

Unico Quiet Guide

It's no secret that sound increases with increased air velocity and turbulence. A large duct system would be extremely loud if it had high velocity air but not the SDHV Unico System. It is designed from the ground up to be quiet.

By following our standard design and installation instructions, it will give you one of the quietest systems on the market. However, sometimes you need better than that.

This guide gives you 7 easy strategies to get the lowest sound levels from your Unico System. For systems with a noise complaint, solutions are highlighted as a FIX.

1. Always use Sound Attenuators

The sound attenuators have a porous inner liner that absorbs the air noise.

The minimum supply run length is 6ft. Runs shorter than this are not recommended and could lead to excessive noise. Where possible, use the full 12 feet of sound attenuator for each supply run as this will greatly help to reduce noise. When the aluminum supply tube is used, each run must have a minimum of 3ft of sound attenuator at the end of the run. **FIX: Add or replace the last 3ft with sound attenuator.**

2. Not enough outlets

For most applications, six (2 inch) outlets per ton work well. However, it is not unusual to use 7 to 8 (or more) outlets per ton for a super quiet system, or sometimes 5 to 6 outlets per ton is preferred as more economical where sound is not as important. Use the chart below to select how many outlets to use. **FIX: Add more outlets to make the system quieter.**

Unico System Sound Level Recommendations

Sound Level	Approx. dB(A)	2-inch Outlet		2 ½ inch Outlet		Recommended Application
		CFM	Outlet/Ton	CFM	Outlet/Ton	
Ultra Low	25	14	14	17	12	Multimedia Rooms
Very Low	27	19	11	23	9	Rooms with Hard Surfaces (wood or concrete floors and walls)
Low	29	30	7	36	6	Rooms with Carpet, Drapes, Furniture
Normal	32	40	6	50	5	Large Rooms or Where Sound is not Critical (min. number of outlets)
Excessive	35	50+	4	60+	3	Industrial Environments

NOTE: The actual sound levels measured in a room will vary depending on the number of outlets in the room, how the duct was installed (length, bends, wrinkles, outlet design) and the furnishings in the room (carpet, draperies, etc.).

3. Airflow too high

Our EC motor makes it easy to adjust the airflow for performance and for sound. Using a laptop and our ECMconfig software, you can check the airflow and then set it to exactly what you need. The rated performance of the unit is 250 CFM per nominal ton. Simply adjust the setting to give you the airflow you need. Sound follows airflow so minimizing the airflow will also minimize the sound. If you need to reduce sound without adding outlets, you can try reducing the airflow but don't go below 200 CFM per ton (in some places, like California, you cannot go below 250).

FIX: Reduce the airflow to make the system quieter.

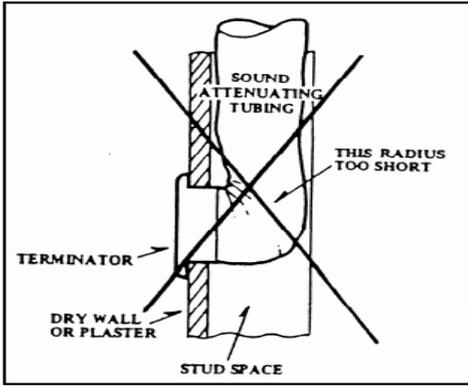
4. Runs too short

The system works best when all the duct runs are about the same length. If a few are significantly shorter than the others, the airflow and sound will be greater for those runs. **FIX: Increase the duct length or install a balancing orifice at the takeoff to reduce airflow and noise.**

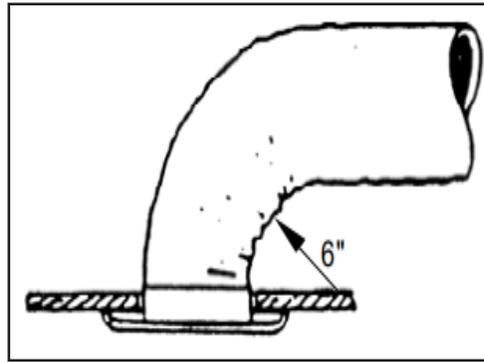
5. Tight bend before an outlet

To plan the length of duct runs, be sure to provide sufficient length that gives as generous a radius as possible in the sound attenuating tubing at the outlet. The minimum radius must be at least 6-inches as indicated, but the greater the radius near the outlet, the quieter the run will be.

