



# ABD Engineering & Design

Architectural Acoustics ▪ AV Design ▪ Noise & Vibration

## Healthcare

### *Statement of Qualifications*

Acoustical Consulting & Audiovisual Design



## ABD Engineering & Design

ABD Engineering & Design is an independent acoustical engineering and audiovisual design firm, proud to be a nationally and state (OR, WA) certified Women Owned business. We work with you to provide practical solutions with options that allow for informed decisions. Our timely communications and responsiveness give you the right information at the right time. The cornerstones of ABD's work include data collection on site, research, and calculations to deliver evidence-based designs. With decades of experience across multiple markets, and a team of consultants from varied backgrounds, you can count on ABD to bring you the best in audiovisual design and acoustical consulting.

At ABD, we strive to create a future where every day spaces meet the acoustical and audiovisual needs of every person. We are committed to providing an open, inclusive workplace where everyone, no matter what their background or where they come from, can learn and grow to their full potential.

## Certifications

**WBENC:** WBE1701950

**OR-COBID-WBE:** 11342

**WA-OMWBE:** W2F0027557

**WI-WBE:** WI-13264



## Professional Memberships

Acoustical Society of America

Institute of Noise Control Engineering

American Society of Testing and Materials

National Council of Acoustical Consultants

AVIXA (CTS-D)

## Staff Count

Acoustics = 7

Audiovisual = 2

Leadership/Admin = 2

## Contacts

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**EIN:** 38-3631490

**DUNS:** 104088682

**NAICS Code:** 541330

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**ABD Engineering & Design**

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# Sound Advice for Healthcare

Acoustical and Audiovisual Solutions for FGI, LEED, and HIPAA Speech Privacy Compliance

## Acoustical Engineering and Audiovisual Design



The FGI Guidelines for the Design and Construction of Healthcare and Residential Healthcare Facilities, LEED for Health Care, and HIPAA speech privacy requirements, all require acoustical considerations. Sound isolation and noise control in healthcare facilities are top priorities. Press Ganey satisfaction surveys link quiet environments to improved patient healing and medical staff satisfaction. ABD Engineering & Design is an independent engineering firm. Our services for healthcare facilities include acoustical engineering for acoustical absorption, noise blocking, sound masking and audiovisual design solutions for hospitals, out-patient clinics, long-term care facilities, urgent care centers, medical offices, pharmacies, and other medical facilities. We understand the challenges that HIPAA regulations and noise and vibration pose. We provide expert acoustical solutions for new construction, remodeling, and retrofit healthcare projects.

## LEED for Health Care & FGI Guidelines

There are two acoustical points available under LEED for Health Care. We work with architects and engineers to design solutions that earn both LEED points. The first point deals with Sound Isolation and Room Noise, and the second addresses Acoustical Finishes and Site Exterior Noise. Our founder and other staff served on the committee that wrote the source documents for the acoustical points in LEED HC for Sound and Vibration and The FGI Guidelines, so we are experts at understanding and complying with the requirements for Health Care Facilities, and Residential Health Care Facilities.

## Audiovisual & MedSim Design

We're experts at designing the demanding, audiovisual systems needed for training, and medical simulation (Med-Sim) environments, as well as the infrastructure needs of monitoring, and medial observation.

## BIM Design

Building Information Modeling (BIM) is an intelligent 3D modeling and database-based process that gives architecture, engineering, and construction (AEC) professionals the insight and tools to more efficiently plan, design, construct, and manage buildings and infrastructure. ABD's design professionals use BIM as a collaborative design process, not just a documentation tool, making use of Cloud-based resources for smoother real-time collaboration with our partners. Our team performs QA/QC within the model for accuracy beyond what appears on a drawing or sheet. We're using Revit families for better visualization. This helps our clients gain insight into system performance, loudspeaker coverage, projection system geometry, and sight lines. ABD's BIM process also provides more accurate coordination with other disciplines including MEPS, lighting, furniture, and specialty equipment.



