

Forward curved fans in on-floor AH units for multi-story building require special air discharge systems and low frequency silencing.

**PROBLEMS: Low frequency noise  
Insufficient straight duct**

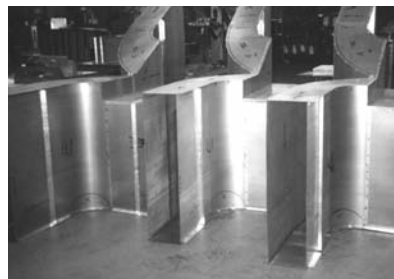
Multiple units supplied were 18,000, 27,000 and 30,000 CFM. Forward curved fans at the higher air-flow capacities generate considerable low frequency noise, particularly below 125 Hz. They are also more sensitive to discharge conditions than backward inclined fans in terms of both efficiency and noise generation. A further complication was the very limited space on the discharge side plus the turning and splitting of airflow into opposite directions.

**SOLUTION: Special low frequency silencers and complete discharge silencing packages**

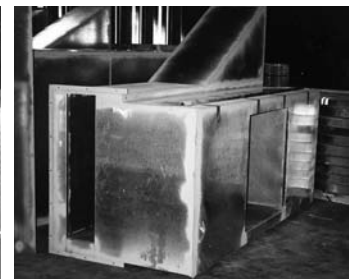
Typical special low frequency silencers have connection sizes of 21" x 78" and 16" x 78" whereas the outside body dimensions are 36" x 78". The larger bodies are designed for noise reduction effectiveness at low frequencies without increasing pressure drops to unacceptable amounts. The discharge package consists of an acoustic plenum with a special fan diffuser discharge and a 'T' silencing system which connects to the supply ductwork (see photo of internal air passages). Vibro-Acoustics also supplied the intake silencers which completed the total silencing package.



*Vibro-Acoustics supplies silencing packages for on-floor air handling units.*



*Internal perforated metal air passages for 'T' discharge silencers are shown before installation into silencer casings and glass fiber packing. The completed silencer is shown in the photo to the right and in the same relative position.*



*AH unit discharge silencer is shown on its side. One duct connection is shown on the left and the AH unit connection on the right.*