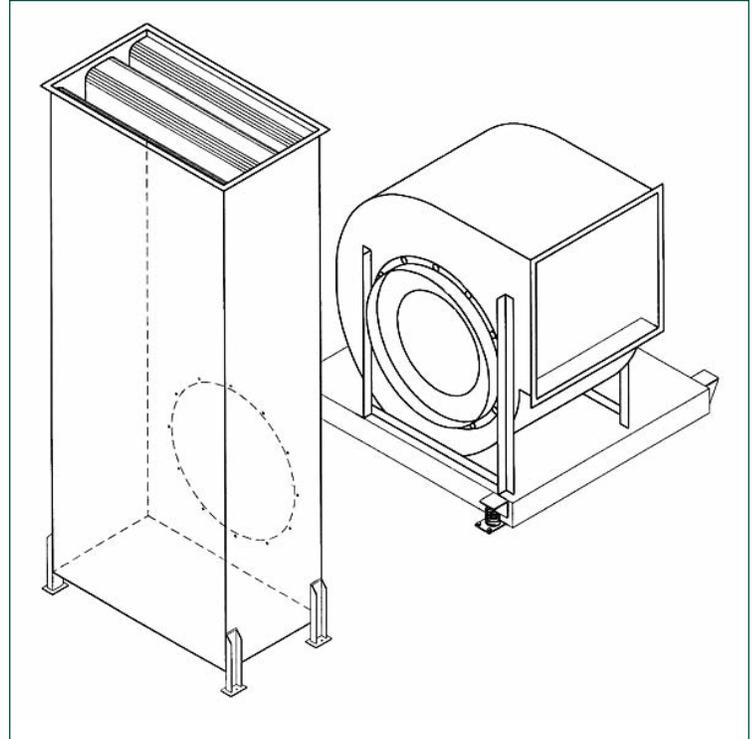


SILENCER APPLICATION SOLUTIONS

PROBLEM:

Insufficient duct length

- ◆ ASHRAE recommends:
 - silencers should be located as close to the fan (noise source) as possible
 - standard duct silencers should be located a minimum of one fan wheel diameter away from a fan
- ◆ Axial fans are often used on return systems where duct length is minimal or non-existent. This often leaves very little room to incorporate silencers. Axial fans can produce low to mid frequency (around 250Hz) pure tones which, if not properly attenuated, can be prominent and very annoying.
- ◆ When silencing is required at intake or exhaust louvers there is often no effective length available. A common solution is an acoustic louver. However, it is exceedingly difficult and/or costly to aesthetically match an acoustic louver with the buildings other architectural louvers.

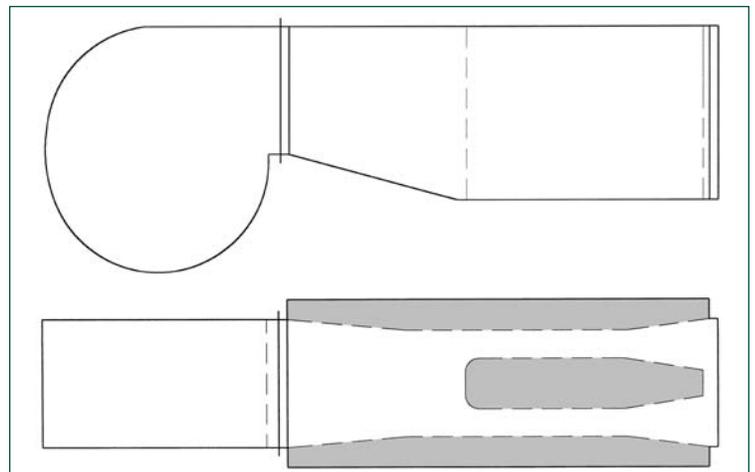


Inlet Box Silencer helps improve flow conditions into centrifugal fan.

SOLUTION:

Fan Silencers and Short Silencers at Louvers

- ◆ Vibro-Acoustics overcomes the ASHRAE dichotomy stated above by providing fan silencers that are aerodynamically and structurally designed to fit directly onto a centrifugal or axial fan. Construction ranges from sheet metal for low pressure and heavier gauges for high pressure fans. Some silencer designs actually improve the airflow into or out of the fan thus increasing the performance of the fan!
- ◆ Inlet box silencers can be configured to reduce swirl effects into the centrifugal fan's inlet. They can also collect more than one return duct. Discharge silencers accommodate the high outlet velocities and unique flow profile of a centrifugal fan to minimize pressure drop. Both need to be structurally designed to withstand the higher turbulent forces close to the fan. (See SS10)



Fan Discharge Silencer is configured to allow fan's velocity profile to evenly distribute.

