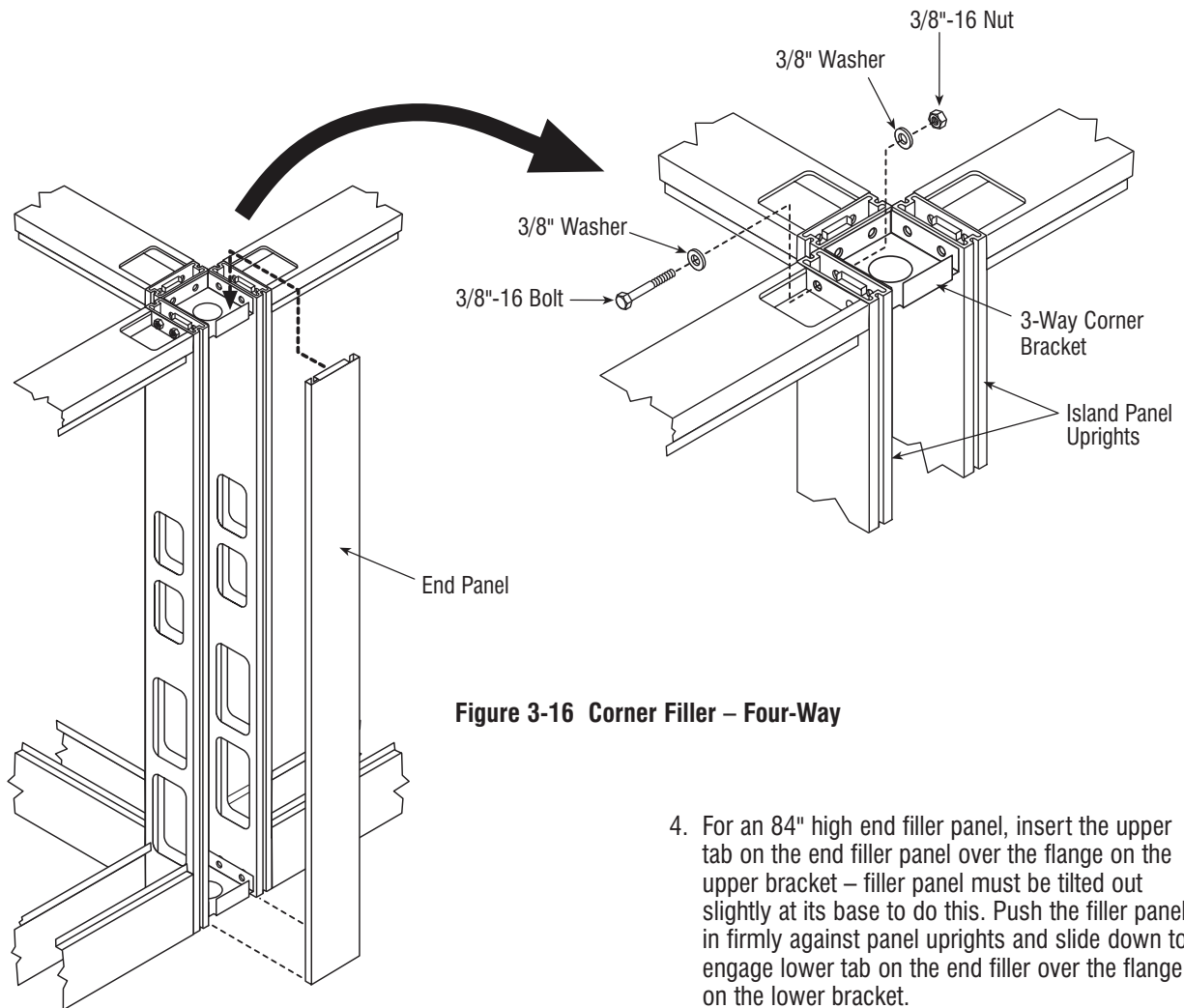


Figure 3-16 Corner Filler – Four-Way

4. For an 84" high end filler panel, insert the upper tab on the end filler panel over the flange on the upper bracket – filler panel must be tilted out slightly at its base to do this. Push the filler panel in firmly against panel uprights and slide down to engage lower tab on the end filler over the flange on the lower bracket.

Section 3 - Installing Wall Frames

3.9 Corner Filler - Four-Way Connector/Fillers

- 5. Adjust the levelers on the wall frames to the correct height.

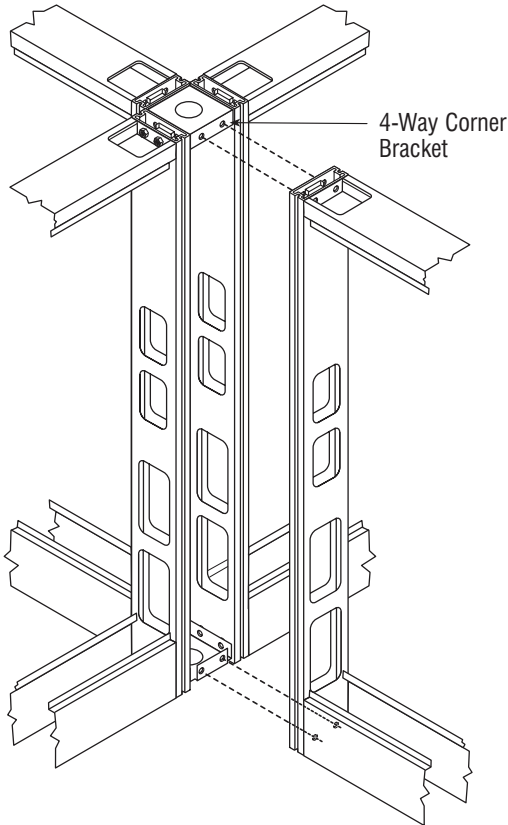


Figure 3-17 Corner Filler - Four-Way

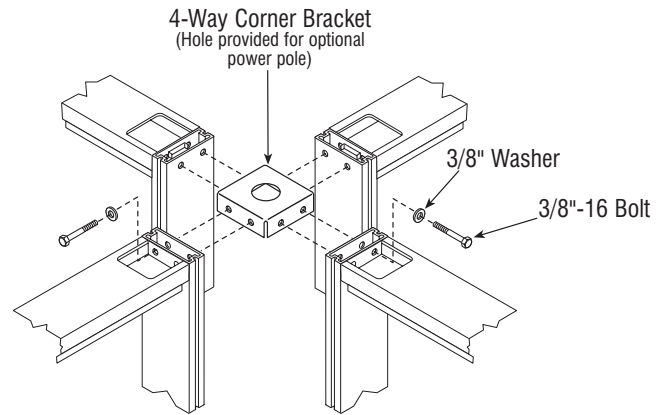


Figure 3-18a Corner Filler - Four-Way Upper Connection

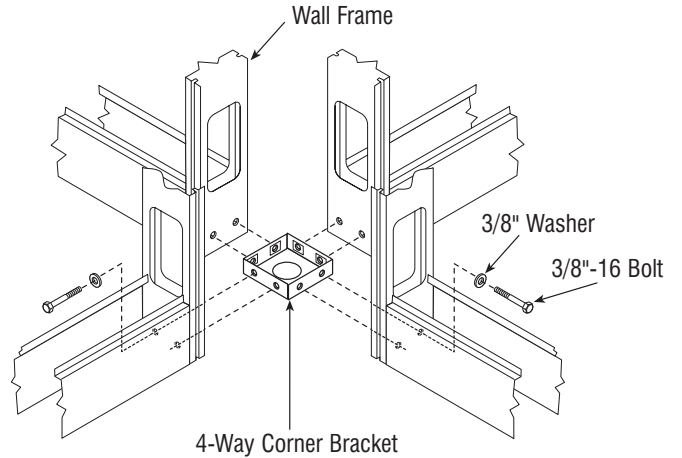


Figure 3-18b Corner Filler - Four-Way Lower Connection

Section 3 - Installing Wall Frames

3.10 Service Chase

Tools Required:

- Phillips screwdriver
- 3/8" Wrench
- Electric drill and 5/32" bit
- Jigsaw with metal cutting blade

Hardware Included:

- 8 No. 10 x 5/8" PPHSMS

Procedure:

1. Determine where the service chase is to be located within the wall frame.
2. Fasten the end panels to the reagent top and the underside of the top rail. Also fasten the end panel to the top of the rail and up through the ceiling tile.
3. make the necessary cutouts in the reagent top and the top frame rail for the electrical and other services.
4. Attach the cover panels.

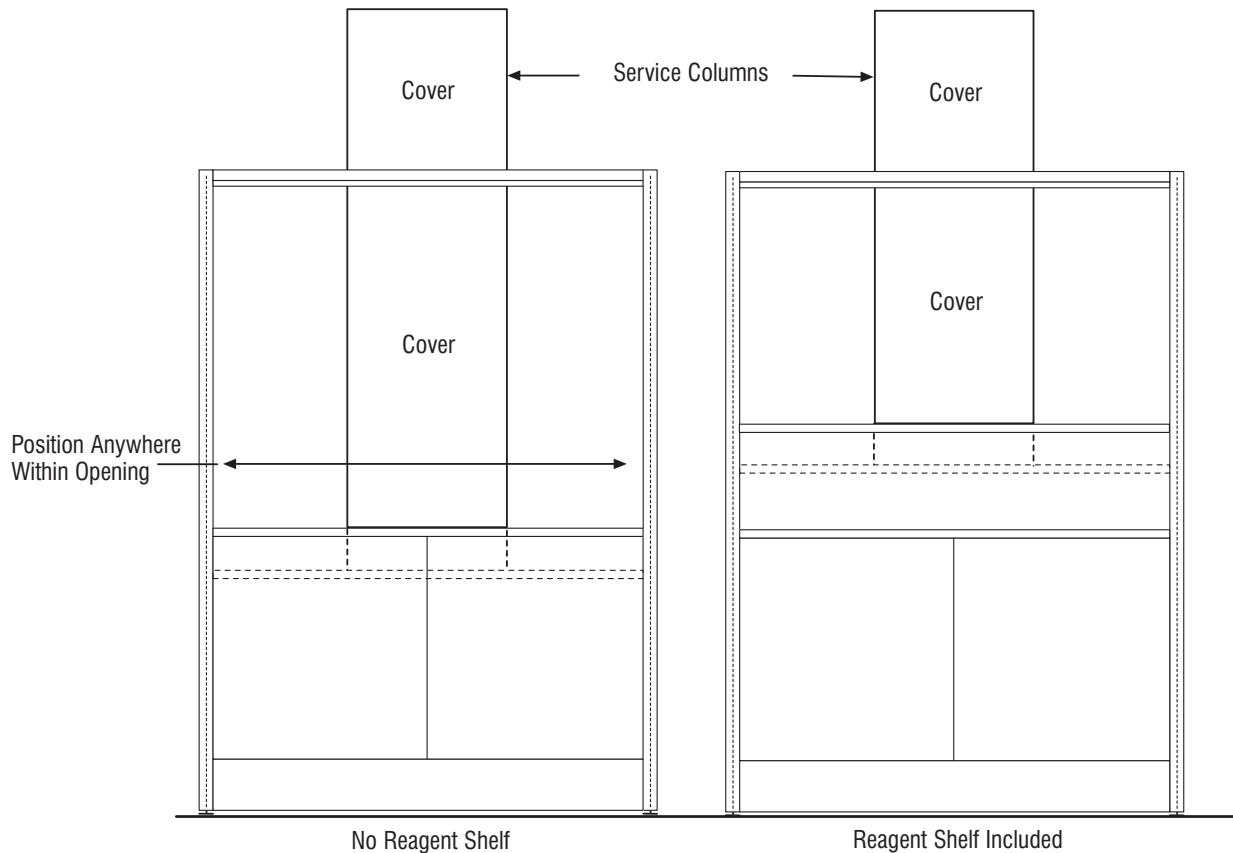
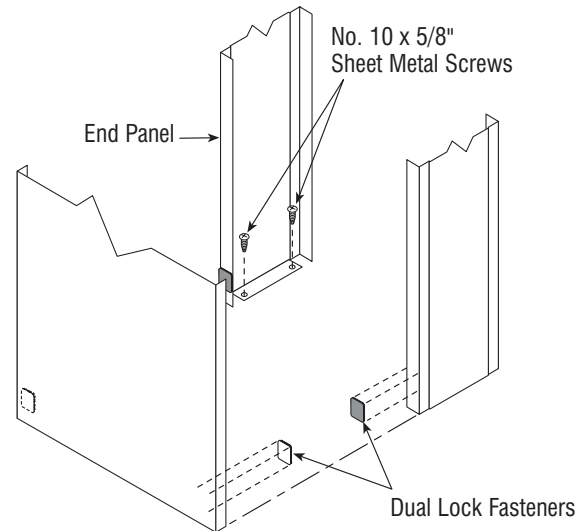


Figure 3-19 Service Chase

Section 3 - Installing Wall Frames

3.11 Door Frame

Tools Required:

- Phillips screwdriver
- 3/8" Wrench
- Paraffin or Silicone spray

Hardware Included:

- 4 3/8"-16 x 2-1/2" HHCS
- 4 3/8"-16 x 3-1/2" HHCS
- 8 3/8"-16 Hex Nut
- 16 3/8" x 7/8" Washer
- 2 End Panel Bracket
- 8 No. 10 x 5/8" PPHSMS

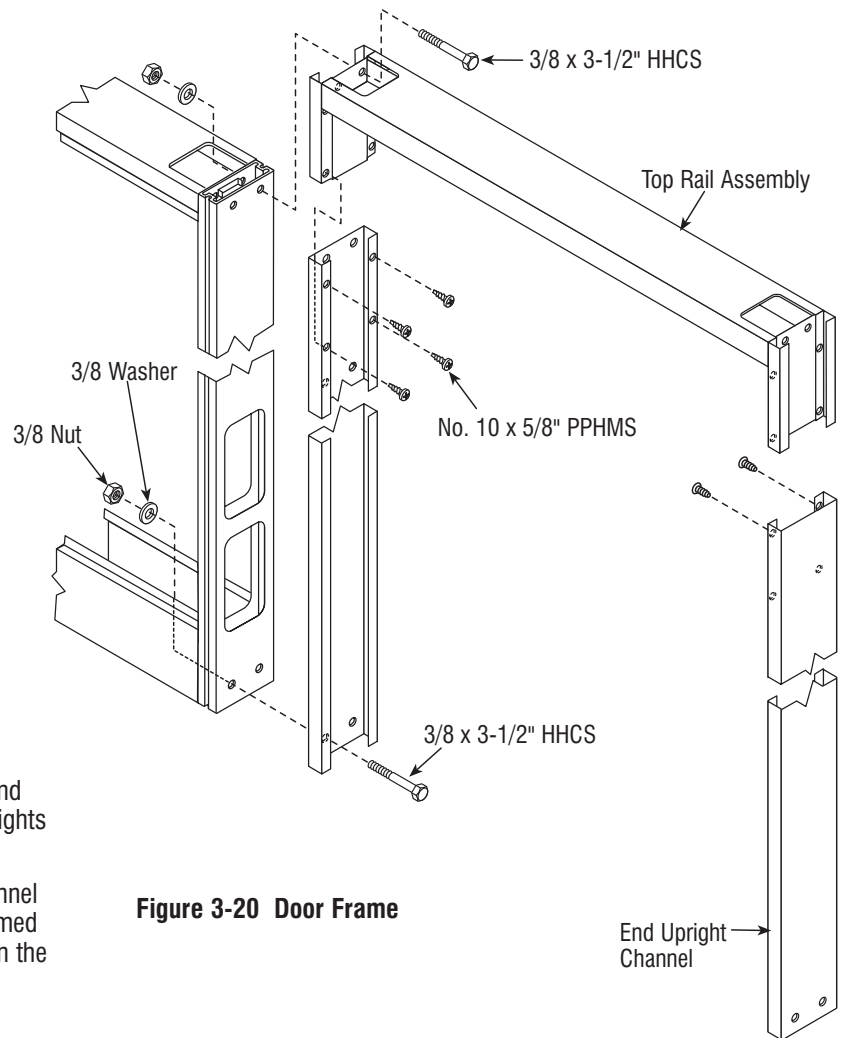


Figure 3-20 Door Frame

Procedure:

1. Lubricate the surfaces of the top rail end channels and the inside of the end uprights with Paraffin or Silicone spray.
2. Slide the end upright onto the end channel of the top rail. This step is best performed with the top rail placed upside down on the floor. See Figure 3-20.

