

## PROJECT SOLUTIONS

**Project:** IBM Headquarters Office Building  
**Application:** Duct Silencers (Centrifugal Fan Systems)

Special silencers replace specified acoustical lining for better results with a cost saving.

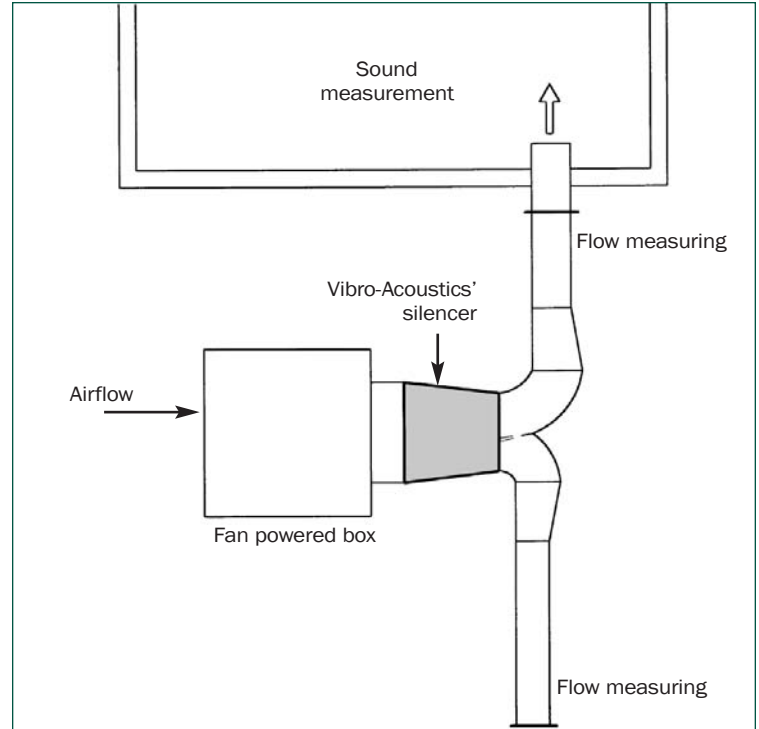
**PROBLEMS:** Acoustical duct lining  
 Insufficient straight duct  
 Unacceptable installed performance

The original specification called for internal acoustic duct lining downstream of the 1,200 fan powered boxes. There was insufficient straight length of duct between the boxes and the first fittings downstream, which were very complicated. The cost of lining such complex duct fittings so that glass fiber dusting and erosion is well controlled was estimated to be substantial.

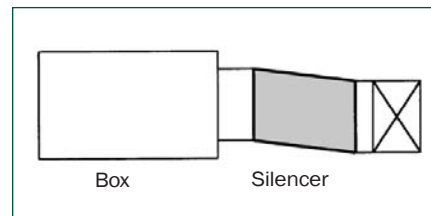
Proof of performance was required for the replacement of the duct liner with rectangular dissipative silencers. The pressure drop could not exceed 0.1 inches, excessive generated noise could not be introduced and the objective was NC-35.

**SOLUTIONS:** Transitional rectangular silencers  
 Proof-of-performance testing

There was a “total cost” saving by the substitution of silencers for duct lining. “Total cost” includes the extra cost of enlarging the ductwork and special duct construction to receive the acoustic lining. Quality control problems for duct lining installation were eliminated. A witness test by the consulting engineer and the sheet metal contractor was successfully completed in the Vibro-Acoustics’ facility.



Plan view of test setup.



Side elevation.