## Interior Room Isolation & Sound Masking

Consulting in the design phase, we can attenuate interior noise to create more comfortable patient and staff environments while ensuring appropriate PI (Privacy Index) ratings for speech privacy. Achieving confidential and non-intrusive PI ratings for facilities integrating open and closed space areas—such as patient check-in, waiting rooms, triage, nursing stations, discharge, billing offices, exam, consultation, and patient rooms—requires sophisticated solutions. We assess and predict air-borne and structurally borne sound and provide impact insulation measures to absorb or

block unwanted sound or cover it with electronic background sound-masking technology.

## Noise & Vibration Control

We consult on building systems noise isolation and provide recommendations on placement of mechanical and electrical equipment to minimize background noise and vibration. Likewise, for MRI suites and Hybrid OR, we identify potential structural noise and vibration issues and advise on facilities design, placement, and construction to optimize environments for sensitive technology.



## Exterior Noise & Vibration

We conduct site evaluations to diagnose, assess impact, and provide control solutions for facilities affected by noise and vibration from medical air transportation and landing pads, street traffic, industry, community, and other sources.

## Objective Recommendations

As an independent acoustical and AV consulting firm, we have no affiliations with or affinity for any particular brands, products, technologies, or suppliers. We bring objectivity and unbiased recommendations that are best suited to your facility – procured through a competitive bid process to ensure superior designs at or below budget.

## Experience

The ABD Engineering and Design team has extensive acoustical design and engineering experience. In addition, staff members have held teaching and research positions at various colleges and universities and regularly conduct educational seminars, conferences, workshops, and institutional training sessions on acoustics, and environmental noise and vibration control.



**ABD Engineering & Design**  
Architectural Acoustics • AV Design • Noise & Vibration

# Healthcare

## Selected Experience



**API Healthcare Headquarters**  
Washington, DC

**Aurora Baycare**  
Orthopedic & Sports Medicine  
Greenbay, WI

**Baldwin Area Medical Center**  
Baldwin, WI

**Beacon Hill at Eastgate Senior Living**  
Grand Rapids, MI

**Yukon-Kuskowwim Health**  
Dr. Paul John Callicarag Center  
Bethel, AK

**Borgess Health**  
Kalamazoo, MI

**Bronson Methodist Hospital, Bronson Lab**  
Kalamazoo, MI

**Cancer Treatment Center of America**  
Chicago, IL

**Clarian North Medical Center**  
Methodist Hospital, Indianapolis, IN  
Saxony Medical Center, Fishers, IN

**Cleveland Clinic**  
Avon Inpatient Tower Expansion, Cole  
Eye Institute, Noise and Vibration Study,  
Isolation Table Measurements, Cleveland,  
OH  
Weston Hospital, Weston, FL

**Columbus Hospital**  
Columbus, OH

**Franklin Woods Community Hospital**  
MRI Suite, West Bloomfield, MI

**Genesys Regional Medical Center**  
Grand Blanc, MI

**Good Samaritan Regional Health Center**  
Audio Systems Design, Vincennes, IN

**Henry Ford Hospital**  
Main Street, Cooling Tower, Community  
Noise Study, West Bloomfield, MI  
Henry Ford Hospital, Detroit, MI

**Indiana FSSA**  
Neurodiagnostic Institute  
and Advanced Treatment Center  
Indianapolis, IN

**Kaiser Permanente**  
Hybrid Operating Room, Clackamas, OR  
MRI Vibration Study, Vancouver, WA  
CVL Replacements MRI Suite (5), Sunnyside, OR

**Kalkaska Memorial Health Center**  
Kalkaska, MI

**Lakeland Healthcare**  
St. Joseph, MI

**Lane County Community Health Center**  
Eugene, OR

**Legacy Good Samaritan Hospital**  
Portland, OR

**Marion General Hospital**  
Marion, IN

**Mayo Clinic**  
Pharmacy Speech Privacy, Rochester, MN  
Southeast Minnesota, Albert Lea, MN



**McLaren Greater Lansing Hospital**  
Lansing, MI

**Memorial Medical Center**  
Learning and Innovation (MCLI)  
Springfield, IL

**Mercy Health**  
Pathology Labs Noise Dosimetry Testing  
Heritage Pointe South, Grand Rapids, MI  
Mercy Health, Rockford, MI  
Mercy Rehabilitation, Grand Rapids, MI  
Mary Free Bed, Rehabilitation Hospital