Section 3 - Installing Wall Frames

3.12 Ceiling Facing Inserts

Tools Required:

- Phillips screwdriver
- Jigsaw with metal cutting blade

Hardware Included:

- 4 1/8 x 1/2" PPHSMS
- 4 Retainer clips

Procedure:

1. Cut the top edge of the panel to the required height as necessary.
2. To apply the reinforcing angle to the back side, at the top of the panel; clean the location with mineral spirits and allow to dry before application. Peel release film from foam tape and attach to the panel.
3. Fasten the retainer clips to the top surface of the top rail of the wall frame.
4. Insert the top of the panel into the opening of the ceiling channel and slide the lower panel flange in under the retainer clips. See Figure 3-21.

3.13 Ceiling Facing Inserts, Steel and Fabric

Tools Required:

- Phillips screwdriver
- Jigsaw with metal cutting blade

Hardware Included:

- 4 1/8 x 1/2" PPHSMS
- 4 Retainer clips

Procedure:

1. Cut the top edge of the panel to the required height as necessary.
2. Fasten the retainer clips to the top surface of the top rail of the wall frame.
3. Insert the top of the panel into the opening of the ceiling channel and slide the lower panel flange in under the retainer clips. See Figure 3-21.

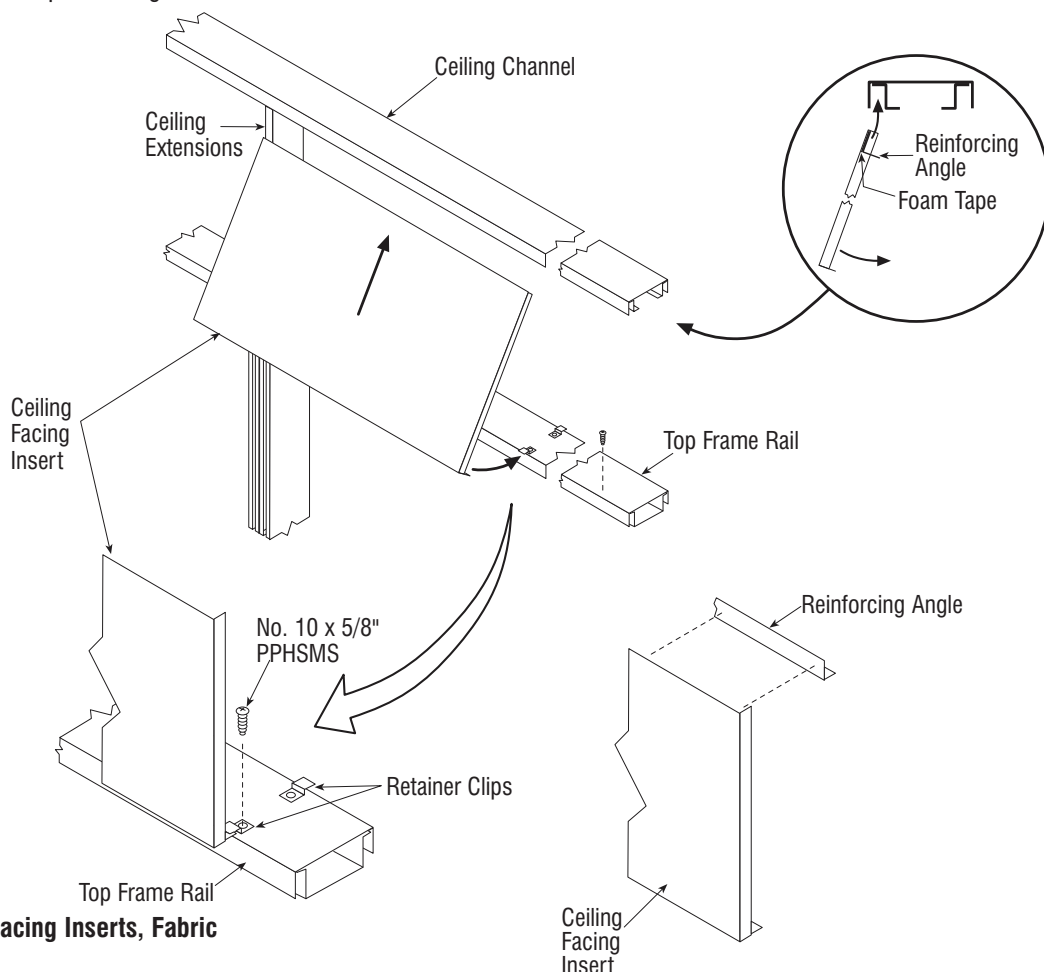


Figure 3-21 Ceiling Facing Inserts, Fabric

Section 3 - Installing Wall Frames

3.14 Lower Facing Inserts, Steel

Tools Required:
 Mineral spirits
 ScotchBrite pad

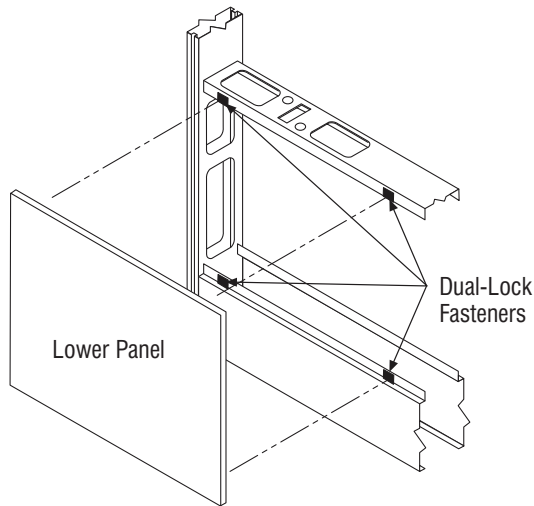


Figure 3-22 Lower Facing Inserts, Steel

Procedure:

1. Hold facing insert into position and note location of the dual-lock strips that are attached to the insert.
2. Apply mineral spirits to the ScotchBrite pad and use the pad to clean and roughen the areas where the mating dual-locks will be applied to the frame. Wipe off and allow to dry.
3. Remove the mating dual-lock strips from the back of the panel and apply to the correct locations on the frame. See Figure 3-22.

3.15 Upper Facing Panels, Steel or Fabric

Tools Required:
 None

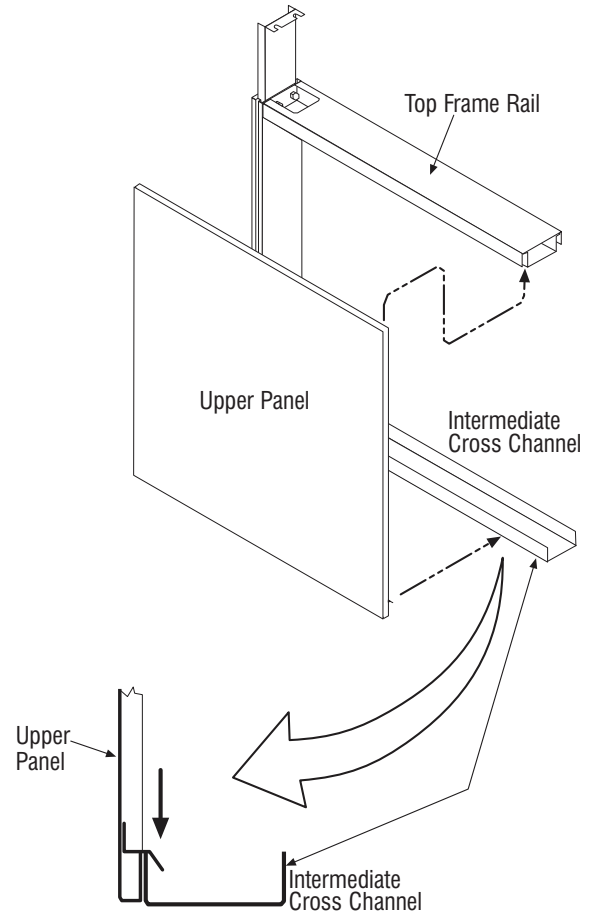


Figure 3-23 Upper Facing Panels

Procedure:

1. Place the top of the upper panel into the opening of the top frame rail.
2. Lift the panel upward and rotate the bottom of the panel toward the intermediate cross rail until the flanges abut.
3. Allow the panel to slide downward to engage the angled locking flange onto the intermediate rail. See Figure 3-23.

Section 3 - Installing Wall Frames

3.16 Ceiling Connector Trim

Tools Required:

- Phillips screwdriver
- Electric drill with 7/32" and 5/32" bits
- Jigsaw with metal cutting blade

Hardware Included:

- 8 10 x 5/8" PPHSMS

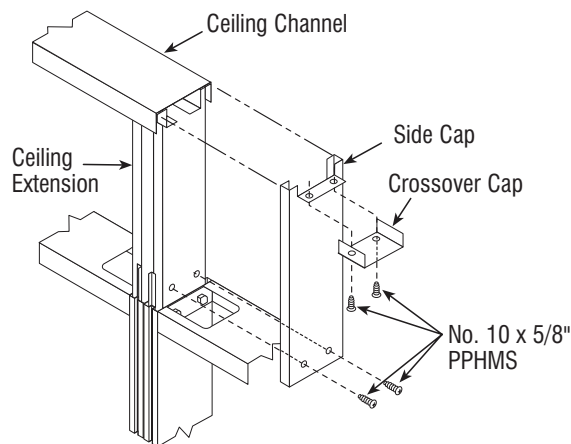


Figure 3-24 Ceiling Connector Trim

Procedure:

1. Trim off the bottom of the side cap to the required height as necessary. Drill new 7/32" diameter holes using the drop-off piece for a pattern.
2. Place the side cap into the ceiling channel and against the ceiling extension. Secure the side cap at the bottom drilling 5/32" diameter pilot holes and secure using the two screws. See Figure 3-24.
3. Repeat at the opposite end of the wall frame.
4. Slide the crossover cap up and into the ceiling channel. Secure it at the end to the tabs on the side caps. See Figure 3-24 and 3-26.

3.17 Ledge Cap

Tools Required:

- Phillips screwdriver

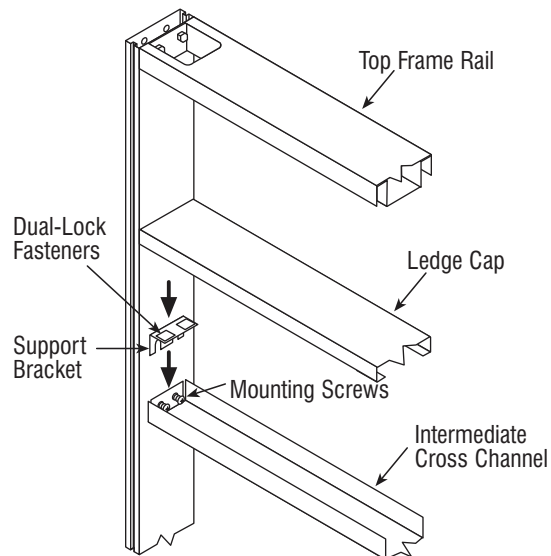


Figure 3-25 Ledge Cap

Procedure:

1. Loosen the screws holding the intermediate rail to the upright.
2. Slide the support bracket onto the screws and retighten the screws.
3. Place the cap over the intermediate rail and press the ends firmly together to engage the dual-lock fasteners.

Section 3 - Installing Wall Frames

3.18 Glass Inserts

Tools Required:

- Phillips screwdriver
- Electric drill with 7/32" and 5/32" bits
- Jigsaw with metal cutting blade
- Wood block
- Rubber mallet
- Mineral Spirits

Hardware Included:

- 8 10 x 5/8" PPHSMS

Procedure:

Refer to Figure 3-26

Note: If the glazed insert is for an upper panel, install the ledge cap (See 3.17 Ledge Cap, on page 32) first, proceed to Steps 3 and 4 below.

1. Trim off the bottom of the side cap to the required height as necessary. Drill new holes using the drop-off piece for a pattern.

2. Place the side cap into the ceiling channel and against the ceiling extension. Secure the side cap at the bottom using the two screws. Repeat at the opposite end of the wall frame.
3. Slide the crossover cap up and into the ceiling channel or wall frame top rail. Secure at the ends to the tabs on the side caps or to the top frame rail. See Figure 3-24 and 3-25.
4. Fasten the "U" channel to the centered crossover cap.
5. Fasten the cover panel to the top frame rail.
6. Clean the cover panel or ledge cap and side caps with mineral spirits, and allow to dry. Fasten support tubes to the cover panel or ledge cap and side caps with the tape provided.

Note: The following steps require two people. Use caution to avoid breaking the glass.

7. Place the female glazing extrusion on the bottom tube. Place the glass onto the extrusion and engage the mating extrusion from the opposite side.
8. Repeat Step 7 for the top and sides of the panel.
9. Tap the extrusions tightly together using a wood block and a mallet. Use a wood back-up block against the extrusion on the opposite side of the window.

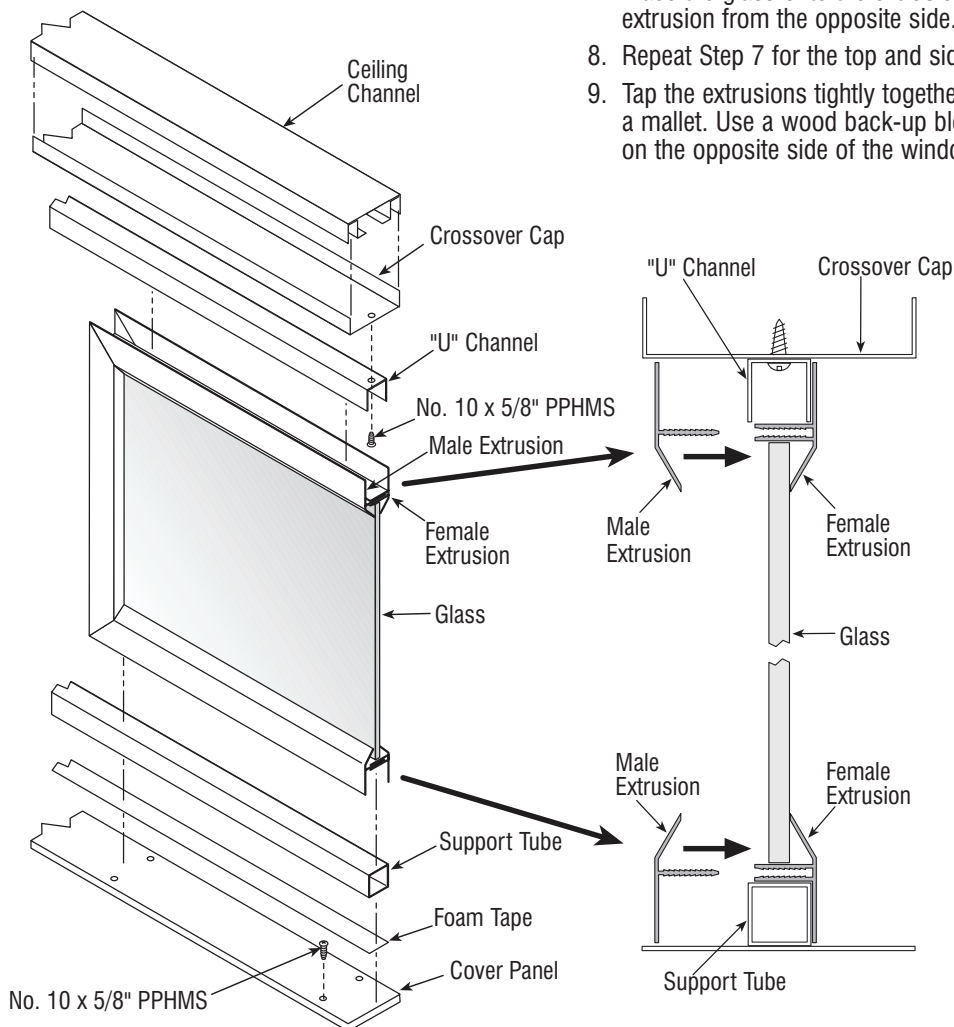


Figure 3-26 Glass Insert

Section 4 - Installing Supporting Furniture and Casework

4.1 Vertical Utility Service Raceway

Tools Required:

- Phillips screwdriver
- Electric drill with 7/32" bit

Hardware Included:

- 4 Plug Buttons
- 4 10-24 x 1/2" Screws

Procedure:

1. Fasten the vertical utility service raceway to the riser using the four 10-24 x 1/2" screws as shown.
2. Cover the holes with the plug buttons provided.

