

### PROJECT SOLUTIONS

**Project:** Pathology Building, Northwestern University  
**Application:** Fan Silencers (Axial)

University pathology lab retrofit required a special vertical silencing system to fit an axial fan air handling unit into very limited space.

**PROBLEM: Very small equipment room**

Excessive noise and energy consumption would result from squeezing a standard air handling unit and silencers into the existing space.

**SOLUTION: Special silencing system**

Silencing was built into a modified bellmouth to distribute air evenly across the axial fan intake. In addition to saving space, this design avoided the 5-10 dB of extra noise generated by imbalanced flow to the fan blades. (This is one reason bellmouths are usually applied to free intake axial fans. Energy savings is another reason.)

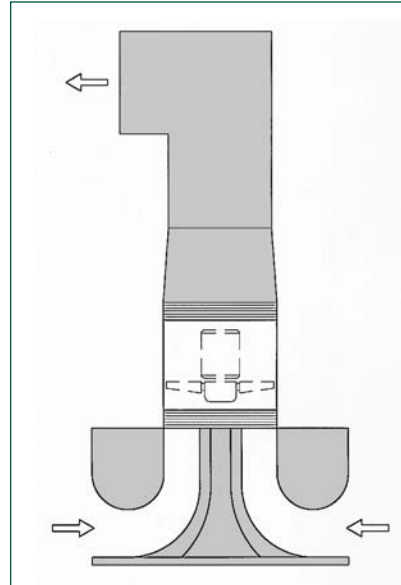
On the discharge side of the axial fan, transitioning the silencing gradually from the annular cross section at the fan, through an elbow to an existing rectangular duct, created an aerodynamic minimum energy path.

**PROBLEM: Undivided responsibility**

Undivided responsibility for the design and supply of the complete air handling unit and silencing was required.

**SOLUTION: Packaged supply**

Vibro-Acoustics designed the system and supplied the fan, silencers, coils and filters as a package for installation at the site by the contractor. Site access limited the component sizes.



*Schematic of Vibro-Acoustics space and energy saving air handling system.*



*Photograph of axial inlet silencing components. Lower is the bellmouth inlet. Upper is the center body which is inserted in the bell mouth component (after the bellmouth is turned 180 degrees from the position shown).*