**Munson Medical Center**  
Traverse City, MI

**Neurodiagnostic Institute**  
Indianapolis, IN

**Northwestern Memorial Hospital**  
NICU, Chicago, IL

**Oakland Orthopedics**  
MRI Site, Oakland, CA

**Oregon Health & Science University**  
Center for Health and Healing 2, Portland, OR

**Portland Community College**  
Public Service Education Building, Medical  
Simulation, Portland, OR

**Providence St. Vincent Medical Center**  
Main Tower, Portland, OR

**Randall Children's Family Birth Center**  
Portland, OR

**Riley Hospital for Children**  
Indianapolis, IN

**Samaritan Hospital**  
Cath Lab, West Islip, NY

**Sherwood Residential Healthcare**  
Sherwood, OR

**Spectrum Health**  
Helen DeVos Children's (LEED Gold)  
Integrated Care Campus at East Beltline  
Ambulatory Building Medical Mile  
Nursing Noise Study, Grand Rapids, MI  
United Hospital MRI, Greenville, MI  
Gerber Hospital, Fremont, MI  
MOB, Sparta, MI  
North Muskegon, Muskegon, MI

**Spectrum Retirement Communities**  
Hilliard, OH

**St. Charles Medical**  
Bend, OR

**St. John Hospital and Medical Center**  
Detroit, MI

**St. Luke's Health System**  
MRI Suite, McCall, ID

**St. Vincent Heart Center**  
Helipad, Indianapolis, IN

**United Methodist Retirement Communities**  
Wellness Center and Pool  
Chelsea, MI

**University of Michigan**  
NCRC Complex - MRI, Ann Arbor, MI

**Vancouver Clinic**  
Expansion: Salmon Creek, Ridgefield  
Camas, Vancouver, WA

**Village Smiles - Dental Office**  
Westphalia, MI

**Wedgwood Residential Care**  
Living Room - Activities Gym  
Grand Rapids, MI

**Wellbridge of Clarkston**  
Skilled Nursing - Residential Healthcare  
Clarkston, MI

**West End Surgical**  
Generator Noise Control  
Beaverton, OR

**Zoom+ Bridgeport Village Clinic**  
Portland, OR

This listing represents portions of the collective  
career experience of the ABD Engineering and  
Design Staff.



**ABD Engineering & Design**  
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# Healthcare

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Project Name **Corewell Care Center**

Location Grand Rapids, Michigan

Completed Spring, 2025

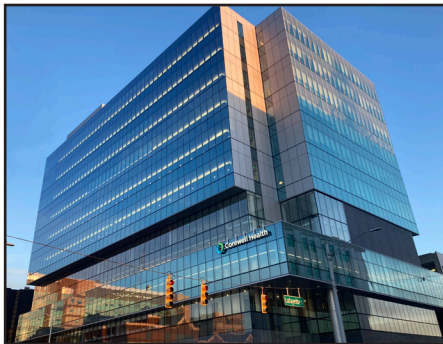
Project Size 240,000 SF

Project Budget \$160 Million

Description ABD Engineering & Design worked with Perkins + Will on the twelve-story Corewell Health outpatient ambulatory Care Center on Michigan NE in Grand Rapids, MI.

ABD's acoustical consulting services included an exterior noise study and recommendations for the facade to achieve appropriate interior noise levels. Noise from the generator was also addressed, not only for the new building but also for the nearby existing structures all along the medical mile in downtown Grand Rapids.

For the interior spaces, ABD provided detailed analysis and recommendations to meet the FGI Guidelines for the design and construction of healthcare projects for Room Acoustics, Noise Isolation, and Mechanical Noise Control. A variety of spaces were addressed including the exam, procedure, and consultation rooms as well as the more specialty spaces such as the medical simulation (MEDSIM) rooms, telehealth, and fitness area for occupational health and physical therapy.