Note: *Electrical/data outlets and cover plates are ordered separately and field installed.*

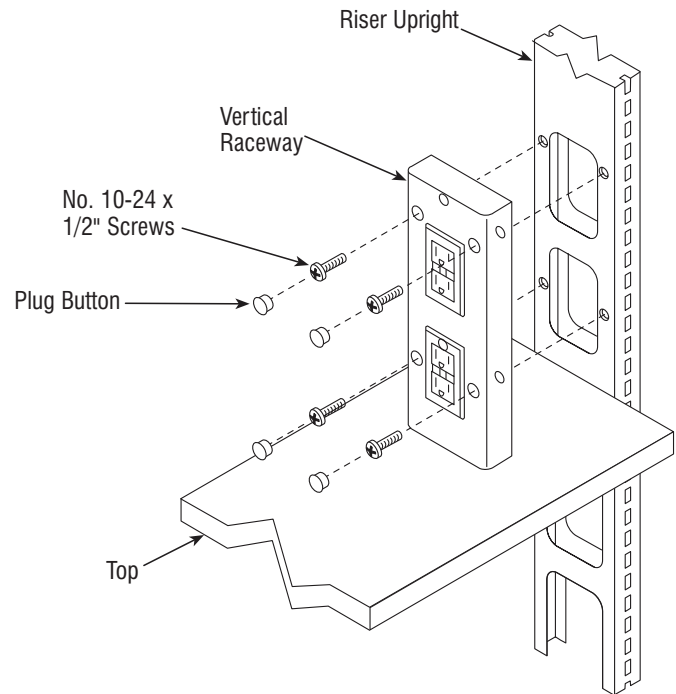
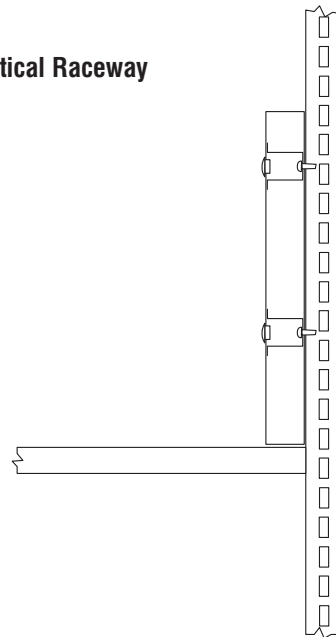


Figure 4-1 Vertical Raceway



Section 4 - Installing Supporting Furniture and Casework

4.2 Cantilever Table to Wall Frame

Tools Required:

- Socket set with 1/2" socket
- Phillips screwdriver with No. 2 and 3 tips
- Level
- Rubber mallet
- 1/2" combination wrench

Hardware Included:

Bag No. 830532 consisting of:

- 8 Top brackets
- 8 10 x 1" PPHSMS

Bag No. 830531 consisting of:

- 1 5/16-18 flanged nut
- 1 5/16-18 x 3-1/2" HHMS
- 1 16 Gauge washer
- 2 20 Gauge washers
- 2 5/16" plug buttons

Procedure:

1. Cantilever tables are shipped in two parts – frame and top. All wall frames must be leveled and fully assembled before attaching cantilever frames. Wall frames should be adjusted 1-1/4" minimum off the floor.
2. Determine the overall height from the floor to the table top. Subtract 3" from the height and mark with line on riser. The top hook of the cantilever leg will be inserted at this mark. Slots in the riser are spaced at 1" increments.
3. Locking/leveler pins, located at the bottom of the cantilever legs should be screwed all the way in.
4. Attach the cantilever frame to the wall by inserting the hooks into the riser.

Note: Strike downward on the cantilever legs with a rubber mallet to make sure the cantilever legs are securely hooked to the riser.

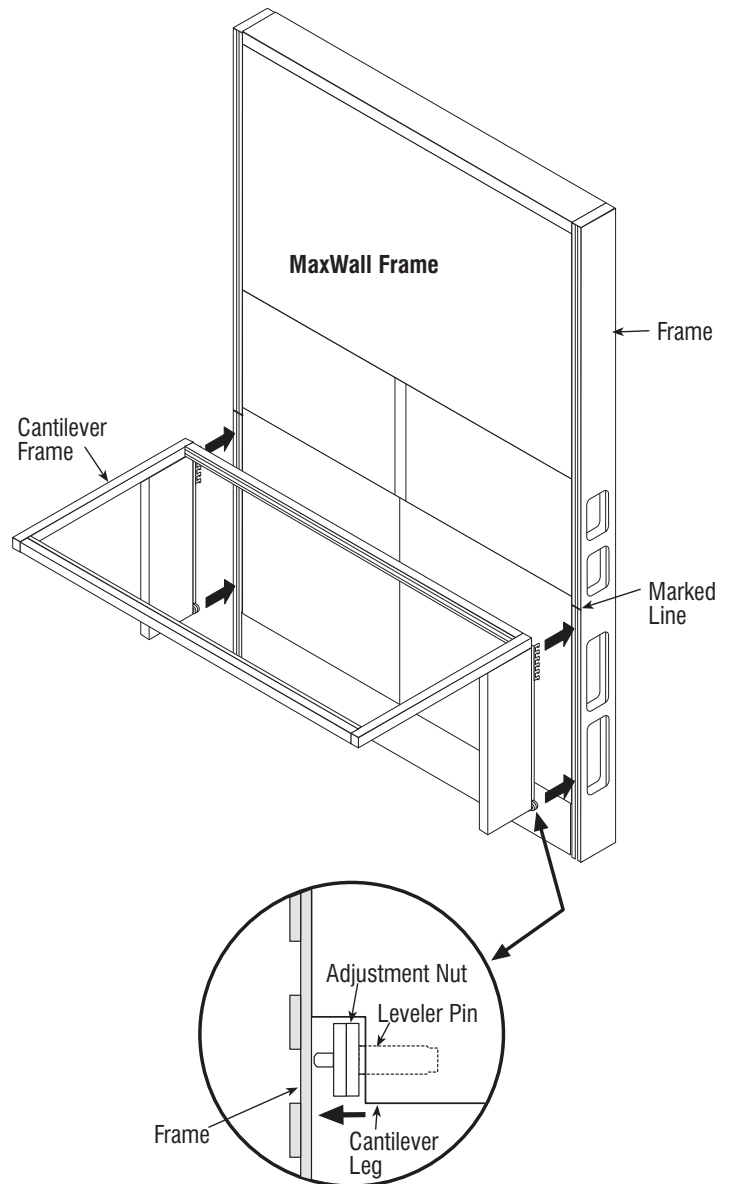


Figure 4-2 Attaching Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.2 Cantilever Table to Wall Frame (cont.)

Refer to Figure 4.3

6. When the cantilever tables are installed next to each other and at the same height, they must be bolted together. Insert a 5/16-18 x 3-1/2" bolt through the holes at the front of the cantilever frames and secure with a 5/16-18 nut.

Note: Washers are provided to shim between the cantilevered legs if necessary.

Refer to Figure 4.4

7. Attach the work surface to the table frame using top brackets and No. 10 x 1" screws. Top brackets are hooked onto "C" channels at the front of the table frame. Location and number of clamps to be used is dependent upon the number of holes pre-drilled into the work surface.

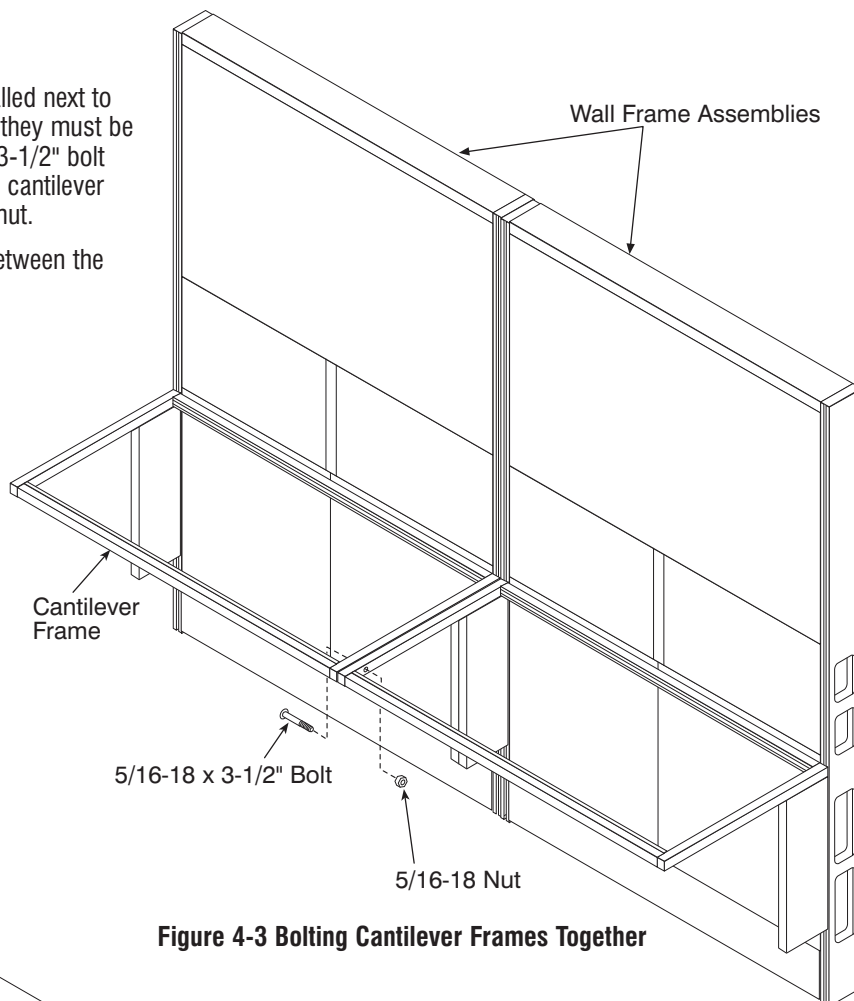


Figure 4-3 Bolting Cantilever Frames Together

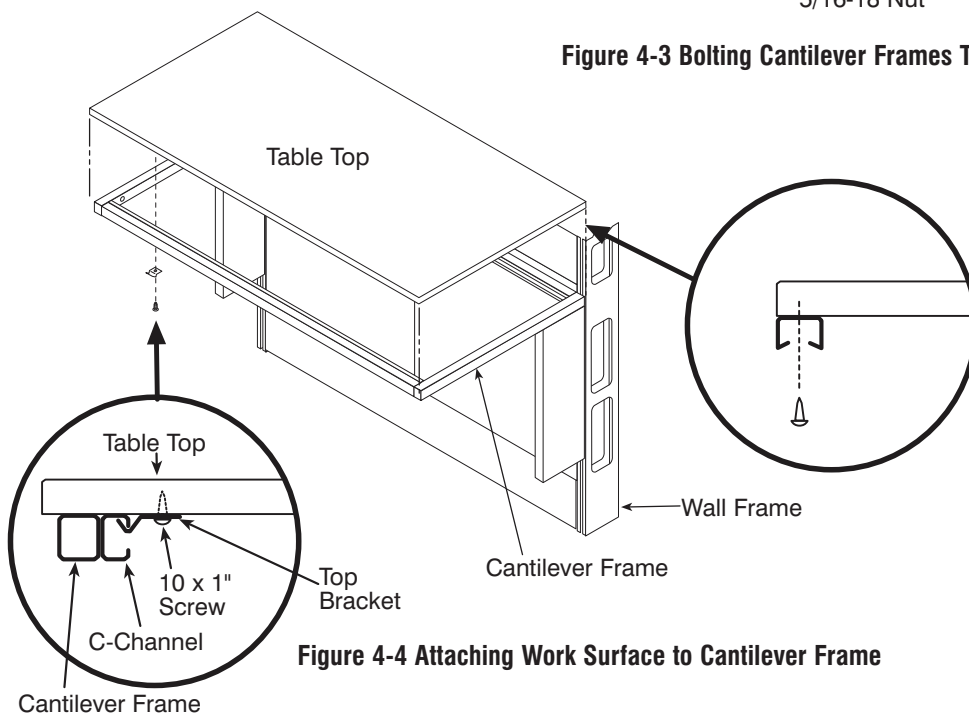


Figure 4-4 Attaching Work Surface to Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.3 Cantilever Corner Work Surface (90°) to Wall Frame

Tools Required:

1/2" and 7/16" combination wrenches
 Socket set with 1/2" socket
 Level
 Rubber mallet
 Phillips head screwdriver with No.2 and 3 tips

Hardware Included:

Bag No. 830531 consisting of:

- 1 5/16-18 flanged nut
- 1 5/16-18 x 3-1/2" HHMS
- 1 16 gauge washer
- 2 20 gauge washers
- 2 5/16" plug buttons

Bag No. 830532 consisting of:

- 8 Top brackets
- 8 No. 10 x 1" PPHSMS

Bag No. 830502 consisting of:

- 4 No. 10 x 5/8" PPHSMS

Bag No. 830532 for 90° corner work surface, 29" deep, consisting of:

- 2 Corner brackets
- 4 1/4-20 x 1/2" HHCS
- 4 No. 10 x 5/8" PPHSMS

Procedure:

1. Corner work surfaces are shipped knocked-down. All wall frames must be fully assembled before attaching work surfaces. Wall frames must be adjusted 1-1/4" minimum off the floor.
2. Determine the overall height from the floor to the work surface top. Subtract 3" from the height and mark a line on the risers at that height. Top hook of cantilevered leg will be inserted at this mark. Two cantilevered legs are used at the outside ends, while a corner top support is used at the back. Slots in the riser are spaced at 1" intervals.
3. Insert the corner top support at the same height as the cantilevered legs.
4. Leveler pins, located at the bottom of the cantilevered legs, should be screwed all the way in.
5. Attach the cantilevered legs in position by inserting hooks into the frame at the marked line.

Note: Strike cantilevered legs with a rubber mallet using a downward motion. This ensures that the legs are securely hooked to the wall frame.

6. Level each cantilevered leg (front to back) by adjusting the leveler pins with a 1/2" wrench.

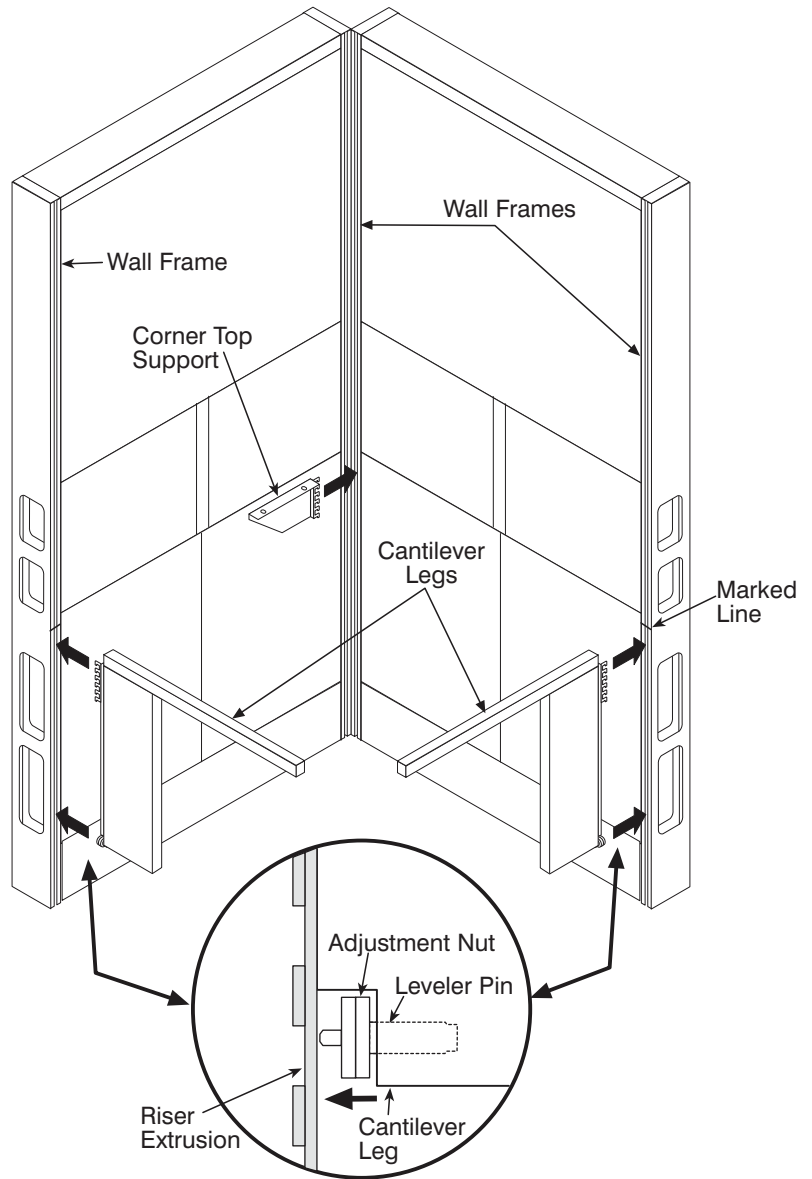


Figure 4-5 Attaching Corner Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.3 Cantilever Corner Work Surface (90°) to Wall Frame (cont.)