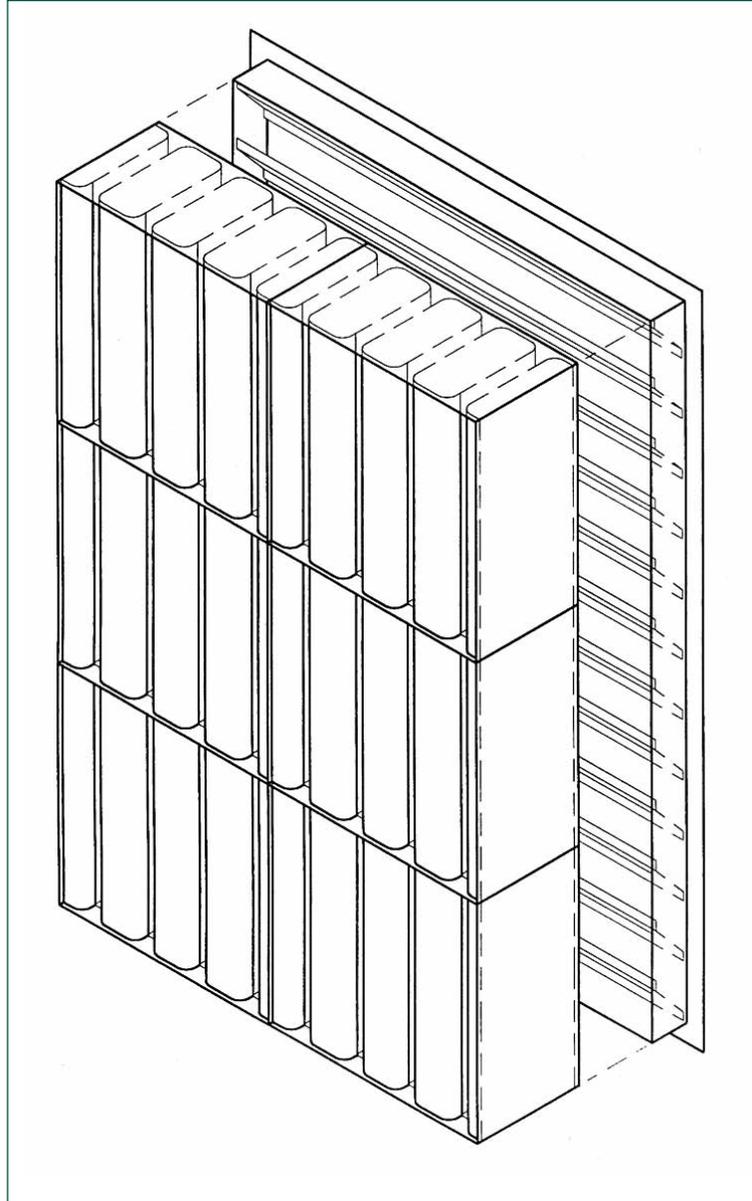
SILENCER APPLICATION SOLUTIONS

◆ An Axial Cone silencer installed on the inlet of an axial fan helps evenly accelerate and direct the air into the tips of the fan blades. A properly sized silencer centerbody helps reduce the pressure losses over the fan hub. A discharge cone silencer effectively decelerates the air to maximize the regain of static pressure. A properly sized centerbody helps reduce the pressure losses over the fan's motor. (See SS11)

◆ Flexible duct connections are often installed between the silencers and the ductwork. The direct connected fans and silencers are then vibration isolated as an integrated system, providing greater mass for stability.

◆ Vibro-Acoustics provides Short silencers that are manufactured in lengths from 6" to 36". These silencers can be located directly behind architectural louvers, eliminating the need for an acoustic louver. By so doing, the acoustic performance of the silencer/architectural louver is improved over that of an acoustical louver and the architectural requirements of the building are better met. (See SS13)

◆ Acoustical louvers can be supplied when aesthetics are not of primary concern (e.g. Water Treatment and Power Plants). (See SS14)



Short Silencers (foreground of diagram) located behind an architectural louver eliminate the need for an acoustical louver.