



A Well Known Law School. Pennsylvania

## IMI Acoustics Corporation

### Auditorium HVAC Fan Noise: A very quiet environment

#### Issues:

- A new lecture hall and auditorium was being built at a very prestigious law school in Eastern Pennsylvania. It incorporated a cutting edge HVAC design that provides air distribution from under the floor rather than conventional overhead supply paths. This unique high efficiency system required large diameter Fiberglass Reinforced Plastic (FRP) ductwork to be buried under the concrete slab of the facility.
- The silencer requirements included: High attenuation; small size and construction using the same materials as the direct burial ducts. Air volumes ranged from 9,500 to 14,000 CFM with duct sizes from 36" to 48" diameters.
- The silencers also had to withstand the significant, external pressures of direct burial under the slab.
- Corrosion resistance was critical and a zero maintenance requirement existed, due to no access after installation.
- High attenuation was required to handle the high air volumes to this acoustically engineered lecture hall.
- A specification requirement called for the installed system to remain pressurized for 4 hours with 0% leakage.

#### Solution:

- After a very successful installation of Oxel® Spiral Silencers at another campus of this same Law School, the New York City Mechanical Consulting Engineer providing the design, approached our local representative for this unique silencer requirement. The rep and the factory engineering department, were very familiar with FRP construction due to IMI's

experience in providing silencer solutions in the Waste Water Treatment Plant industry. Most WWTP facilities typically use FRP silencers in the treatment of noise problems from scrubber systems.

- A casing that matched the FRP ducting in material, wall thickness, diameter and specifications was incorporated into the silencer design thereby eliminating any worries of potential corrosion or strength issues.
- The casings of the silencers were provided with mating flanges that the FRP Duct installer was familiar with, and thus reducing installation costs and special processes.

#### Results:

- The silencers were installed using the same system as the ductwork (bonded on site).
- Higher attenuation was achieved than the specifications required and with lower increases in the original system static pressures.

#### Some of the Advantages of using An Innovative Solution from IMI Acoustics Corporation:

- The high attenuation, combined with lower pressure drops the Oxel® Spiral Silencers provide, fit many requirements that a standard, heavier baffle silencer cannot.
- The physically smaller size and weight of the Oxel® Silencer, typically eliminates increased project costs for additional structural modifications and support, normally required for standard baffle silencers.
- Flexibility in materials of manufacture enables the Oxel® silencer to be applied in almost any environment.