7. Insert corner bracket into each outside cantilevered leg by sliding the corner bracket into the "C" channel from front to back.

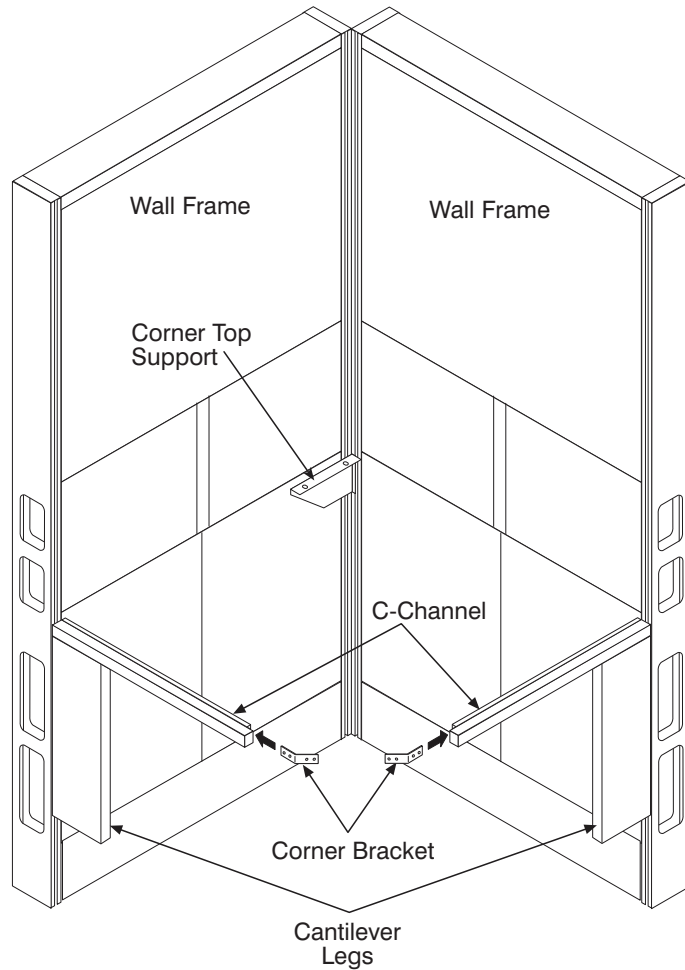


Figure 4-6 Attaching Corner Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.3 Cantilever Corner Work Surface (90°) to Wall Frame (cont.)

8. Insert the support rail onto the corner brackets. Loosely thread the four 1/4-20 x 1/2" HHCS into the corner brackets. See the exploded diagram.
9. Loosely install the front rail to both outside cantilevered legs using four 10 x 5/8" PPHSMS.
10. Place the work surface onto the cantilevered legs, allowing a 3/4" gap between the wall frames and top. Position the ends of the top so they are flush with the sides of the cantilevered legs or adjacent work surfaces.
11. Center and tighten the front and support rails.

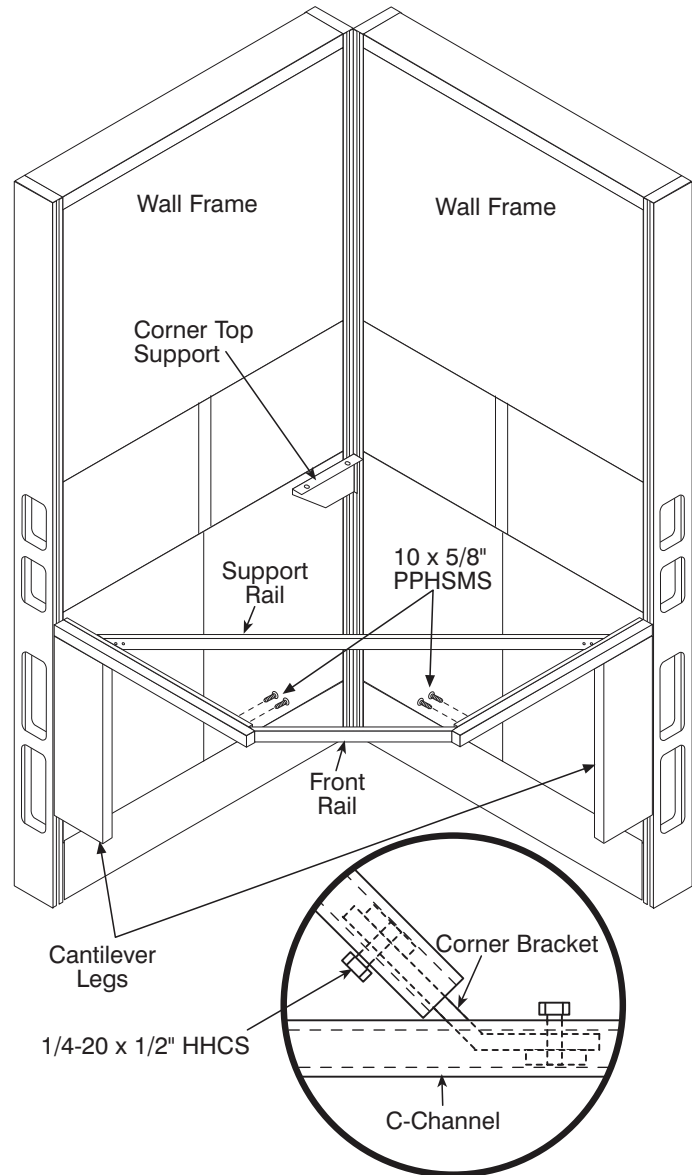


Figure 4-7 Attaching Corner Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.3 Cantilever Corner Work Surface (90°) to Wall Frame (cont.)

12. When the cantilevered work surfaces are installed next to each other at the same height, they must be bolted together. Insert a 5/16-18 x 3-1/2" HHMS through the hole at the front of each cantilevered leg and secure with a 5/16-18 nut.

Note: Washers are provided to shim between the cantilevered legs if necessary.

13. Attach the top to the corner work surface frame using the top clamps and No. 10 x 1" screws. Top clamps are hooked onto "C" channels on cantilevered legs. Location and number of clamps to be used is dependent on the number of holes pre-drilled in the top.

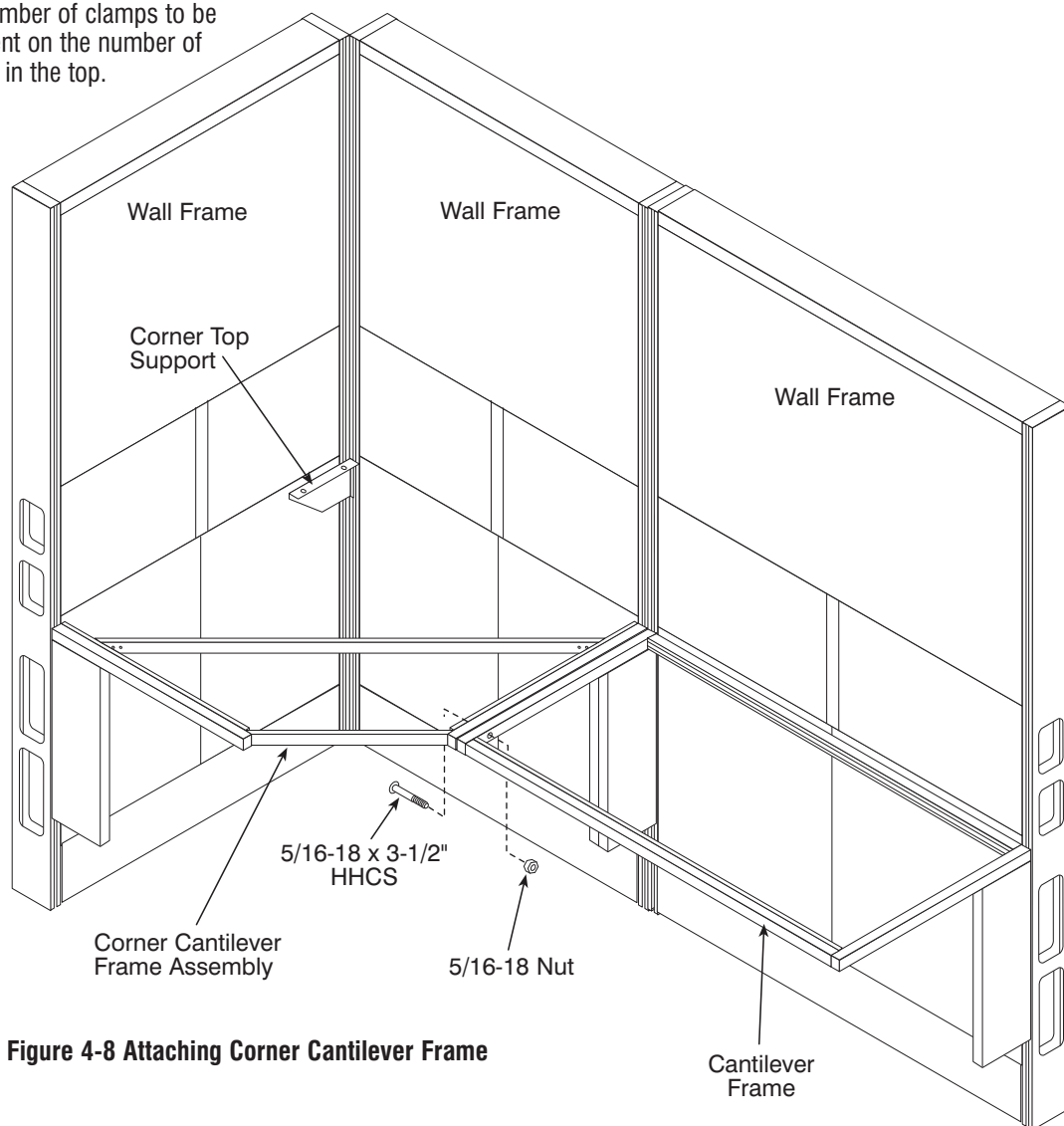


Figure 4-8 Attaching Corner Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.4 Structural Corner Table (90°) to Wall Frame

Tools Required:

- 1/2" and 7/16" combination wrenches
- 3/16" Allen wrench or 3/16" socket hex bit
- Socket set with 1/2" socket
- Level
- Rubber mallet
- Phillips head screwdriver with No.2 and 3 tips
- Flat-blade screwdriver

Procedure:

1. All wall frames must be fully assembled before attaching tables. Island wall frames must be adjusted 1-1/4" minimum off the floor.
2. Structural corner tables are shipped knocked-down. They consist of two table legs with feet placed at outside table edges and corner top support attached in the corner.
3. Remove plastic cap at back of leg, exposing cap screw, loosen using Allen wrench until almost free, allow clamp to slide vertically. **Note:** front foot levelers should be all the way in.
4. Insert hook at rear base of leg into slot at bottom of wall upright.
5. Move clamp at top rear of leg upward and hook into highest matching slot in upright. **Note:** place 1" wood block under heel of foot so bottom hook won't disengage. **Note:** Slots are spaced at 1" intervals. If clamp does not engage slots, tap into place using a flat-blade screwdriver and rubber mallet.
6. Tighten the socket head cap screw. Clamp and bottom hook should draw the two products together. If table is loose after tightening the cap screw, clamp was inserted one slot too low - repeat Step 3 above.
7. Level table by adjusting the levelers at front of the feet.
8. Reattach work surface - position of table frame, engage top clamps and tighten the No. 10 x 1" screws.

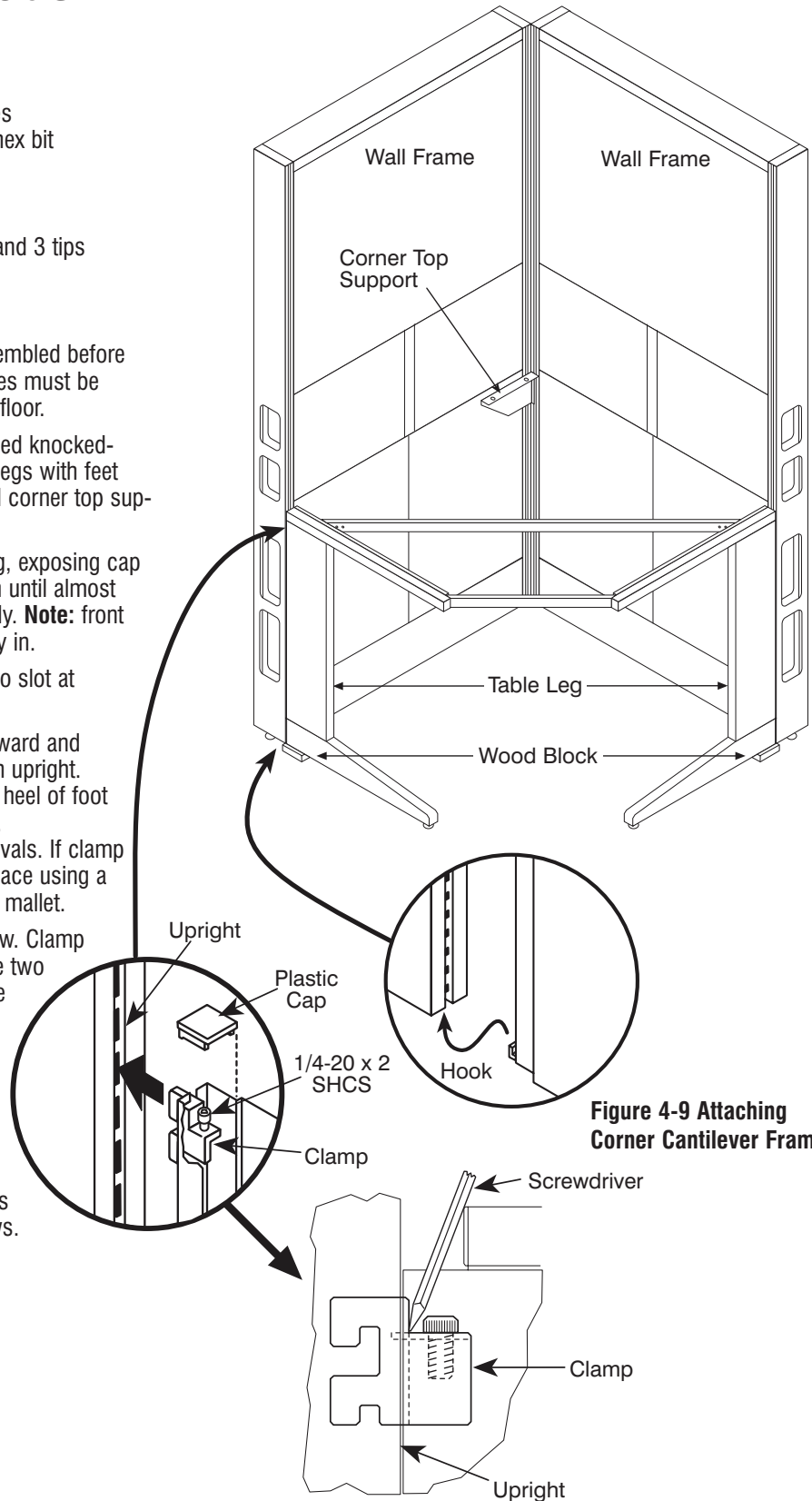


Figure 4-9 Attaching Corner Cantilever Frame

Section 4 - Installing Supporting Furniture and Casework

4.5 Corner Table Support for Cantilever Work Surface or Structural Table

Tools Required:

- 1/2" and 9/16" combination wrenches
- Rubber mallet
- Phillips head screwdriver

Hardware Included:

- Product No. 900H135 consisting of:
- 1 Right-hand corner support
 - 1 Left-hand corner support

Note: Front corner supports are used only when the work surface is equal to or deeper than the side support structure.

Work Surface Depth	Width of Side Frame to be Used
24"	24"
30"	24" or 30"

See Figure 4-10.

