



US Army Medical Research Institute Aberdeen Proving Ground, MD

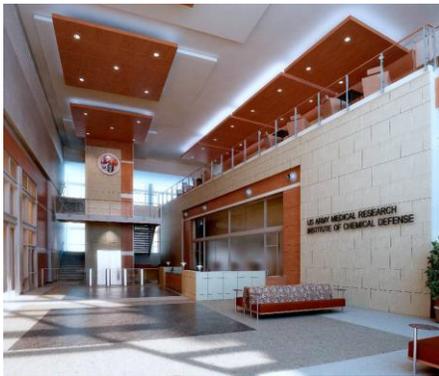
Acoustical design & noise control
Low-vibration design & site review

Owner

US Army MRICD / USACE

Architect, Engineer

Flad & Associates (Madison)
AEI (Metro DC)
Gaudreau (Baltimore)



Acoustical/Noise Design Scope

Architectural Acoustics
Auditorium Acoustics
Simulation Room Noise
HVAC Noise Control
Wet Lab Noise Control
Vivarium Noise Control
Environmental Noise
SCIF Sound Isolation

Vibration Design Scope

General Lab Micro-Vibration
Imaging Suites Micro-Vibration
MEP Vibration Isolation

Test & Measurement Scope

Site Vibration Validation
Helipad Noise Testing
MEP Installation Observation
Final Vibration/Noise Testing

Size / Budget / Completion

526,185 gsf (total)
80,345 nsf (labs + support)
23,365 nsf (vivarium+support)
\$430MM budget
Commissioning in 2013

The United States Army Medical Research Institute for Chemical Defense (MRICD) is the lead laboratory within the Department of Defense for medical chemical defense research and training. As MRICD grew, it eventually needed a new, consolidated replacement facility.

The new 526,000-sqft facility includes multi-disciplinary laboratories; animal holding and procedure spaces; a training center with auditoria and classrooms; and general office and support spaces. Imaging labs include state-of-the-art imaging facilities (TEM, SEM, NMR).

From a noise and vibration perspective, the imaging labs and vivarium presented the most interesting challenges.

Vivarium design was complicated by the presence of multiple species. We addressed noise impact to animals from mechanical equipment as well as from other animals. Since animal stress can confound research results, the goal was to maximize research productivity. Additionally, acoustical isolation of animal spaces from human-occupied spaces was desired.

Vibration design for the imaging suites required attention to the foundation in addition to mechanical systems. The NMR suite was located near a retaining wall. Our review of the geotechnical report revealed the possibility of differential settlement across the cut. We drove the decision to implement a construction break along the retaining wall to minimize risk that the slab supporting the NMRs might be lifted from the underlying soil.

In addition to vivarium and imaging suite design, we also provided analyses of more-prosaic acoustical issues. These included such concepts as researcher productivity; outdoor noise control; and auditorium acoustics.

