

This guide is for Facility Power Line, Signal & Communication Line Filter Assemblies. An assembly is defined as a metal enclosure containing mounted single or multiple line filters.

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1. FILTER COMPONENT IDENTIFICATION:

- A. RF SHIELDED ENCLOSURE - is a metal enclosure used to house RF filters. The purpose of the enclosure is to isolate input power from output power so that the power can be effectively filtered. The enclosure is divided into two sections separated by a bulkhead. The small section referred as the shielded compartment has a cover secured with bolts having a maximum spacing of 3 inches the large section used to house the RF filter inserts also has a cover to be secured in place for security and safety. Both covers may be easily removed and replaced.
- B. RF FILTER INSERT - is a single or multiple line RF filter in a metal container installed within an enclosure to filter the incoming or outgoing lines. Each insert filter above 5 Amps contains at least four mounting bolts which are used to mount the filter to the bulkhead. The other end of the filter insert has a bracket with holes used to secure the filter to the enclosure. Insert filters below 5 Amps are mounted by using the filter terminals.
- C. STANDOFF AND LUG ASSEMBLY - The standoff is an insulator secured to the enclosure by a bolt welded in place. Flexible leads or solid copper bus bars are used to connect the filter terminals to the standoffs. Solder less lug(s) is provided to each standoff for wiring in the field.
- D. SURGE ARRESTORS - When required a surge arrestor is mounted on each filter case. A mounting plate with bolts is soldered to the case to hold the arrestor. The arrestor is used to protect the filter from power surges.

2. INSTRUCTIONS FOR FILTER REMOVAL AND REPLACEMENT

- A. Turn off the power at the breaker box.
- B. If any cover is removed, discharge the filters by using a discharge resistor (10k-50Kohms) with one lead attached to ground and the other lead touching

the filter terminal. Be sure to keep your hands insulated-when discharging. Also be sure to discharge all filters in the enclosure. Even though Corcom Facility Power Line Filters rated 5 Amps and above have built-in discharge resistors, we strongly recommend the use of this procedure for additional safety.

NEVER WORK ON THE FILTERS WITH THE POWER CONNECTED

C. TO REMOVE FILTER INSERT:

1. Be sure to follow step A & B after removing both covers.
2. Disconnect the power lines and bus bars from the filter terminals and the standoffs. Remove the standoff if is necessary.
3. Loosen the nuts on the bulkhead that hold the particular filter insert being removed.
4. Loosen the nuts on the bracket of the filter which hold the filter to the enclosure.
5. At this point the filter insert is resting on the filter mounting bolts. If the filter is over 50 Amps it is strongly recommended that two or more people are needed in lifting the filter off the mounting bolts and moving it away from the enclosure after all the nuts and washers are removed. If the filter is under 50 Amps, the weight of each filter insert should be less than 50 lbs.

D. TO REPLACE FILTER INTO ENCLOSURE:

1. Place EMI gaskets around the mounting holes and the terminal hole on the bulkhead.
2. Guide filter into enclosure making sure the bolt and terminal pattern of the filter and enclosure match.
3. Support filter on mounting bolts.
4. Put washers and nuts on all mounting bolts while pushing the filter against the bulkhead and the bottom of enclosure. First tighten all the nuts on the bulkhead by evenly rotating from one nut to the other until all the nuts are tightly secured with the proper amount of torque (maximum torque shown on page 4), and then tighten the nuts on the mounting bracket.
5. Replace the removed standoff.
6. Attach the buss bars and lugs to the filter terminals and standoffs.
7. Check all nuts and bolts for proper tightness.

8. Visually inspect replaced filter to ensure that newly inserted filter looks just like all the other filters not replaced.
9. Hook up the power lines to the lugs.
10. Replace covers and turn on the power.