1. Insert the hooks of the corner support into the slots in the frame.

See Figure 4-11.

The corner support should be placed 2-3/8" below the top of the work surface.

Note: Make sure the corner support is securely hooked to the side frame by striking the corner support with a rubber mallet.

2. Attach the corner work surface to the back frame. Corner support will capture the front corner of the cantilever frame.

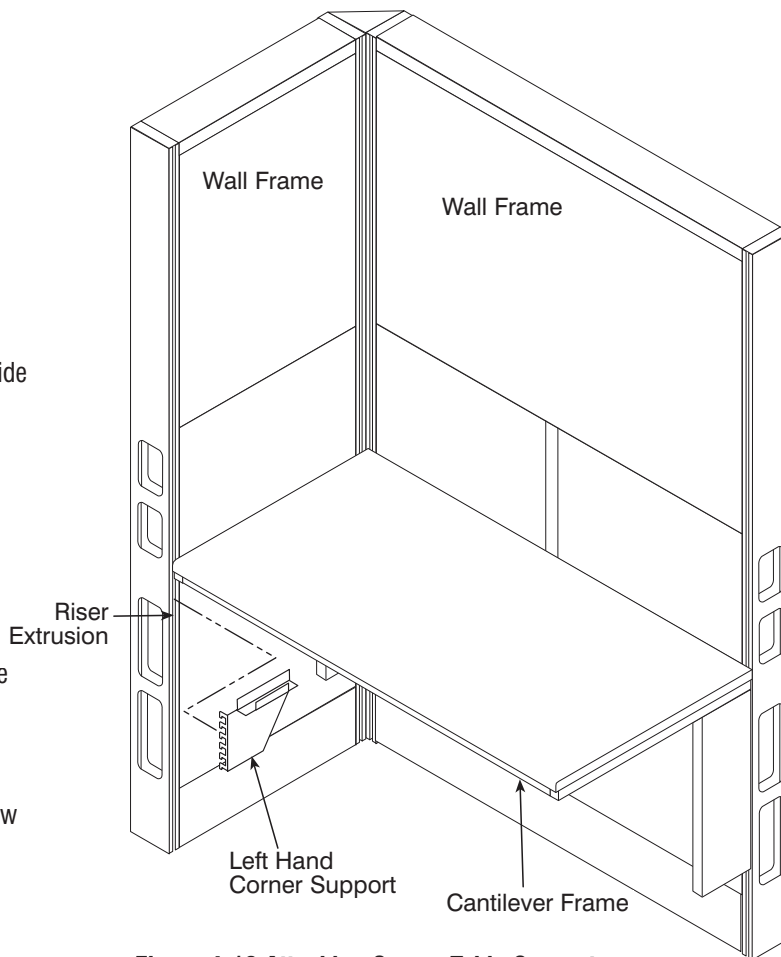


Figure 4-10 Attaching Corner Table Support

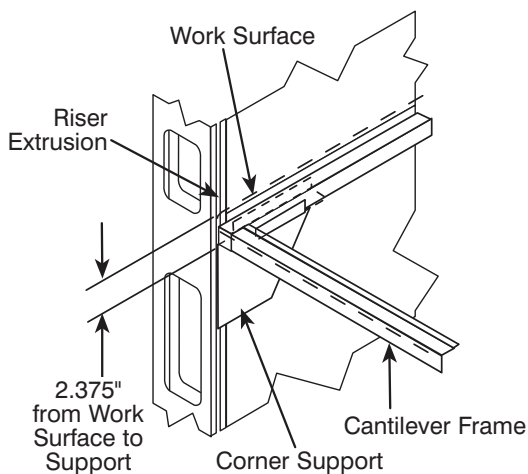


Figure 4-11 Corner Table Support Detail

Section 4 - Installing Supporting Furniture and Casework

4.5 Corner Table Support for Cantilever Work Surface or Structural Table (cont.)

3. Loosen the side frame from the corner post just enough to allow it to swing a minimum of 1" sideways from the corner of the work surface as shown in Figure 4-12.
4. Place the corner support under the table frame with the hooks pointing towards the side frame.
5. Lift the frame and the corner support. Swing the side support structure back to the place of origin and insert the hooks of the corner support into the slots in the frame.

Note: Front leveler of the side frame may have to be screwed into the lower structure for easier insertion of the hooks. If so, return the leveler to the correct height after the hooks are engaged.

6. Strike the work surface with a rubber mallet to insure the corner support is secure.
7. Re-tighten the side frame to the corner connector.

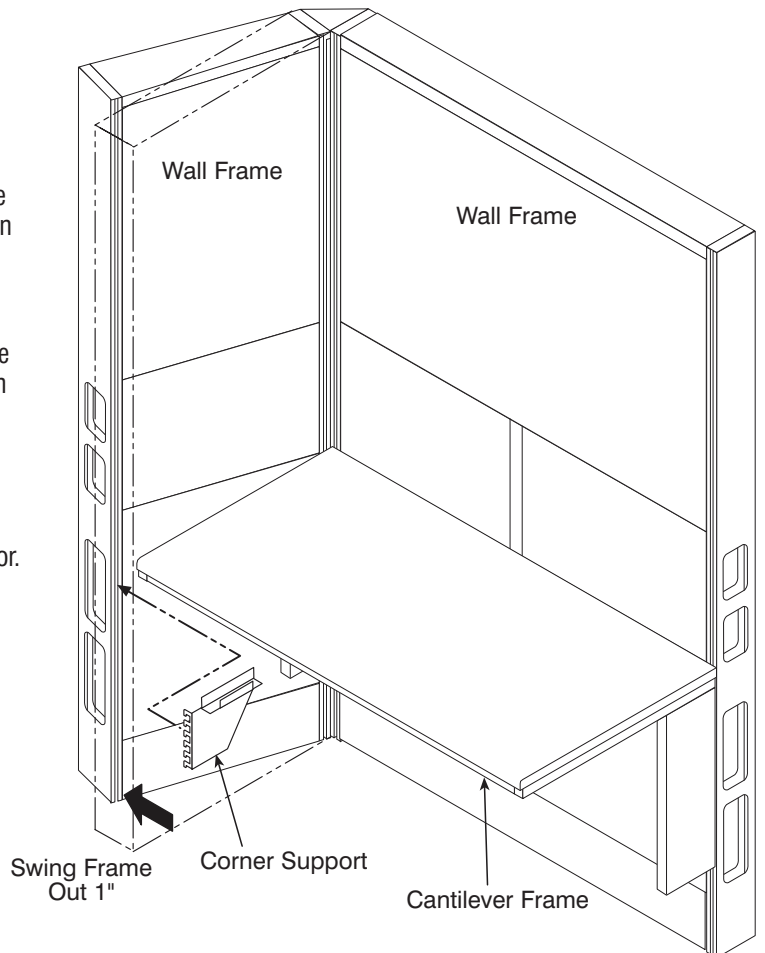


Figure 4-12 Attaching Corner Table Support

Section 4 - Installing Supporting Furniture and Casework

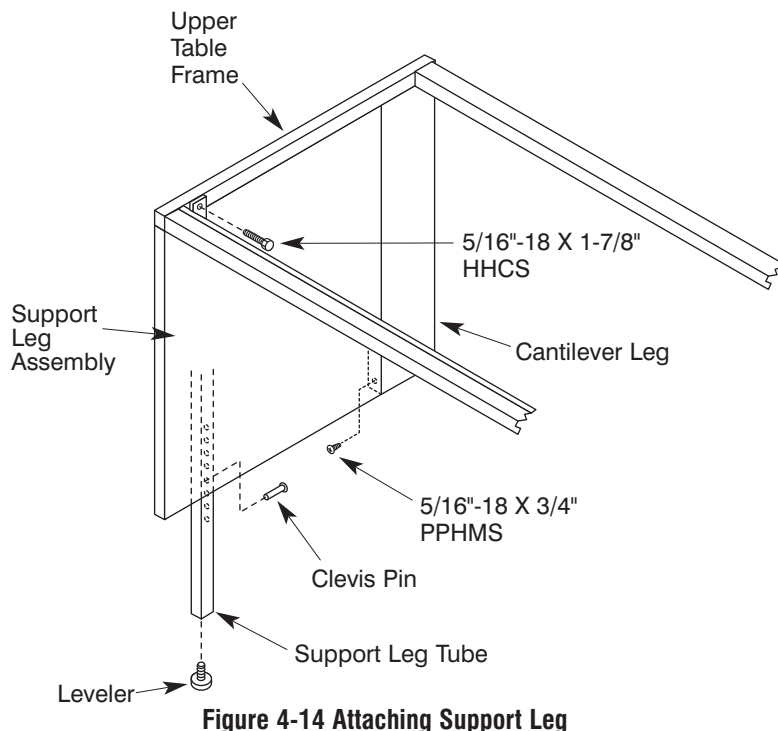
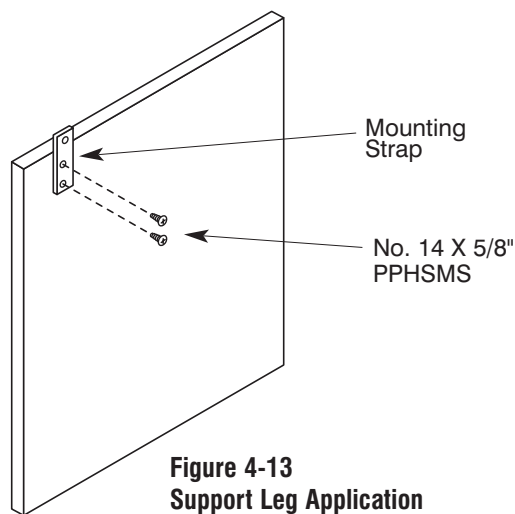
4.6 Support Leg to the Cantilever Table

Tools Required:

Phillips Screwdriver

Two 1/2" Wrenches

1. Support leg assembly may be attached to either a left or right hand cantilever table leg by placing the mounting strap on the inside of the leg in both cases.
2. Attach mounting strap to support leg assembly using two #14 Phillips head screws. See Figure 4-13.
3. Attach mounting strap to upper table frame using the 5/16" x 1-7/8" bolt. See Figure 14.
4. Attach lower end of support leg to cantilever table leg using a 5/16" Phillips head screw.
5. Screw leveler fully into support leg tube. Insert clevis pin through channel. Adjust 1" tube up from floor level. Insert pin through the nearest hole in the 1" tube. Adjust the leveler for the remaining distance to the floor.



Section 4 - Installing Supporting Furniture and Casework

4.7 General Purpose Shelves

Tools Required:

Rubber mallet

Phillips head screwdriver with No. 2 and 3 tips

Refer to Figure 4-15.

1. Attach the right hand and left hand shelf brackets to the shelf using No. 10-24 x 1/2" PPHMS.
2. If shelf lips are supplied, attach the lips using No. 10 x 5/8" PPHSMS to the front and/or back edge of the shelf.
3. Insert the hooks on the shelf brackets into the slots in the uprights of the wall frame.
4. To properly engage the hooks, strike the shelf brackets in a downward direction using a rubber mallet.

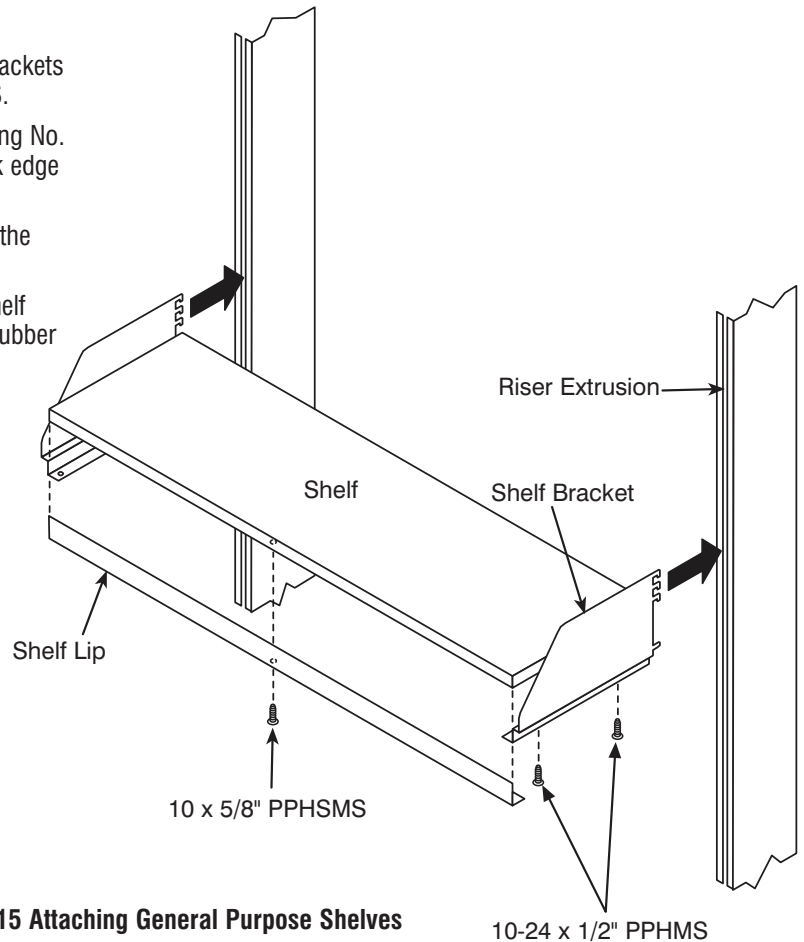


Figure 4-15 Attaching General Purpose Shelves

Section 4 - Installing Supporting Furniture and Casework

4.8 Inner Shelves to Wall Frame

Tools Required:

- Rubber mallet
- Phillips head screwdriver with No. 2 and 3 tips

Refer to Figure 4-16.

1. Attach the right hand and left hand shelf brackets to the shelf using No. 10-24 x 1/2" PPHMS.
2. If shelf lips are supplied, attach the lips using No. 10 x 5/8" PPHSMS to the front and/or back edge of the shelf.
3. Insert the hooks on the shelf brackets into the slots in the riser of the wall frame. Shelf height is adjustable by inserting hooks into different slots. The slots are spaced at 1" increments
4. To properly engage the hooks, strike the shelf brackets in a downward direction using a rubber mallet.

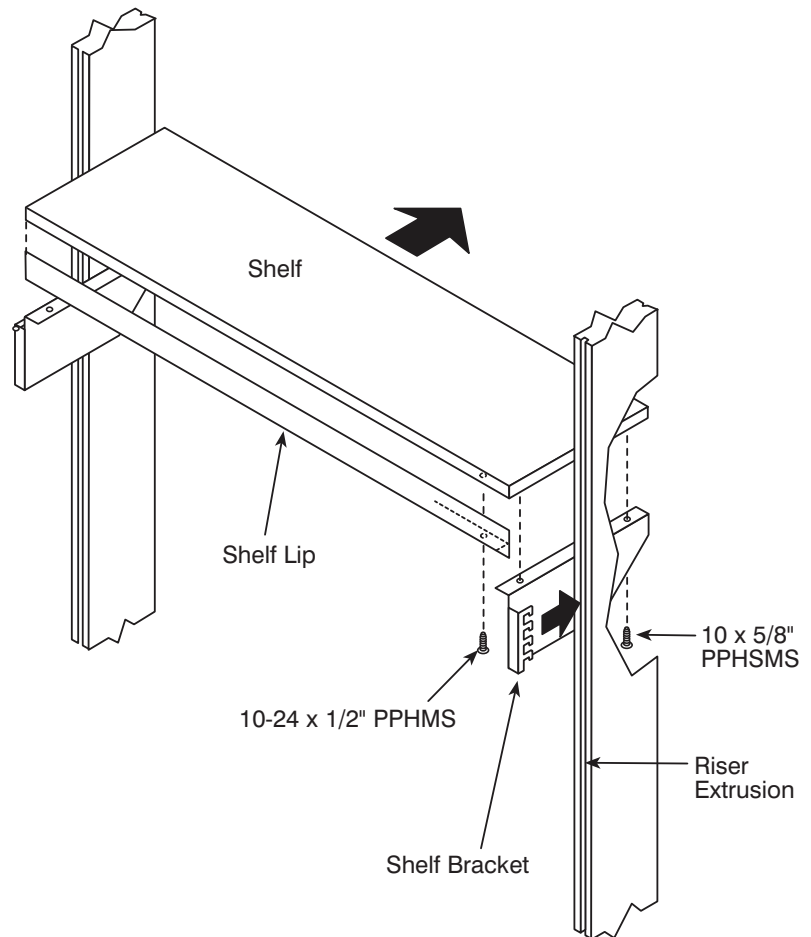


Figure 4-16 Assembling Inner Shelf

Section 4 - Installing Supporting Furniture and Casework

4.9 Sloping Adjustable Shelf to Wall Frame

Tools Required:

Phillips head screwdriver with No. 2 and 3 tips

Refer to Figure 4-17.

