



Center for Integrated Nanotechnologies: Sandia / Los Alamos National Labs Los Alamos, NM

Nanoscale vibration design
Low-noise design

Owner

Sandia National Lab
Los Alamos National Lab

Architect / Engineer

HDR Architects
Gardner Zemke

Contractor

Henel Phelps

Total Building Area

35,000 square feet

VACC Project Scope

Vibration Design
Traffic Vibration Testing
Traffic Vibration Mitigation
Noise Design

Project Completion

2006

The Center for Integrated Nanotechnologies (CINT) is an interdisciplinary nanoscale research facility jointly operated by Sandia National Laboratories and Los Alamos National Laboratories. A core facility and two gateway facilities are planned, with one gateway located at the Los Alamos site.

One unique aspect of the facility is the interdisciplinary research efforts housed there. In addition to materials labs utilizing state-of-the-art imaging and analytical tools, laboratory space is also dedicated to biotech uses.

The first level is a slab-on-grade floor housing sensitive laboratories for spectroscopy, novel optical probes, self-assembling systems, nanofluidics, novel and traditional scanning probe microscopes, and others. The second level is a traditional pan-joint floor housing sensitive laboratories for biochemistry, molecular biology, cell culture, instrument analysis, and others. Areas of the first floor were to meet the most stringent **vibration design criterion**; parts of the second floor were designed to meet less stringent vibration criterion.

In all areas, laboratory noise levels were a concern. Our **acoustical design goals** included controlling noise from HVAC and exhaust systems; treatment of exhaust hoods controlled the design in some cases.

Our design input included **vibration and noise consulting** at the Schematic Design phase, continuing through Design Development and Construction Administration.

After completion of the structure, we performed testing to quantify the impact of traffic-induced vibration impact to the facility. Because LANL plans to rework a nearby road intersection, we are currently exploring low-impact alternative alignments for the local roadways.