# Healthcare Mission Control

Project Name **OHSU Mission Control Center**

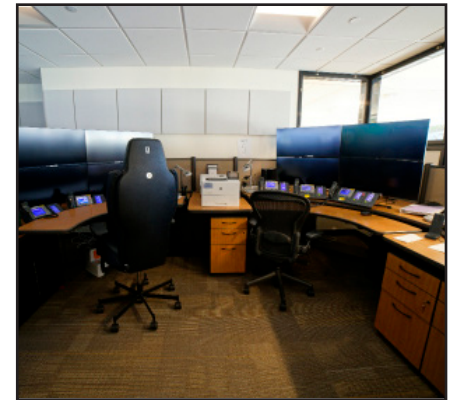
Location Portland, Oregon

Completed September, 2024

Project Budget \$800,000

Description ABD Engineering & Design worked with Clark Kjos Architects on the new OHSU Mission Control Center. The centralized communications center houses technology, and teams, including the Oregon Medical Coordination Center (OMCC), and the Oregon Behavioral Health Coordination Center (OBCC) using real-time data to find care for hospital patients among health systems across the state.

ABD's acoustical consulting services began with a site survey to determine the noise isolation performance of an existing corridor wall that would act as the primary separation between the air-traffic-control inspired dispatch center. Mechanical noise control was a critical component of our work to provide low background noise in the busy spaces. Room Acoustics modeling and recommendations for treatment materials, square footage, and locations helped to create spaces that manage noise and reduce distraction for the staff.



# Healthcare Projects

Project Name	<b>Marion Health East</b>
Location	Gas City, Indiana
Year Completed	September, 2024
Project Size and Budget	113,000 SF - \$80-Million
Description	<p>ABD Engineering &amp; Design worked with BSA LifeStructures on the Marion Health East Innovation and Medical Campus in Gas City, IN. The four-story, standalone hospital provides access to healthcare at the intersection of Indiana 22 and Interstate 69 where there had not been a hospital for over 100 miles. The facility includes an emergency department, urgent care, surgical suites, family practice, outpatient clinics, and 13 beds for inpatient acute care.</p> <p>ABD's acoustical consulting services followed FGI guidelines to provide comprehensive recommendations for the new hospital including exterior and interior noise isolation, room acoustics, and mechanical systems noise control. We started with exterior noise and vibration measurements to quantify existing noise and ground-borne vibration levels from the traffic on the nearby highways. Vibration data was provided for the structural engineer to assist in planning for the MRI and other imaging suites, while ABD staff used exterior noise data to collaborate with the architect on the specific exterior wall and window assemblies. For the interior, analysis of each space type was performed to provide detailed acoustical recommendations with the goal of achieving a quieter, more comfortable healthcare environment.</p>



photos courtesy of Marion Health

# Healthcare Headquarters

Project Name **Corewell Health Center for Transformation and Innovation**

Location Grand Rapids, Michigan

Completed Summer, 2024

Project Size Over 300,000 SF

Project Budget \$65 Million

Description ABD Engineering & Design worked with NBBJ to help create the new Corewell Health Center for Transformation and Innovation (CTI). The North Monroe neighborhood corporate headquarters is home to thousands of office staff. It includes a 150,000 SF renovation and fit-out of the Brassworks Building, a new 200,000 SF administration building, and a new 30,000 SF learning center, with an on-site fitness center, game room, and large event space.

ABD's acoustical engineering services included testing and evaluation of existing wall and floor/ceiling assemblies and spaces in the historic Wolverine Brass (Brassworks) building. Acoustical consulting in the new building and renovation include room acoustics, noise and impact isolation, mechanical noise and vibration isolation, and mechanical noise control.

The facility began its design as a traditional office building. The pandemic changed the way the health system will use their headquarters for hybrid/remote administration workers and distance-learning.



# Healthcare Projects

Project Name **Parrott Creek Child and Family Services**

Location Oregon City, Oregon

Under Construction October, 2023 - November, 2024

Project Size 22,410 SF

Project Budget \$13.6 Million

Description ABD Engineering & Design is working with El Dorado Architects on the Parrott Creek youth addiction and mental health treatment center. Up to 40 kids will find residential and outpatient help with a deep connection to nature on the 80-acre campus. Part of incorporating a “trauma-informed design” includes, of course, acoustics.

ABD’s scope includes complete acoustical engineering in three primary services.

**Room Acoustics** - to address the amount of echo and reverberation in the spaces.

**Noise Isolation** - to help separate one space from another.

**Mechanical Noise Control** - to reduce the noise from HVAC, electrical, and other building systems.

The facilities will include therapy and treatment rooms, living and working spaces, classrooms, fitness, music, kitchen and dining, and sensory spaces.

