



Semiconductor Cleanroom Acoustic Optimization at Intel Using All Noise Cleanroom Wall Panels

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OVERVIEW

Intel operates large semiconductor fabrication facilities where advanced microchips are produced inside highly controlled cleanroom environments. These fabrication facilities rely on robotic wafer handling systems, high-capacity filtration equipment, and precision manufacturing tools that operate continuously.

While these systems are critical to semiconductor production, they can generate continuous operational noise. To improve acoustic conditions within fabrication environments, Intel partnered with All Noise Control to implement VibraCore® Acoustic Cleanroom Wall Panel Systems engineered to reduce reverberation within semiconductor cleanrooms.

CHALLENGES

Semiconductor fabrication facilities contain extensive ventilation systems and automated equipment that generate sound energy throughout the workspace. Cleanroom environments typically feature hard interior surfaces designed for contamination control, which can reflect sound and increase reverberation levels.

These conditions can make communication between technicians and engineers more difficult and reduce overall workplace comfort. The facility required a cleanroom-compatible acoustic solution capable of reducing sound reflections while maintaining strict semiconductor cleanroom standards.

SOLUTION:

All Noise Control installed VibraCore® Acoustic Cleanroom Wall Panel Systems to improve acoustic performance throughout the semiconductor fabrication environment. The installation utilized 2' x 4' x 2" thick fiberglass acoustic panels engineered with a 6–7 PCF rigid fiberglass core for effective sound absorption.

With an NRC rating of 0.85, the VibraCore® Acoustic Cleanroom Wall Panels absorb sound reflections generated by mechanical equipment and airflow systems. The PVF cleanroom surface provides a sanitary, durable finish suitable for semiconductor manufacturing environments.

RESULTS:

- Reduced reverberation in semiconductor fabrication cleanrooms
- Improved communication between engineers and technicians
- Maintained strict semiconductor cleanroom standards
- Enhanced acoustic performance in wafer fabrication facilities
- Installed durable cleanroom acoustic wall panel systems