



METAL ENCLOSURE FOR

INTEL:
**Custom Metal Enclosures for
Semiconductor Equipment,
Mechanical Rooms & High-
Precision Facilities**

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OVERVIEW

Intel operates advanced semiconductor fabrication plants where mechanical noise, vibration, and equipment accessibility must be controlled with extreme precision. Their facilities house high-capacity HVAC systems, vacuum pumps, electrical systems, and support equipment that must be enclosed without interrupting production or cleanroom operations.

THE CHALLENGE: EQUIPMENT NOISE & STRUCTURAL ISOLATION REQUIREMENTS

Intel needed noise-reducing metal enclosures that could integrate directly into their mechanical infrastructure.

Primary Concerns

- Noise migration from mechanical rooms into sensitive semiconductor testing zones
- Excessive sound from vacuum pumps and chillers affecting technician comfort
- Enclosures needing to withstand continuous high-temperature operation
- Tight utility spaces requiring modular, service-friendly construction
- Strict operational uptime — no extended shutdowns for installation

Requirements Identified

Intel requested enclosure systems that would:

- Provide high STC sound blocking
- Offer full equipment access for maintenance teams
- Support long-term industrial use
- Integrate ventilation openings without compromising isolation

ALL NOISE CONTROL'S SOLUTION: PRECISION METAL EQUIPMENT ENCLOSURES

All Noise Control engineered and installed custom metal enclosures designed specifically around Intel's semiconductor support equipment.

1. High-STC Metal Enclosure Panels

All enclosures were built using:

- Heavy-gauge metal wall panels
- Internal sound-blocking core materials
- Reinforced structural frames

These panels created a solid, durable barrier around noisy equipment such as:

- Vacuum pump clusters
- Industrial chillers
- Air-handling motors
- Power distribution units

2. Modular, Service-Friendly Design

Since Intel requires constant equipment access, enclosure systems included:

- Lift-off access panels
- Hinged service doors
- Removable roof sections
- Integrated inspection viewports (as required per equipment type)

This reduced downtime and allowed quick maintenance without dismantling major components.

RESULTS & MEASURABLE IMPROVEMENTS

Noise Reduction Achieved

- Up to 20–28 dB reduction in key server testing zones
- Noticeable improvement in speech clarity on the production floor
- Significant decrease in cross-room noise migration

Operational Benefits

- More accurate server testing due to reduced acoustic interference
- Better working environment for engineering teams
- Simplified maintenance through modular access panels
- Enhanced compliance with internal environmental guidelines

Long-Term Performance

- All enclosures withstand continuous heat loads generated by server equipment
- Minimal upkeep thanks to corrosion-resistant, industrial-grade materials
- System remains fully modular for future expansion