ABD is grateful to be part of this transformative facility.



# Healthcare Projects

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Project Name	<b>McLaren Greater Lansing Hospital</b>
Location	Lansing, Michigan
Year Completed	2022
Project Size and Budget	562,000 SF - \$600-Million
Description	<p>ABD Engineering &amp; Design worked with Barton Malow to provide acoustical consulting for the McLaren Greater Lansing Replacement Hospital.</p> <p>ABD's consulting and engineering services followed FGI Guidelines to develop our recommendations for patient spaces. The design and construction of healthcare facilities includes Noise Isolation and Speech Privacy to follow HIPAA. Likewise, ABD provides Mechanical Noise Control to address room noise levels and building vibration due to structure-borne sound, and Room Acoustics through acoustical finishes and details.</p> <p>Our exterior noise study measured noise levels from the adjacent highway and developed recommendations for the building facade, roof deck, and window glazing performance. ABD also took into consideration the effects of the helipad and helicopter flights on nearby residences. ABD's vibration study provided structural engineers the information they needed to stiffen the construction for patient comfort, as well as vibration-sensitive advanced imaging like MRI and CT-scan equipment.</p> <p>The nine-story 562,000 SF, 240 bed hospital is part of Michigan State University's Corporate Research Park. The facility includes an adjacent cancer and ambulatory center among other health care facilities to promote research, healthcare services, and educational opportunities within the community. The new hospital includes Level III Trauma Center/ Emergency Department, Orthopedic and Sports Medicine Institute, comprehensive cardiac programs, medical/surgical units, and state-of-the-art women and children's health services including a modern birthing center.</p>

