

Return Duct

Unico supplies a return duct system but any return duct system is acceptable provided the pressure loss does not exceed 0.15 inches of water (37 Pa), including filters. The return duct should have at least one 90° bend between the unit and filter box to reduce sound transmission directly from the unit.

The Unico Return Duct system has a single return that includes the return air box with filter, the return duct, and the return air adapter (refer to Fig. 3). Multiple returns or extra long returns are possible so long as the maximum pressure loss is not exceeded. For vertical installations or tight spaces it may be necessary to fabricate a return duct system from duct board or lined metal.

The typical return duct is 10-foot (3 m) in length so it may have to be cut to avoid bunching if the distance to the unit is significantly less than 100-inches. The minimum length should be 7-feet (2 m). When given a choice, the shorter distances should be avoided as this may increase sound transmission from the unit.

Cut an opening for the return box as specified in Table 1. For the 2430 and 3642 if the joists or studs are on 16-inch (410mm) centers, there is no need to build a frame to hold the return air box. Otherwise, it will be necessary to construct a frame around the opening. For the 4860 return, it will almost always be necessary to cut and header at least one joist.

Center the return air box so the filter frame flange covers all the gaps and make sure the flange is flush against the wall or ceiling. Install the return air box against the frame using nails or screws.

Screw holes are provided in the return air box. Use the holes nearest the corners. The other holes are for mounting the filter grille. See Fig. 14.

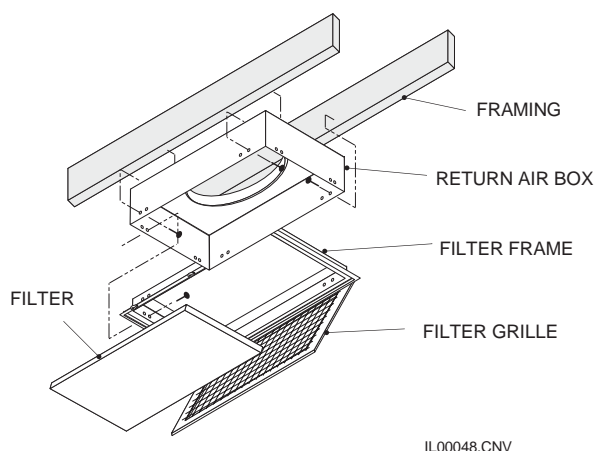


Figure 14. Return Air Box and Filter

Install filter frame into the return air box using four nails or screws. Use the holes furthest from the corners. Insert filter and hold in place by rotating metal clips. Close grille and secure with clips.

Refer to Table 5 for correct Return Duct Adapter selection. Attach the proper return duct adapter to either the

Heating or Cooling Module. Then attach the return duct to the adapter and to the return air box using the Q-bands and Q-clips.

The return air adapter ships with an insulation blanket that must be wrapped around the adapter. Tape the seams with UL 181A aluminum tape.

Table 5. Return Duct Adapter

Unit Size	Blower Module +	
	Cooling Module	Heating Module + Cooling Module
4860	UPC-59-4860	UPC-104-4860
3642	UPC-59-3642	UPC-104-3642
2430	UPC-59-2430	UPC-104-2430

Multiple Returns

If more than one return is desired, Unico has designed a return plenum (MR) module. The MR module is available in two sizes: 2430 and 3660, and it includes a central filter. The MR module is easily fitted to the air handling unit and multiple return openings may be cut in the top back or sides of the box. Refer to *Bulletin 20-20.6, Return Plenum Module*, for additional information.

PIPING

All piping must be in accordance with all local codes and ordinances.

Condensate Lines

The primary drain pan condensate connection is a 3/4-inch (19mm) female pipe thread fitting and the secondary drain pan connection is a 3/4-inch (19mm) PVC socket fitting. Elevate the unit so the condensate lines are pitched at least 1/4-inch per lineal foot (20 mm per meter). Trap the condensate line near the unit as shown in Figure 15. In some cases it may be necessary to wrap the condensate line near the unit with insulation to prevent water condensation on the outside of the pipe. In some climates or locations it may be necessary to protect trap from freezing in the winter.

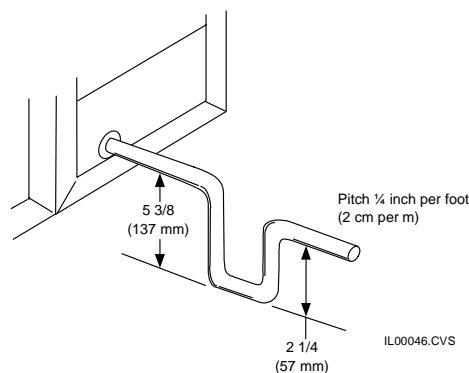


Figure 15. Typical Condensate Trap

Do not trap the secondary drain line and do not terminate line into the primary drain line. Run secondary drain line