1. Attach the right hand and left hand shelf brackets to the shelf using No. 10-24 x 1/2" PPHMS.
2. Attach the shelf lip to the front edge of the shelf using No. 10 x 5/8" PPHSMS.
3. Insert the hooks on the shelf brackets into the slots in the risers of the wall frame. Shelf height is adjustable by inserting hooks into different slots. The slots are spaced at 1" increments
4. Lock the shelf bracket assemblies to the risers by screwing No. 8 x 5/8" PPHSMS through the bracket and into the slot. Push the shelf brackets downward to fully engage the hooks into the slots.

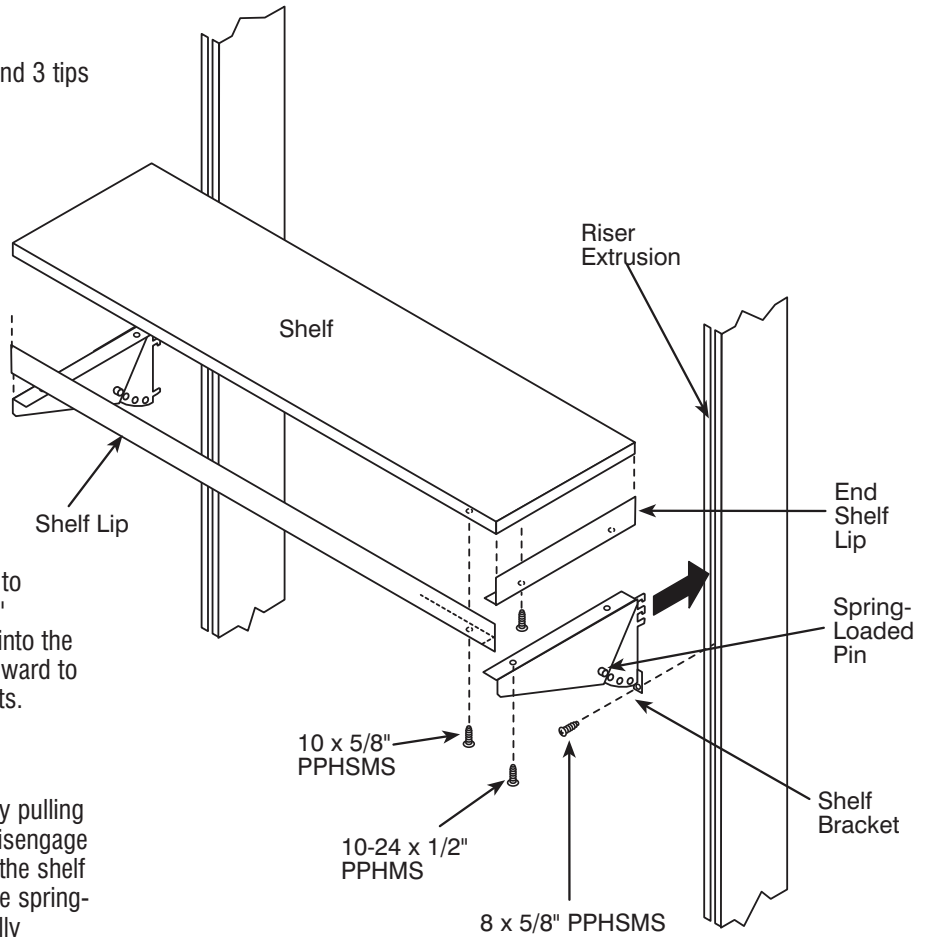


Figure 4-17 Assembling Sloping Shelf

Refer to Figure 4-18.

5. The shelf angle may be adjusted by pulling the spring-loaded pins inward to disengage the pin from the shelf bracket. Tilt the shelf to the desired angle and release the spring-loaded pin. Be sure the pins are fully engaged in the shelf bracket holes before any load is placed on the shelf.
6. The spring-loaded pins may be temporarily disengaged by pulling the pin inward and then rotating it counter-clockwise until it is held out. This allows the tilting adjustment of the shelf without having to hold both pins at the same time. To re-engage the pin, rotate clockwise to release and make sure the pin is fully engaged in the shelf bracket holes.

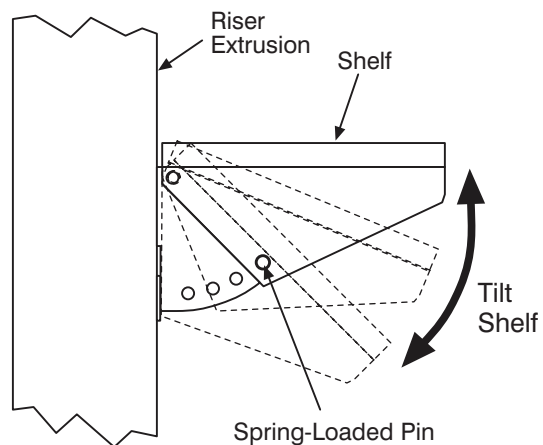


Figure 4-18 Attaching Sloping Shelf

Section 4 - Installing Supporting Furniture and Casework

4.10 Floor and Wall-Mounted Cabinets

Note: The following bag assemblies may be shipped in one package, or in separate packages with each product.

Hardware Included:

Floor-mounted cabinet, Bag No. 681363:

- 4 1/4-20 x 1/2" PPHSMS
- 4 Lockwashers
- 4 1/4-20 hex nuts
- 4 No. 10 x 3/4" PPHSMS
- 4 Shelf supports

Upper cabinet with two shelves, Bag No. 681365:
(Same as above except 8 Shelf supports)

Upper cabinet with three shelves, Bag No. 681366:
(Same as above except 12 Shelf supports)

Full-height cabinet with five shelves, Bag No. 681367:
(Same as above except 20 Shelf supports)

Shelf support, Bag No. 6811771:

- 4 Shelf supports

Refer to Figure 4-19.

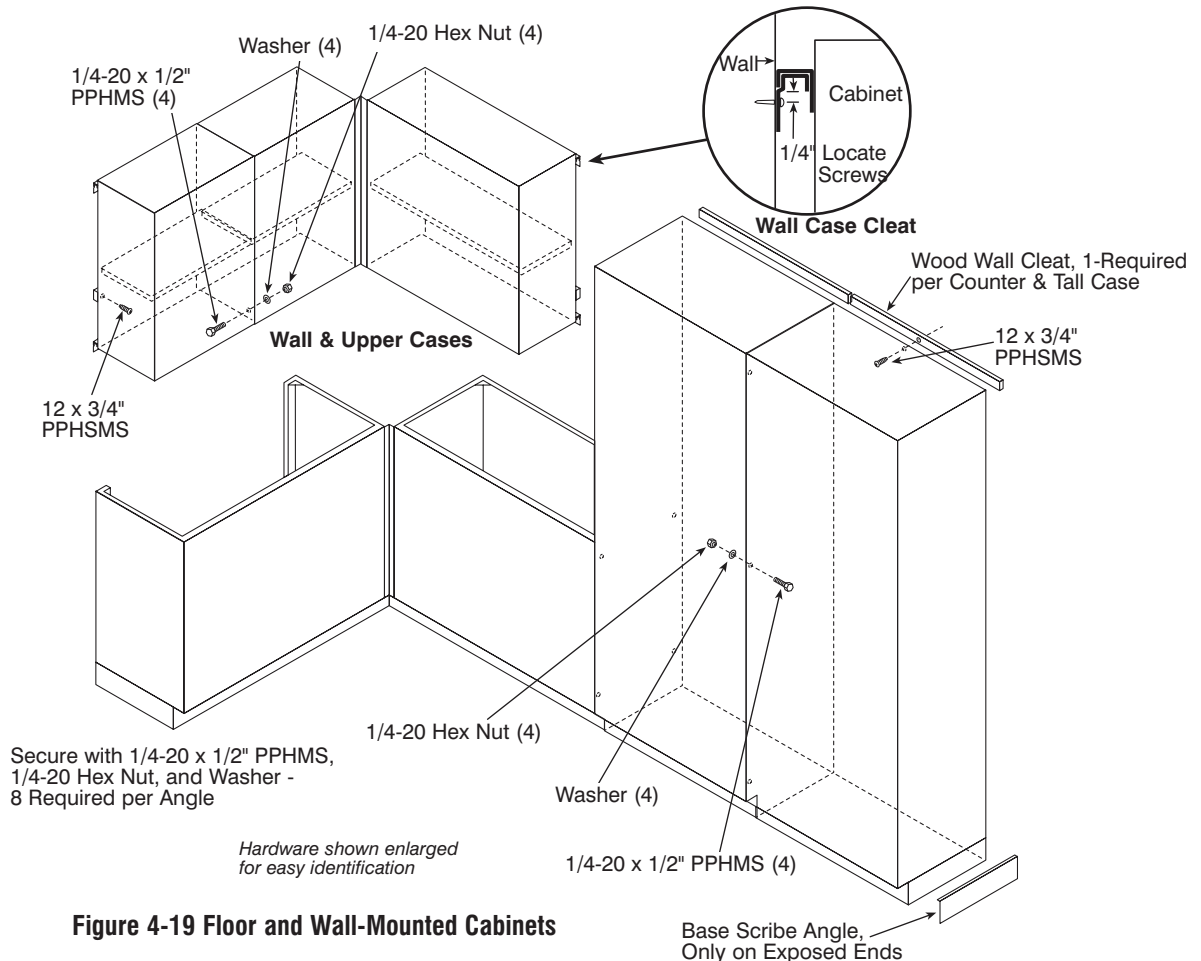
Most installers prefer to hang wall cases first, which eliminates working over the base assemblies. Each wall case is hung from steel cleats and a horizontal wood filler block. The steel cleats are screwed to the studs in the wall. Screws also extend through the back of the wall case, through the wood filler block and into the wall studs. If specifications indicate a different type of hanger, contact the Project Manager.

When a row of wall cases is indicated, snap a chalk line so all the cleats will be at the same level.

Toggle bolts, Rawl plugs, Red Devil plastic anchors, tap-in nylon fasteners and bolts are the various type fasteners used to anchor the wood cleats to the wall – wall construction is the determining factor. Fasteners are furnished by the installer.

Tall and floor-mounted cabinets should be checked to make sure they are not racked out of square by uneven floors. This is important to insure smooth operations of the drawers and doors.

Tall and floor-mounted cabinets should be anchored to the wall and bolted together.



Section 4 - Installing Supporting Furniture and Casework

4.10 Floor and Wall-Mounted Cabinets (cont.)

Refer to Figure 4-20 and 4-21.

Base units must be leveled along and across the top frame as the assembly progresses. Units must be fastened together as shown. Assemblies must also be anchored to the wall or floor.

It is imperative that installers have a base adjusting tool (Prod. No. 950M400) when attempting to level Modular cabinets. The tool can be purchased through the Project Manager.

Adjusting Steel Drawers:

1. Prior to any adjustment of doors and drawers, base cabinets must be set plumb, square and level. Use a carpenter's level and the base adjusting tool No. 950M400. With the cabinet set perfectly level, the drawers should move easily in and out and exhibit the self-closing feature.
2. If a drawer does not operate smoothly:
 - Remove the drawer and check that the rollers rotate freely. To free up rollers, apply a drop or two of light oil or pack the bearings with grease.
 - If the drawer binds, remove the drawer and spread the runs so adequate clearance exists for the roller.
 - If the drawer runs are spread to the maximum, move the back rollers on the drawer body closer together.

3. To adjust the drawer head position:

- Raise or lower the drawer run at the front post of the cabinet by loosening the screw and moving the run up or down.
- Further adjust the drawer by moving the drawer head up or down, left or right.
- Loosen the head mounting screws, reposition the head and re-tighten the screws, or tap the drawer head with a rubber mallet.

Note: Each drawer is adjusted for a specific location within the cabinet. When drawers are moved, they must be replaced in the same location.

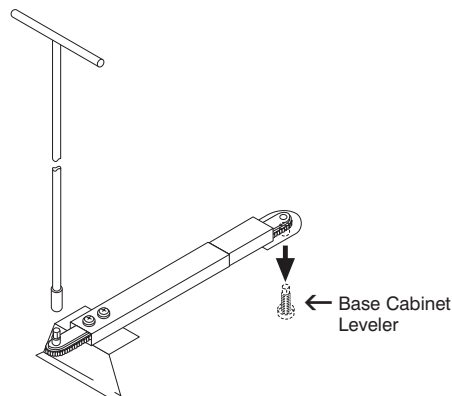


Figure 4-20 Base Adjusting Tool (950M400)

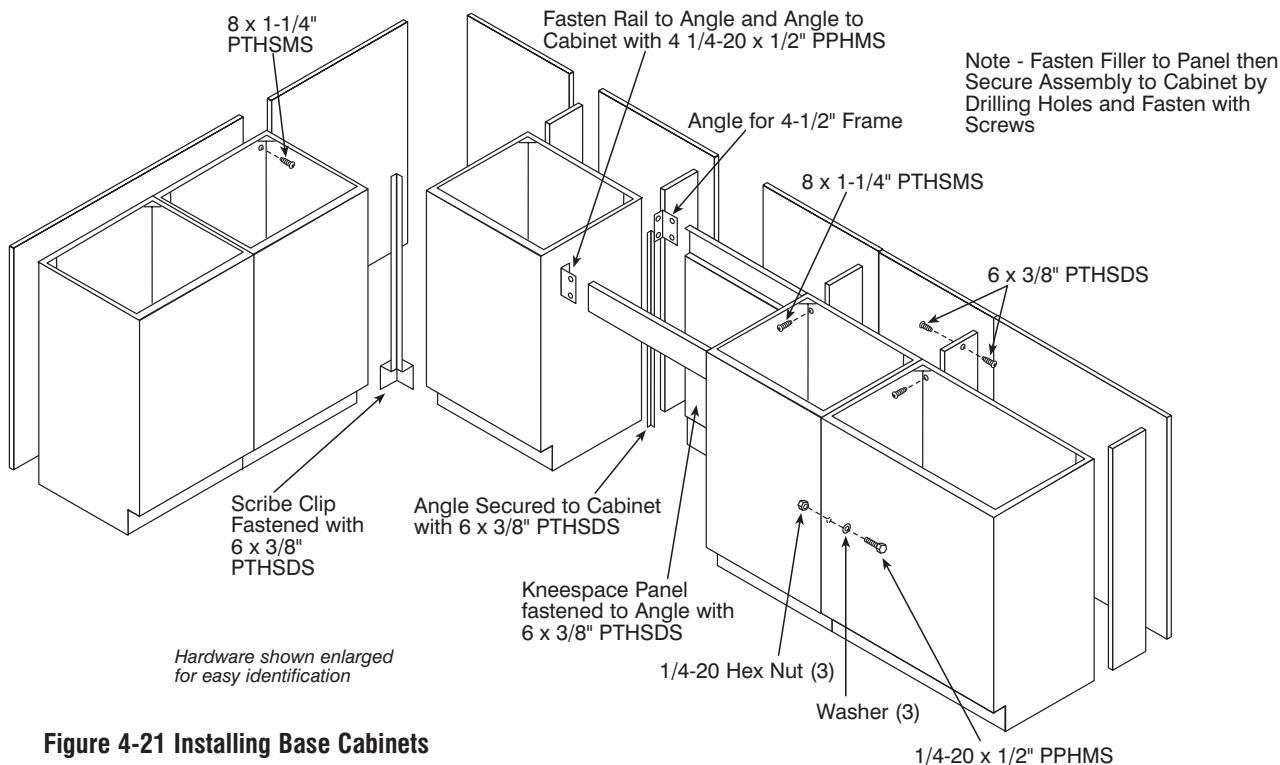


Figure 4-21 Installing Base Cabinets

Section 4 - Installing Supporting Furniture and Casework

4.10 Floor and Wall-Mounted Cabinets (cont.)

Adjusting Steel Hinged Doors:

1. When the hinged door is low or high in the opening of the cabinet:
 - Loosen the screws that hold the hinges to the cabinet side.
 - Raise or lower the door so the reveal is the same width around the entire door.
 - Tighten the screws on the hinges.
 - Check and re-adjust if necessary.
2. When the hinged door is crooked or cocked in the opening of the cabinet:
 - Make a 90° angle bend 3" long using a piece of heavy wire.
 - With the door open, insert the 3" end between the leaves of the top or bottom hinge.
 - close the door slowly and the hinge will open, moving the top or bottom of the door towards the jamb – do not close the door all the way.
 - Test the for proper alignment, repeat the above steps if necessary until the door hangs straight.

