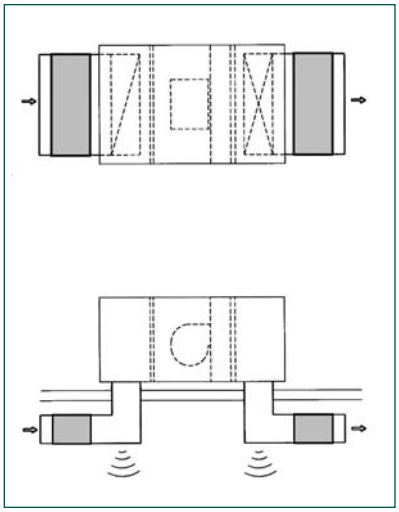
SILENCER APPLICATION SOLUTIONS

PROBLEM:
Roof Top Unit Noise

◆ Packaged roof top air handling units are a frequent source of low frequency noise problems. Often situated directly over occupied space, there is minimal duct length for the noise to be naturally attenuated by the duct system. Breakout through the duct just below the unit is usually the primary noise path.

◆ Sometimes round ducts are offered as a solution to breakout noise. Round ducts are much better than rectangular ducts at containing noise within the duct. This is primarily due to round duct's superior stiffness. However, to utilize round ducts and fittings while maintaining the same duct velocities, more vertical space or multiple smaller round ducts are often required. Unfortunately, extra height is usually unavailable and multiple smaller duct runs are too costly.

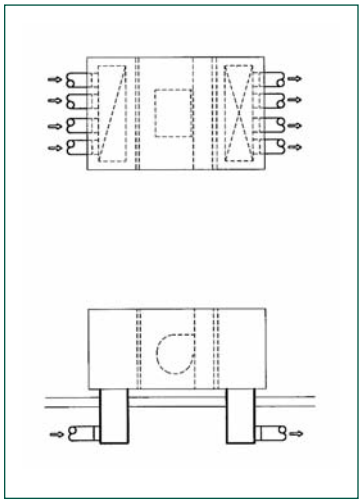


Roof Top Unit with standard silencer has breakout noise problem.

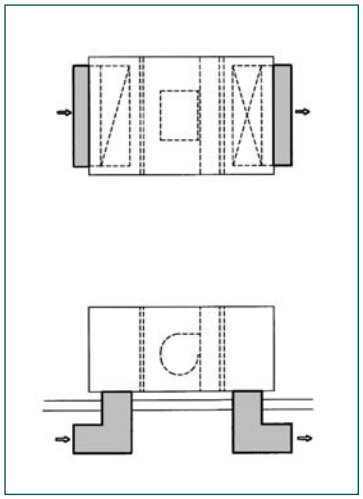
SOLUTION:
Elbow Silencers with HTL Casings

◆ Elbow silencers with High Transmission Loss (HTL) casings provide an excellent solution. The elbow silencer helps turn the air efficiently, reducing aerodynamic system effects and providing insertion loss for the noise traveling down the duct paths. The HTL casing reduces the noise breaking out of the duct before it is attenuated. This helps ensure that the noise criteria for the adjacent space are met (see diagram). (See SS5 and SS7)

◆ Sometimes heavy panels are required in the rooftop flooring to stop fan noise from breaking out of the unit. Also, for installation on light roofs, proper vibration isolation must be considered. Even if the fan is isolated within the unit, the entire unit usually should be properly isolated using vibration isolation rails.



Round duct solution to breakout problem is costly because of the manifolds required and the multiple duct runs.



Elbow Silencers with HTL casings reduce breakout noise and also provide downstream attenuation.