3. MAINTENANCE:

- A. The individual filters are designed for a long time of use. They are completely self contained and require no regular maintenance. As with any electric equipment, proper care should be taken to maintain good electrical performance. We recommend a visual inspection of the large compartment once a year. This inspection includes looking for signs of trouble such as burn marks or frayed wiring on the filter, filter assembly and surge arrestors. It is also recommended that nuts be checked for proper tightness. There is no need to open the gasketed cover. It is also suggested that flammable liquids and gases should not be stored in the area where these filters are mounted.
- B. Testing the filter performance for RF shielding purposes should be done as recommended by the shielding contractor.
- C. For specific information not covered in this manual concerning filter operation or service, contact the factory:

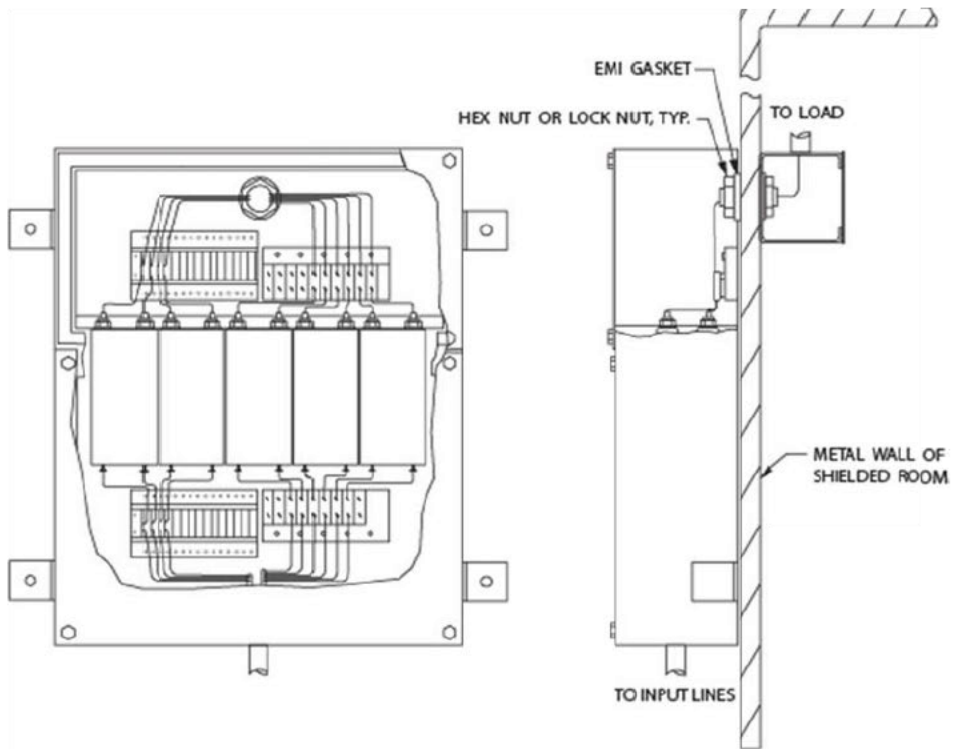
CORCOM
620 S. Butterfield Road
Mundelein, IL 60060
Phone: 847-680-7400
Fax: 847-680-8169

4. INSTALLATION

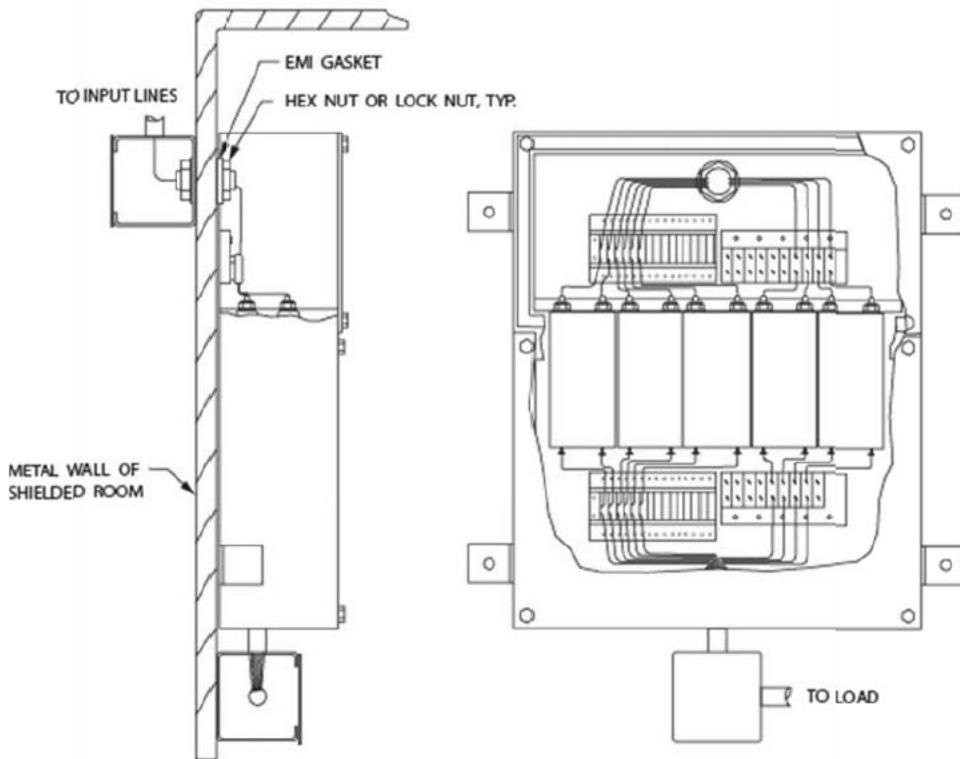
- A. **DIRECT WALL MOUNT:** When a threaded nipple is used for mounting and penetration, the contact surfaces between the enclosure and the wall must be free of all foreign materials (oil, paint, putty, etc ...). A continuous wire mesh EMI gasket to be placed in between the wall and the enclosure is strongly recommended. It should completely surround the nipple which will be used to