Adjusting Steel sliding Doors:

Refer to Figure 4-22.

1. Hangers (A) can be left alone at this time.

2. Use a flat blade screwdriver to turn the adjusting disk (B). Clockwise rotation lowers the door and counterclockwise rotation raises the door.
3. To make the doors plumb with the cabinet side, adjust the doors to the full up or down position. If the gap is very small, a slight adjustment of one or both hangers may be sufficient.

When the doors are plumb with the cabinet side, make the up and down adjustment of the door equally. Adjust both hangers to achieve proper clearance at the bottom door guide (C).

Removing the framed glass or solid sliding doors:

1. Loosen the screws and remove the bottom door guide.
2. Tilt the door to permit the top of the nylon roller to move out of the track – do not force. If the door binds or hangs up, adjust the rollers to provide more space between the top of the door edge and the track.
3. Repeat the tilting procedure. Lift and remove the door.
4. Repeat for the second door. It may be necessary to remove and lean the lower shelf or shelves against the cabinet back to provide clearance for door movement.
5. Clean the glass and replace the doors. Replace the back door first. Tilt the door to place the bottom roller into the track. Move the door to a vertical position and adjust to provide clearance for the guide.
6. Repeat the above procedure for the front door.
7. Replace the bottom door guide.

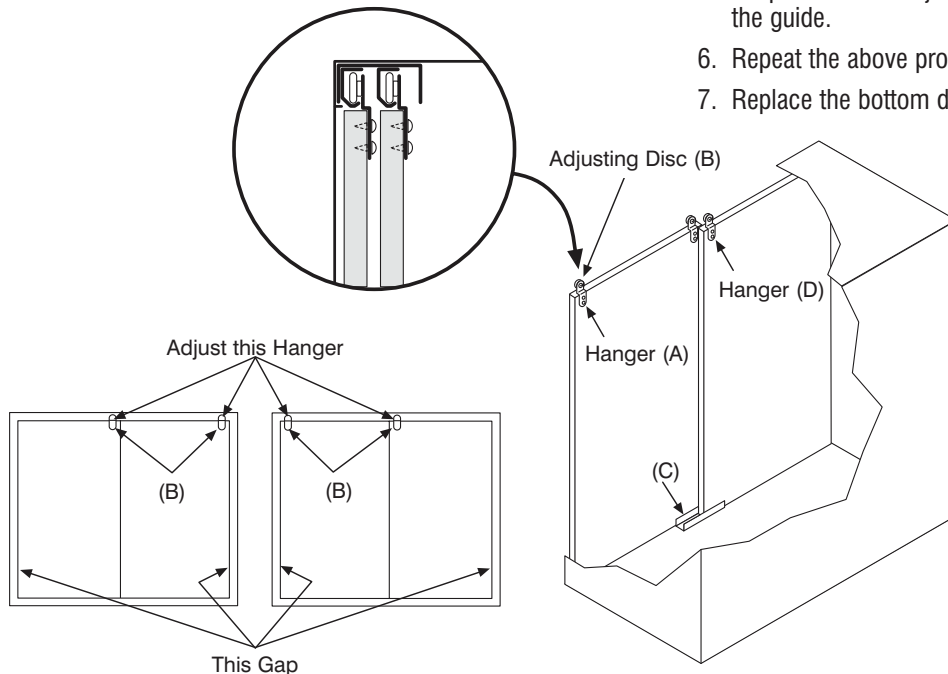


Figure 4-22 Adjusting Steel Sliding Doors

Section 4 - Installing Supporting Furniture and Casework

4.10 Floor and Wall-Mounted Cabinets (cont.)

Adjusting Glass Doors

Refer to Figure 4-23.

1. When adjusting glass doors, do not over-tighten screws.

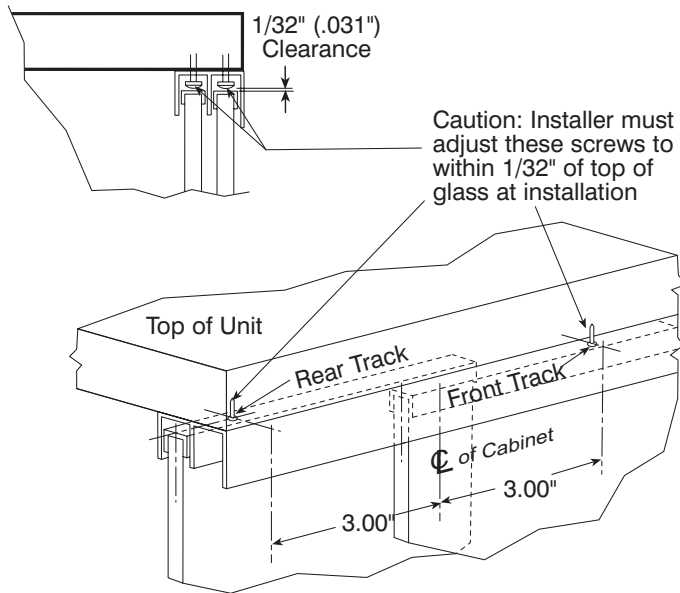


Figure 4-23 Adjusting Glass Sliding Doors

Installing Upper Storage Cabinets

Refer to Figure 4-24:

Warning: Read these instructions carefully. Improperly installed cabinets can detach from the wall, fall, and cause serious injury.

1. Determine where the top of the cabinet will be located and use a carpenter's level to draw a horizontal line 4-3/4" below this height.
2. Locate the bottom edge of the steel cleat provided with the cabinet on this line and mount cleat on wall using an appropriate fastener. The steel cleat does not have pre-drilled holes. Hole size and location is determined at the job site. **Note:** If the wall is not true, it will be necessary to shim behind the cleat.
3. To mount the lower cleat, measure the distance between the hanger channels on the cabinet and add 2-1/4". Using this figure, measure down from the top of the existing cleat and mark a point. Use a carpenter's level to draw a horizontal line at this point. Repeat Step 2 to install the cleat.
4. Hang cabinet on the cleats.

5. Place an additional screw through the cabinet near the bottom into a stud to prevent accidental dislodging from the wall cleat. If a stud cannot be located, use appropriate fasteners for a hollow wall as noted below. **Note:** A wood filler (not supplied) should be placed between back of the cabinet and wall.

Wall Conditions

6. These cabinets are hung on steel wall cleats. The cleats are furnished, but not the fasteners for attaching the cleat to the wall. The fasteners are standard hardware items which can be obtained locally to suit one of the following wall conditions:
7. **Studded Walls** - (Wood or aluminum) Use round head sheet metal screws of adequate size and length, make sure the screws are driven into the studs.
8. **Hollow Tile or Masonry Walls** - Use machine screws and expansion anchors of adequate size and length or toggle bolts.
9. **Rough Solid Concrete or Brick Wall** - Use rawl plugs or lead sleeve anchors of adequate size and length.
5. **Plaster on Metal Studs** (For new construction) When possible, place wood ground in back of plaster where cabinets are to hang. Use wood screws to anchor steel cleat to wall. Be sure screw length is of adequate size and length to anchor securely into the wood ground.

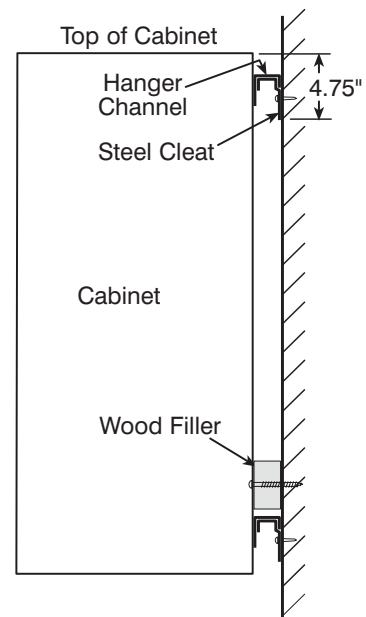


Figure 4-24 Attaching Wall Case to Wall

Section 4 - Installing Supporting Furniture and Casework

4.1.1 Installing Upper Cabinets to Wall Frame

Tools Required:

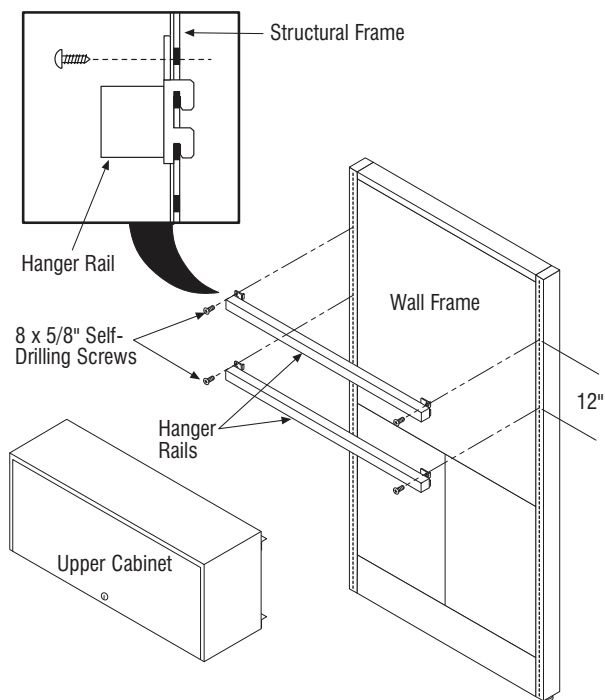
- Phillips head screwdriver with No. 2 and 3 tips
- Tape measure
- Rubber mallet

Hardware Included:

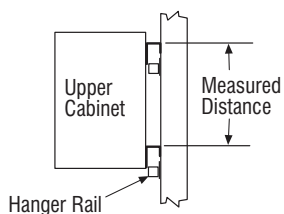
- 4 No. 8 x 5/8" PPHSMS

Refer to Figure 4-25 and 4-26

1. Remove the No. 8 x 5/8" self-drilling screws from each end of the hanger rail.
2. Determine the location of the upper cabinet and insert the top hanger rail into the slots in the core or panel at that location.
3. Measure the distance between the hanging brackets on the cabinet. Install the second hanger rail at this distance below the upper rail.
4. Replace the No. 8 x 5/8" self-drilling screws into the hanger rails to lock the rails in place. Drive the screws all the way in to properly seat the rail.



**Figure 4-25
Installing Wall Cabinet
to Wall Frame**



Refer to Figure 4-26

5. Place the upper cabinet on the hanger rails.

Refer to Figure 4-27

6. Local codes may require locking the upper cabinet to the hanger rails. Drill a 5/32" diameter pilot hole 3-29/32" down from the top of the cabinet.
7. Screw a No. 10 sheet metal screw (not supplied) through this hole, to secure the hanger rail to the cabinet.

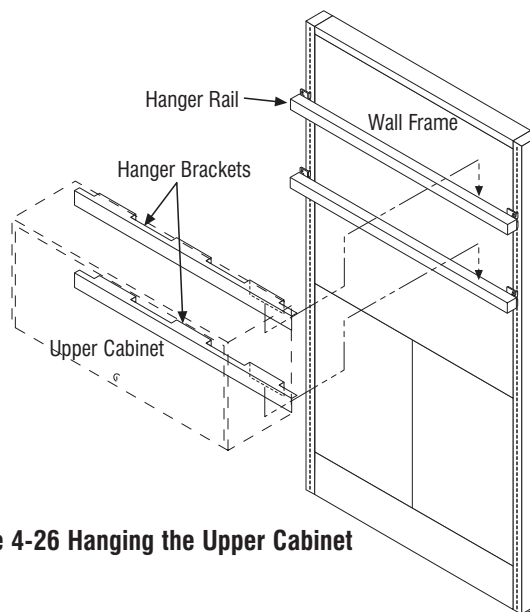


Figure 4-26 Hanging the Upper Cabinet

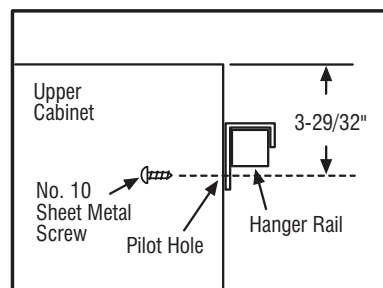


Figure 4-27 Securing the Upper Cabinet

Section 4 - Installing Supporting Furniture and Casework

4.12 Installing Suspended Cabinets

Tools Required:

Phillips head screwdriver with No. 2 and 3 tips
 3/4" and 7/16" Combination wrench or socket set
 with 7/16" socket

Hardware Included:

Hardware Bag No. 684435 consisting of:

- Upper front clamps
- Upper rear brackets
- 1/4-20 x 2" carriage bolts
- 1/4-20 x 3/4" carriage bolts
- 1/4-20 Hex nuts
- Bottom clips
- 1/4-20 x 1" PPHMS

Refer to Figure 4-28

1. Remove drawers from the suspended cabinet.
2. Insert the 1/4-20 x 3/4" carriage bolts into the rear brackets of the suspended cabinet, apply the 1/4-20 hex nuts and hand tighten.
3. Slide the rear brackets of the suspended cabinet onto the rear support channel or the "C" channel of the work surface frame. See the exploded view.

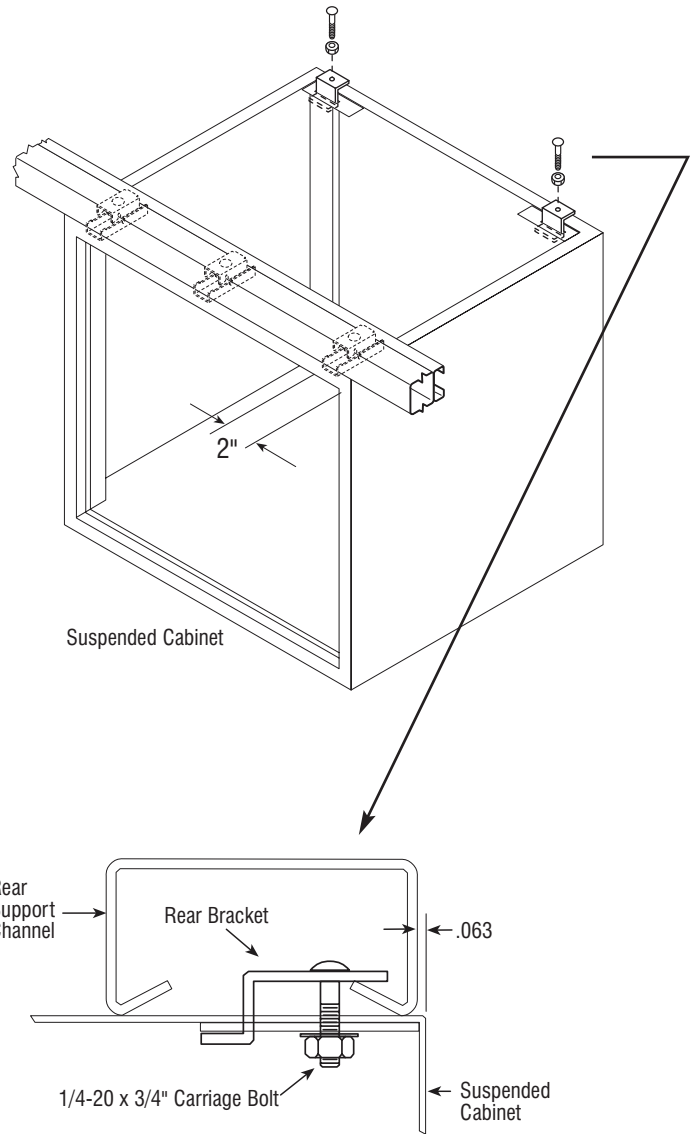


Figure 4-28 Attaching Rear Top Bracket

Section 4 - Installing Supporting Furniture and Casework

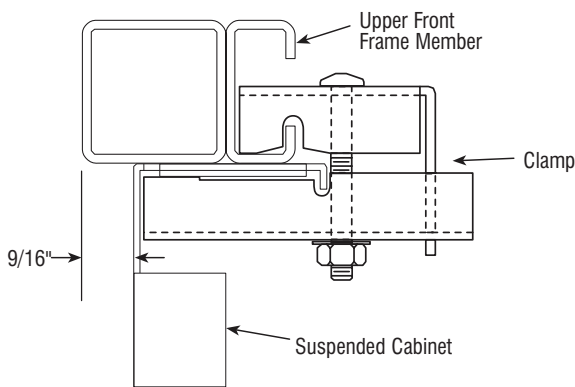
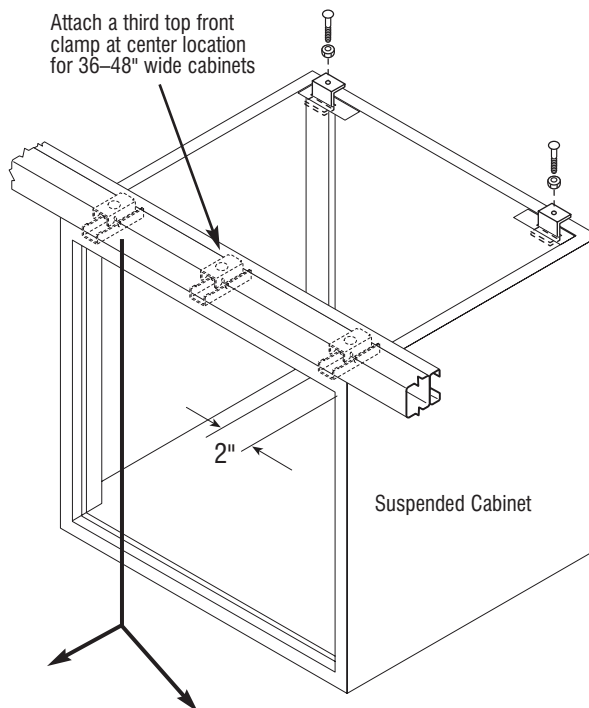
4.12 Installing Suspended Cabinets (cont.)