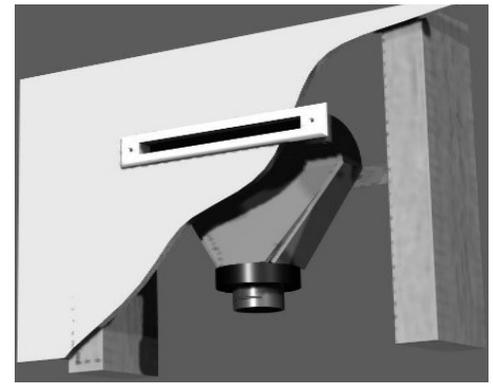
For stud walls, we recommend using our UPC-67A slotted outlet, which has a built-in radius. Using a round outlet in these types of walls can mean a very tight bend in the tubing which can create noise at the outlet. **FIX: Straighten the duct or replace the round outlet with the 90 degree slotted outlet**



Incorrect Placement of Tubing



Typical Supply Tubing Bend



UPC-67A in stud wall

6. Blocked or obstructed outlets

If there is something obstructing the air flow, either inside or outside the duct near the outlet, this can cause additional noise. In order to distribute the air, promote air circulation and achieve more even temperatures, outlet openings must remain unobstructed. Keep furniture and other obstructions at least 3 feet away from outlet openings. This will also help the overall comfort of the system as it will allow the air to better circulate, creating more even temperatures. Be sure to keep the duct and insulation trimmed to the same length to avoid bunching the duct near the outlet and creating turbulence. **FIX: Clear the obstruction or trim the end of the duct so the duct, insulation, and outer vapor barrier are the same length.**

7. Takeoffs incorrectly located on the Main Duct

Do not install supply takeoffs on an elbow or tee, within 12" of the end of the supply plenum run, or less than 24" away from blower. These are very turbulent areas in the duct system and could lead to excessive noise. **FIX: Relocate the takeoffs on the main duct (plenum) capping any unused takeoffs.**

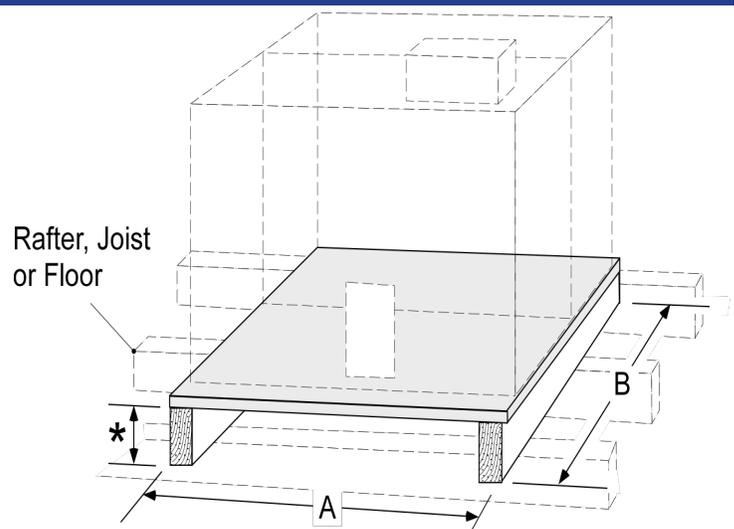
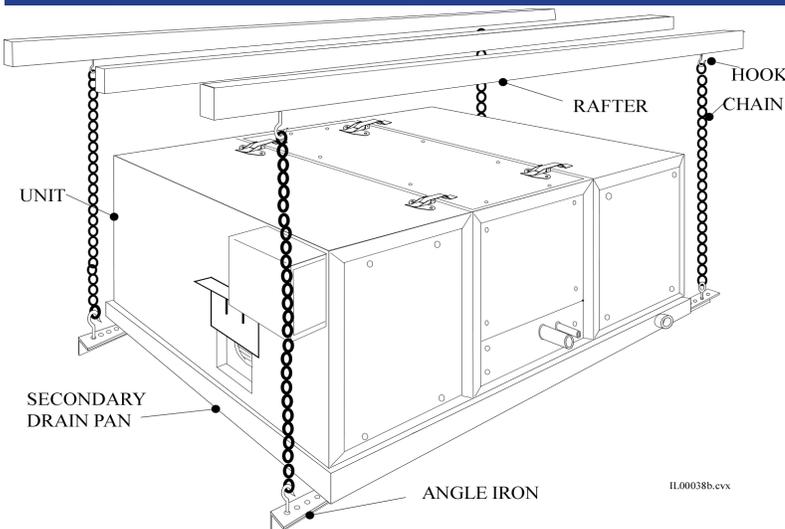
Unit/System Noise

1. Short unlined returns

If the return is very short (under 6 feet) or is not lined with some sort of acoustic dampening (like our return duct), this can cause the return to be noisy from the sound of the system. We recommend using our 10-foot return duct with a 90° bend to reduce any noise from the return. If a sheet metal return is used, line the interior with an acoustic liner.

2. Improperly mounted system

If the unit is not mounted securely, it may vibrate, transmitting noise to the rest of the house. We recommend using vibration isolating pads or springs. The unit can also be hung from the rafters as shown below.



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