**Project Solutions**

**MetroCenter**

Application: AHU Silencers (Centrifugal Fans)

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**Challenge**

> Low Frequency Noise
> Insufficient Straight Duct

Multiple units supplied were 18,000, 27,000 and 30,000 CFM. Forward curved fans at the higher airflow 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.

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**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.

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Left: Internal perforated metal air passages for T discharge silencers are shown before installation into silencer casings and glass fiber packing. Right: AHU discharge silencer on its side. One duct connection is on the left and AHU connection is on the right.