Refer to Figure 4-29

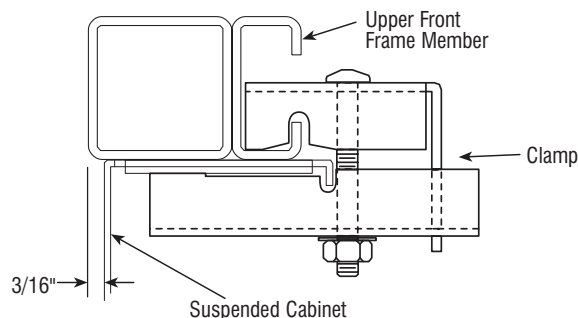
4. Use the upper front brackets as shown to attach the front of the cabinet to the front "C" channel of the work surface frame. Tighten the 1/4-20 x 2" carriage bolts.
5. Tighten the carriage bolts in the upper rear brackets until the suspended cabinet hangs square to the frame.

Refer to Figure 4-30

6. Use the bottom clip and the 1/4-20 x 1" machine screw to join the two cabinets suspended side-by-side. Use one clip on the front and one on the rear of the cabinet bottom side flanges.
7. Insert the drawers into the suspended cabinet.



Attaching front top clamp to frame and Accent (J-Line) cabinet



Attaching front top clamp to frame and steel cabinet

Figure 4-29 Attaching Front Top Clamp

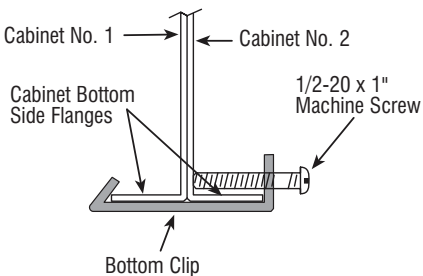


Figure 4-30 Securing Side-by-Side Cabinets

Section 4 - Installing Supporting Furniture and Casework

4.13 520H Series Drawer Units to a Table

Tools Required:

Phillips head screwdriver with No. 2 and 3 tips
 3/4" and 7/16" Combination wrench or socket set with 7/16" socket

Hardware Included:

Hardware Bag No. 684435 consisting of:

- Upper front clamps
- Upper rear brackets
- 1/4-20 x 2" carriage bolts
- 1/4-20 x 3/4" carriage bolts
- 1/4-20 Hex nuts

Refer to Figure 4-31

1. Remove drawer from the suspended frame.
2. Insert the 1/4-20 x 3/4" carriage bolts into the rear brackets of the suspended drawer frame, apply the 1/4-20 hex nuts and hand tighten.
3. Slide the rear brackets of the suspended drawer frame onto the rear support channel or the "C" channel of the work surface frame. See the exploded view.

Refer to Figure 4-32

4. Use the upper front brackets as shown to attach the front of the drawer frame to the front "C" channel of the work surface frame. Tighten the 1/4-20 x 2" carriage bolts.
5. Tighten the carriage bolts in the upper rear brackets until the suspended drawer frame hangs square to the frame.
6. Insert the drawer into the frame assembly.

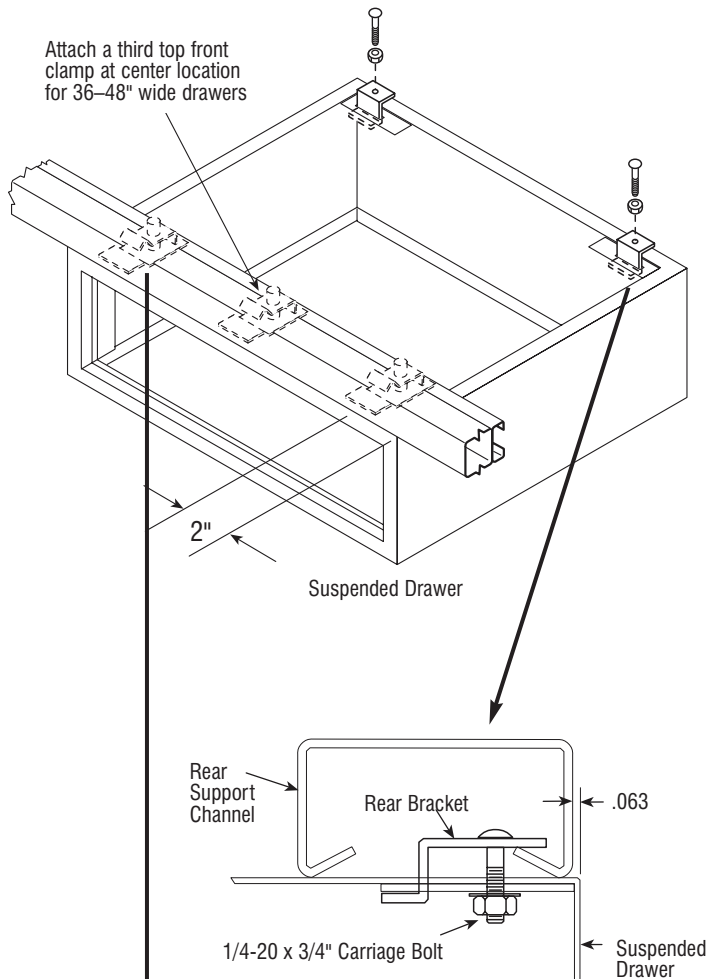
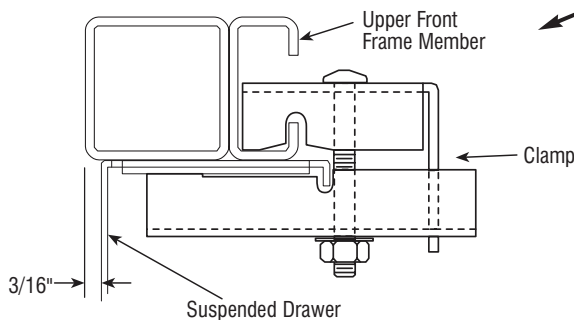
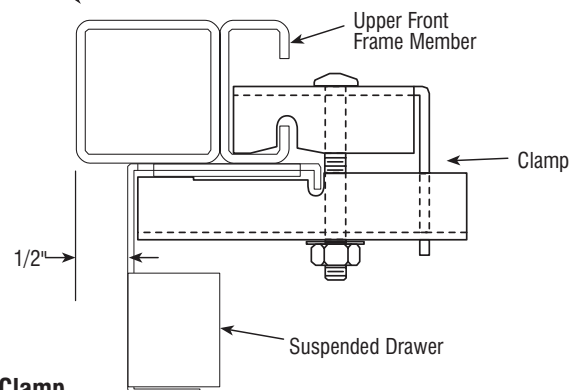


Figure 4-31 Attaching Rear Top Bracket



Attaching front top clamp to front frame



Attaching front top clamp to front frame and Accent (J-Line) cabinet

Figure 4-32 Attaching Front Top Clamp

Section 4 - Installing Supporting Furniture and Casework

4.14 Attaching a Reference Drawer or Pencil Drawer to a Table

Tools Required:

7/16" Wrench

Hardware Included:

Hardware Bag No. 830544 consisting of:

- 2 Top brackets
- 2 1/4-20 Hex nuts

Refer to Figure 4-33

1. Remove the reference/pencil drawer from the frame assembly.
2. Attach the two clamps to the frame assembly using the 1/4-20 nuts provided. Do not tighten the clamps at this time.

Refer to Figure 4-34

3. Determine where the reference/pencil drawer is to be located under the work surface.
4. Insert the back end of the frame into the back channel of the work surface frame.
5. Use the clamps to attach the front end of the frame assembly to the front "C" channel.
6. Adjust the frame perpendicular to the "C" channel and tighten the 1/4-20 nuts on the clamps.
7. Insert the reference/pencil drawer into the frame assembly.

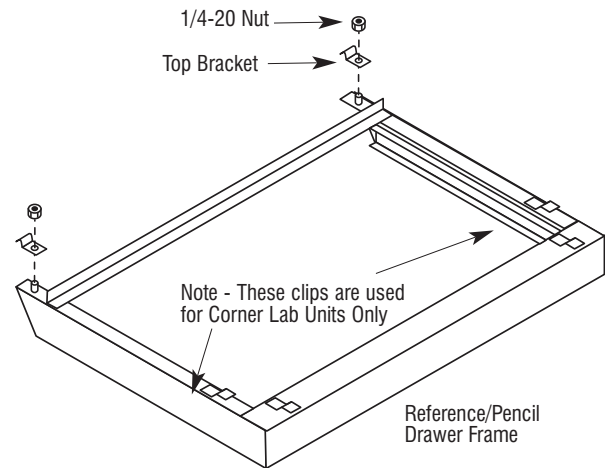


Figure 4-33 Attaching Reference/Pencil Drawer

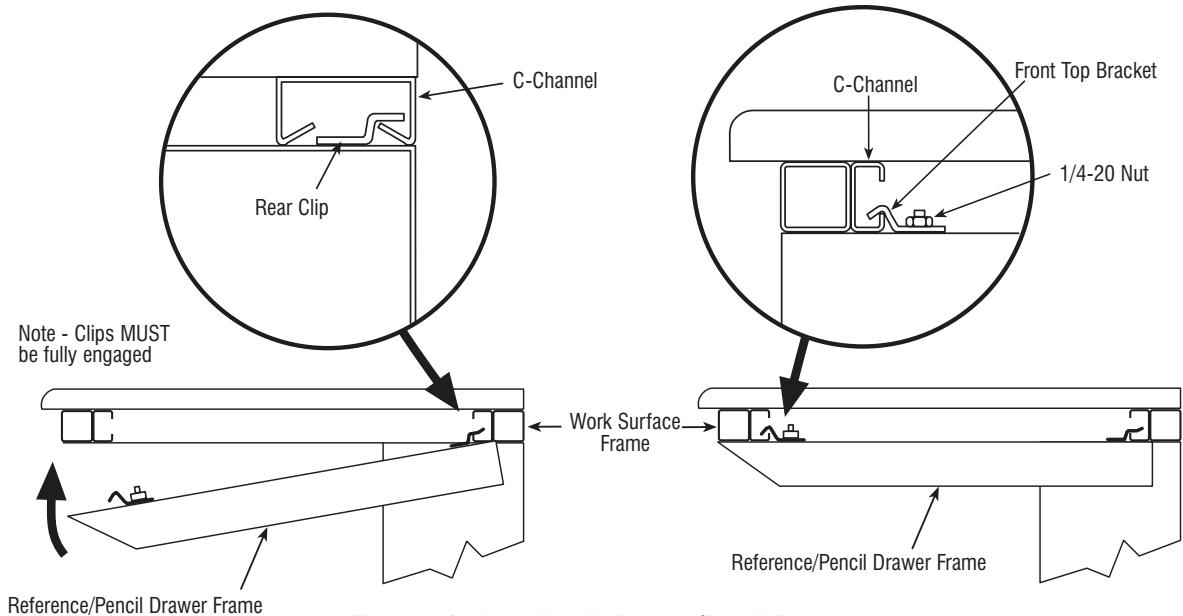


Figure 4-34 Attaching Reference/Pencil Drawer

Section 4 - Installing Supporting Furniture and Casework

4.15 Attaching a Pullboard to a Table

Tools Required:

7/16" Wrench
Phillips head screwdriver with No. 2 and 3 tips

Hardware Included:

Hardware Bag No. 830629 consisting of:

- 2 Top brackets
- 2 1/4-20 Hex nuts
- 2 1/4-20 x 5/8" PPHMS

Refer to Figure 4-35

1. Slide the pullboard out of the frame assembly as far as it will go.
2. Insert a screwdriver into the 7/8" hole and push the tab up to release while removing the pullboard.

Refer to Figure 4-36

3. Assemble the top brackets and 1/4-20 x 5/8" machine screws to the pullboard frame. Do not tighten the brackets at this time.

Refer to Figure 4-37

4. Insert the back clips of the pullboard frame into the back channel of the work surface frame.
5. Attach the pullboard to the front "C" channel and tighten the top brackets to the "C" channel.
6. Insert the pullboard into the frame assembly.

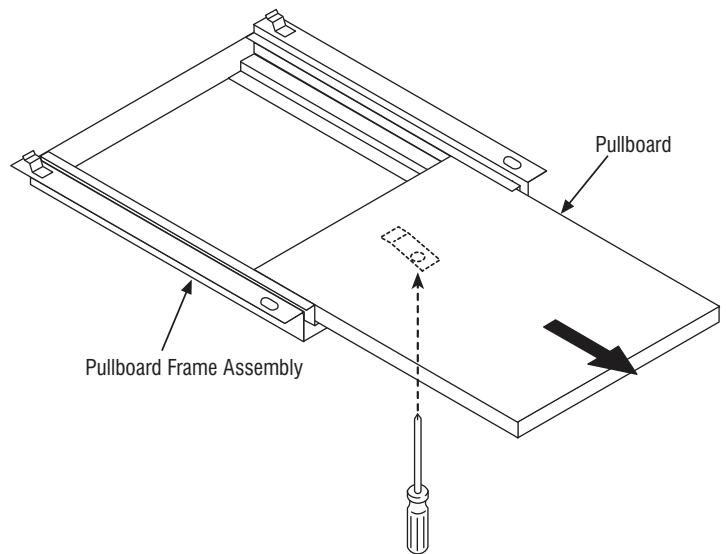


Figure 4-35 Attaching Pullboard

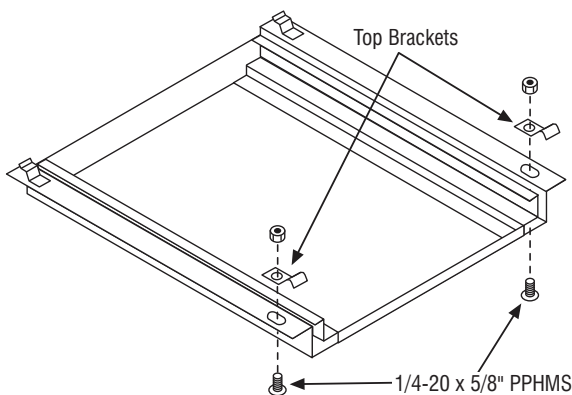


Figure 4-36 Attaching Pullboard

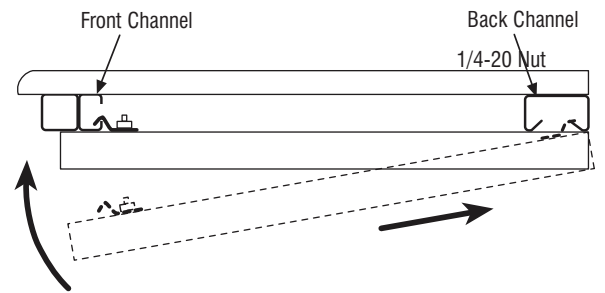


Figure 4-37 Attaching Pullboard