secure tightly the enclosure against the wall. The mounting feet on the enclosure can be used for additional supporting. When conduit is used between the enclosure and the wall penetration, the conduit must be welded to the enclosure. The weld must be continuous and 100% penetration. Hubs or nipples welded to the enclosure are also acceptable.

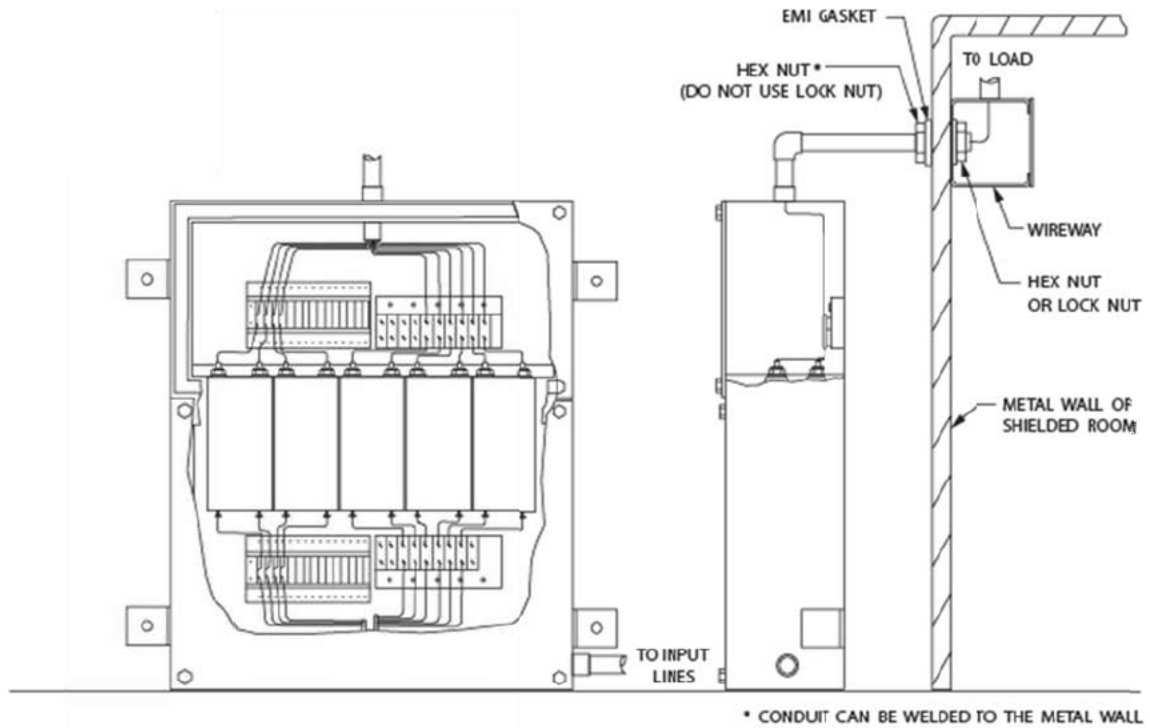
- B. FLOOR MOUNT: Conduit should be used for penetration. The other requirements will be the same as direct mount.



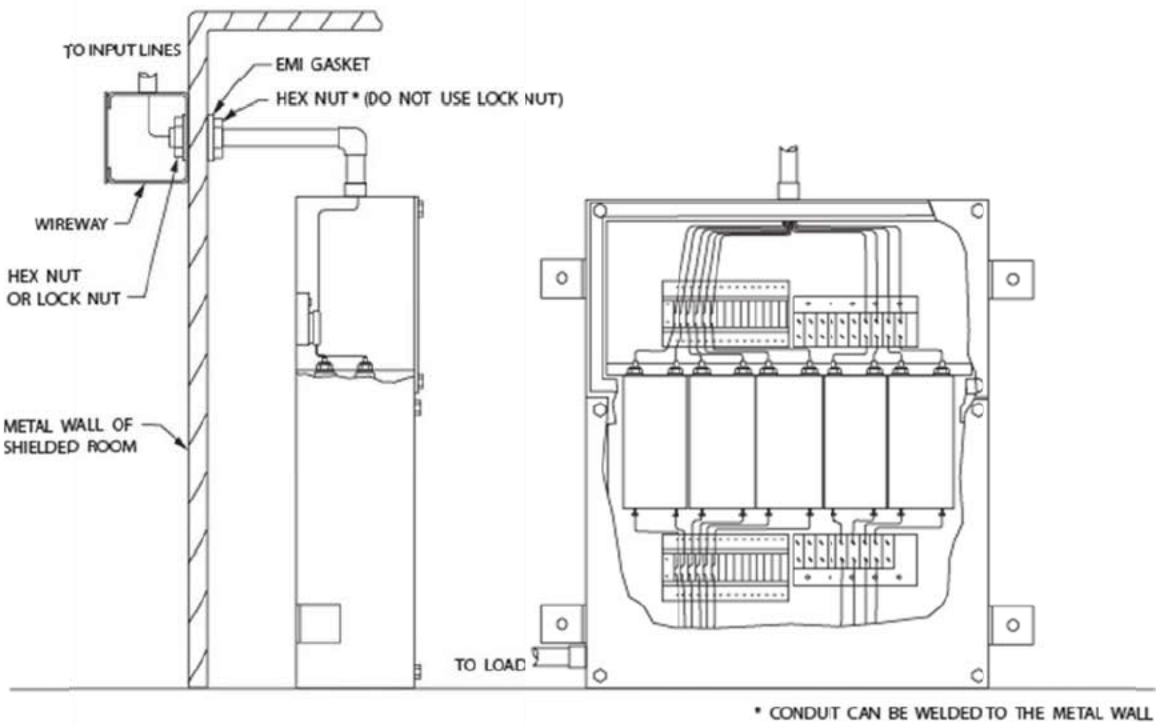
RECOMMENDED INSTALLATION ON THE OUTSIDE WALL OF SHIELDED ROOM



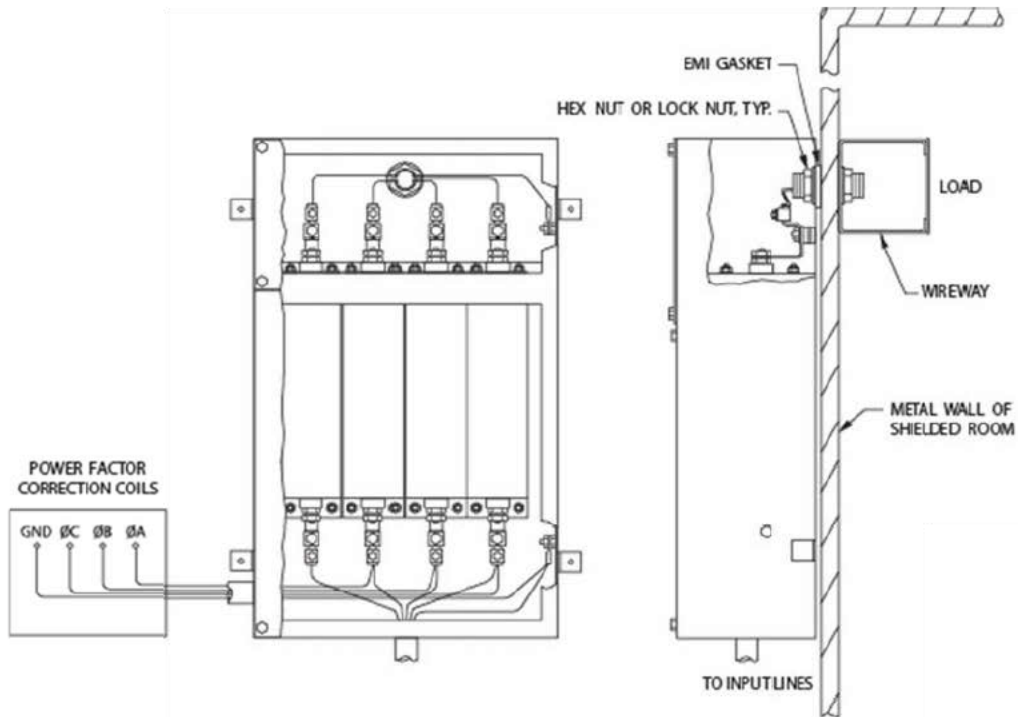
RECOMMENDED INSTALLATION ON THE INSIDE WALL OF SHIELDED ROOM



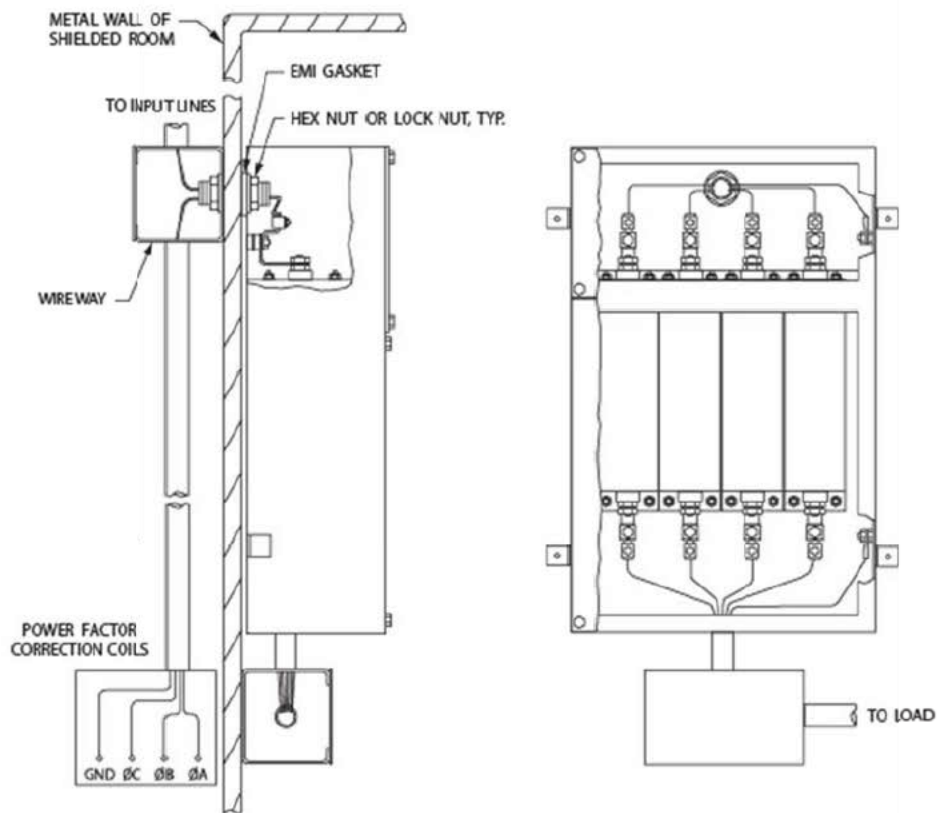
RECOMMENDED INSTALLATION ON THE FLOOR OUTSIDE THE SHIELDED ROOM



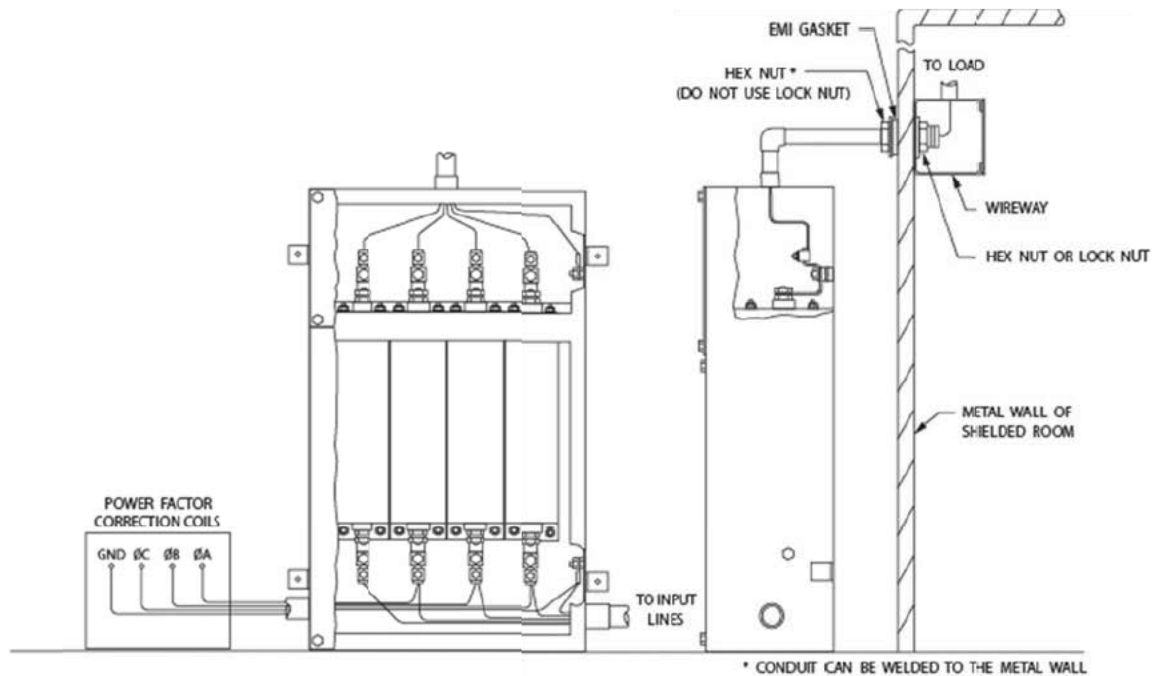
RECOMMENDED INSTALLATION ON THE FLOOR INSIDE THE SHIELDED ROOM



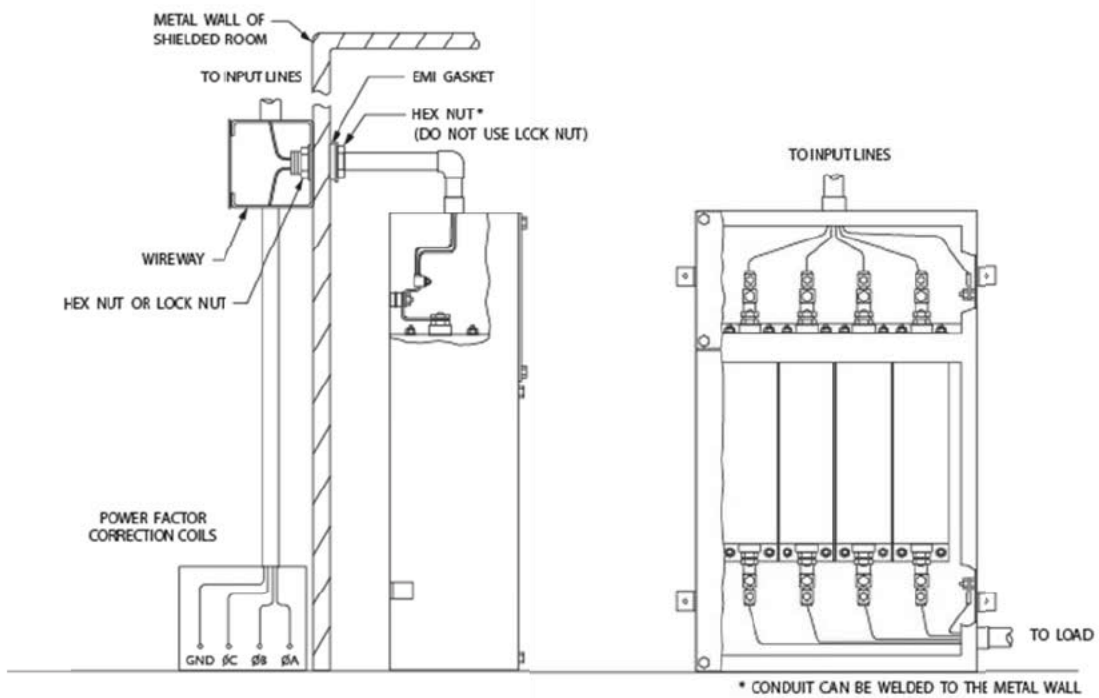
RECOMMENDED INSTALLATION ON THE OUTSIDE WALL OF SHIELDED ROOM



RECOMMENDED INSTALLATION ON THE INSIDE WALL OF SHIELDED ROOM



RECOMMENDED INSTALLATION ON GROUND OUTSIDE THE WALL OF SHIELDED ROOM



RECOMMENDED INSTALLATION ON GROUND INSIDE THE WALL OF SHIELDED ROOM

5. INPUT/OUTPUT SELECTION:

- A. If the filter location is inside the shielded area, then the power coming into the shielded area should be attached to the small shielded compartment. The distribution of the power from the filter will be from the large compartment.
- B. If the filter is mounted outside the shielded area, the incoming power should be attached to the large compartment. The distribution of the power from the filter will be from the small compartment which is called the clean side.

6. GROUNDING:

- A. The contact surfaces between the filter and the mounting surface must be free of paint, oil, corrosion, and other foreign materials that could act as an insulator and prevent a good RF ground.
- B. If the filter is mounted on a surface that is not a ground plane, the case of the filter must be grounded to a solid earth ground (such as a cold water pipe, power conduit, building ground, etc ...)
- C. An insulated grounding conductor that is identical in size and insulation material and thickness to the grounded and ungrounded circuit supply conductors, except that it is green with or without one or more yellow stripes, is to be installed as part of the circuit that supplies the filter. Reference should be made to Table 250-122 of the National Electrical Code regarding the appropriate size of the grounding conductor.
- D. The grounding conductor mentioned in item a is to be grounded to earth at the service equipment or other acceptable building earth ground such as the building frame in the case of a high-rise steel-frame structure.
- E. Any attachment-plug receptacles in the vicinity of the filter are to be of a grounding type, and the grounding conductors serving these receptacles are to be connected to earth ground at the service equipment or other acceptable

building earth ground such as the building frame in the case of a high-rise steel-frame structure.

**PROPER GROUNDING IS NECESSARY FOR FILTER
OPERATION AND SAFETY!
THE FILTER CASE WILL BE " HOT " IF NOT GROUNDED.**

7. TERMINAL HOUSING:

- A. After the power lines are wired to the filter, the cover on the clean side must be installed. Without this cover installed properly, coupling could reduce the shielding efficiency of the filter. Proper installation of the cover requires that the RF gasket is placed between the cover and enclosure. Before installing the gasket, the surfaces of the cover and the enclosure should be free of any contamination.
- B. The large cover is not needed as an RF barrier, but is rather a safety factor. This cover prevents anyone from inadvertently touching something that is " hot ". Both covers should be in place when the filter is in operation.

8. TERMINAL CONNECTIONS:

- A. While it is necessary to secure mechanically any electrical connections, excessive torque can result in damage to the terminals. The following table shows the maximum torque for various thread sizes.
- B. TERMINAL SIZE MAXIMUM TORQUE

8 - 32	14 LB-IN
10 - 32	18 LB-IN
1/4 - 20	30 LB-IN
3/8 - 16	70 LB-IN
7/16 - 16	125 LB-IN
1/2 - 20	200 LB-IN

- C. Under no circumstances should filters be lifted or transported by terminals or lead wires. Excessive pulling or pressure may result in damage to internal connections or terminal construction.
- D. Pressure terminal or pressure splicing connectors and soldering lugs used in the installation of the filter shall be identified as being suitable for the material of the conductors. Conductors of dissimilar metals shall not be intermixed in a terminal or splicing connector where physical contact occurs between dissimilar conductors unless the device is identified for the purpose and conditions of use.

10. POWER FACTOR CORRECTION COILS:

- A. The purpose of the power factor correction coils (Corcom's SPFCxxx) is to counteract the reactive current caused by the capacitors in the filter. They are used primarily in 400 Hz applications.
- B. The power factor correction coils should be installed on the line side of the filters.

11. EMI GASKET:

- A. EMI gasket used by Corcom is a double rolled wire mesh. Frequent removal and reinstallation of the cover could cause the gasket to lose its EMI effectiveness. It is our recommendation that the gasket be replaced after 5 or 6 cover removals, or whenever the gasket is damaged or becomes permanently smashed. Instructions for attaching the EMI gasketing vary with the type of gasket used. The main points to remember are:
 1. Remove the old gasket.
 2. Clean the surface where gasket is to be installed.
 3. If the gasket needs to be cut for the fit, cut it on an angle of 45 degrees and be sure that the jointing ends are mashed together well.