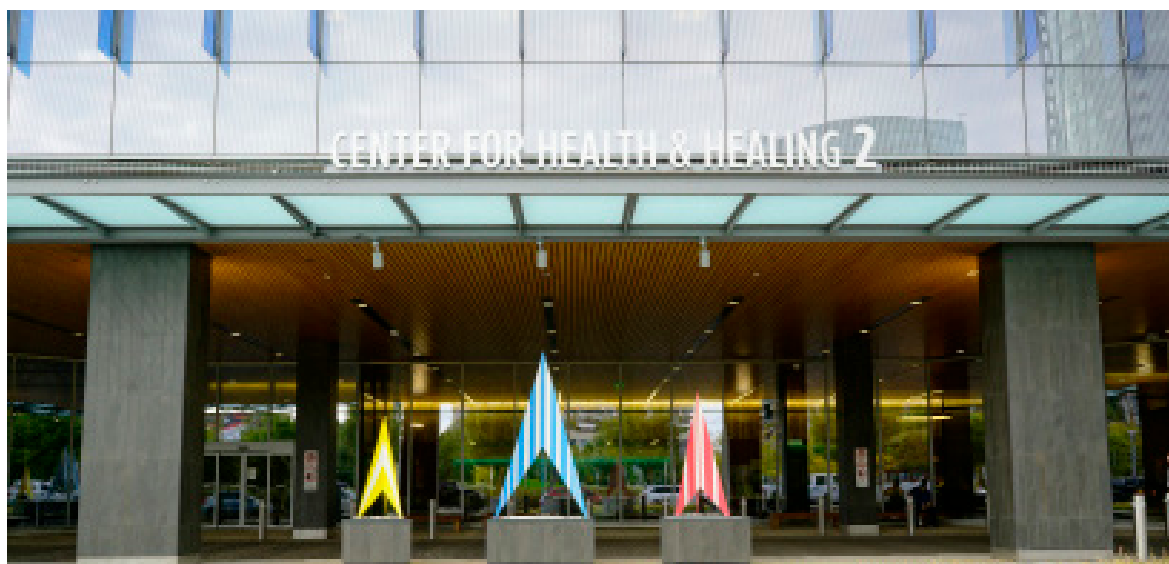


provided by McLaren Greater Lansing

# Healthcare Projects

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Project Name	<b>Oregon Health &amp; Science University (OHSU) Center for Health &amp; Healing Building 2</b>
Location	Portland, Oregon
Year Completed	2019
Project Size and Budget	750,000 SF and \$360-Million
Description	<p>ABD Engineering &amp; Design worked with ZGF Architects to provide complete acoustical consulting services for building 2 in the OHSU Center for Health and Healing complex. Building 2 is composed of two structures, a 450,000 SF 15-story hospital, and the Rood Pavilion, an 11-story, 300,000 SF mixed-use building with 76 patient guest rooms (38 pediatric rooms, 38 adult rooms). The pavilion serves as a hotel for patients who are being treated in the hospital, and includes a conference center.</p> <p>ABD's scope of services included room acoustics, noise isolation, mechanical noise control and vibration isolation for both the hospital and pavilion to achieve the acoustical recommendations contained in the FGI Guidelines for Design and Construction of Healthcare Facilities: Site Exterior Noise, Acoustical Finishes and Details, Room Noise Levels, Noise Isolation, Speech Privacy, Building Vibration and Structure-borne Sound. Meanwhile, the project is also designed to meet LEED Gold for Healthcare.</p> <p>The project presented several acoustical design challenges. The hospital building included large upper-floor generators that could run at any time and cause significant structure-borne noise and vibration. The sky bridge required specialized sound modeling for City of Portland approval. Finally, additional noise control measures were designed and implemented to protect nearby luxury, high-rise condominium buildings from the exterior noise levels.</p>



# Healthcare Projects

Project Name	<b>Vancouver Clinic Expansion</b>
Location	Vancouver, Washington
Year Completed	2019
Description	ABD Engineering & Design worked with ZGF Architects to provide complete acoustical consulting services for the Vancouver Clinic expansion at 3 locations.

- Salmon Creek: 100,000 SF
- Camas: 25,300 SF
- Ridgefield: 15,400 SF - which was named one of Vancouver's top projects of 2019.

Facilities include: Ambulatory Surgical Center (ASC), Musculoskeletal Center of Excellence, Physical Therapy, General Surgery Clinic, Urology Clinic, High Acuity Urgent Care, Imaging, Pathology, Family Practice (Primary Care) Clinic, and 24x7 Urgent Care.

The project utilized the on-stage/off-stage model to separate patient spaces from the common noise generating activities like supply delivery, alarms, and staff conversations. Patients enter exam rooms from one corridor, while care providers enter exam rooms from separate team workspace. To accomplish this, each exam room required two doors - which can be a potential sound isolation issue. ABD consultants recommended sliding doors with complete seals and added further modifications after construction to improve the noise isolation, without inhibiting the door operation.

Rooftop units placed directly over exam and team workspace areas were addressed with upgrades to the roof. Meanwhile, High Ceiling Attenuation Class (CAC) ceiling tiles were used inside help absorb mechanical unit noise and control sound within the space.



# Healthcare Projects

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Project Name **Yukon-Kuskokwim Health  
Dr. Paul John Calricaraq Center**

Location Bethel, Alaska

Year Completed 2019

Project Size 185,000SF - \$300,000,000

LEED Designed to meet LEED Silver

Description Bettisworth North Architects hired ABD Engineering & Design for complete acoustical engineering services for the Yukon-Kuskokwim Health (YKHC) Dr. Paul John Calricaraq Center. The Paul John Calricaraq Project (PJCP) took input from local tribal leaders and residents to be sure the community values of sustainability and care were fully realized. YKHC is the principal healthcare organization responsible for the health and wellbeing of some 30,000 Alaska Natives from 58 tribes residing in the Yukon-Kuskokwim Delta's 50 villages, as well as Bethel's 6,000 residents.

The project's remote location, approximately 50 miles upriver from where the Kuskokwim River flows into Kuskokwim Bay, and 400 air miles West of Anchorage, certainly posed a challenge. ABD's acoustical engineers conducted our work by teleconference/video-conference and email throughout the project. The location and weather conditions meant long lead times for mechanical equipment, which was a challenge in the design process. ABD analyzed the mechanical noise impact at multiple stages of the design process as each piece of equipment was specified and ordered. Recommendations were updated at each stage to meet the LEED and FGI guidelines.

Along with designing to LEED Silver standards, ABD employed the Federal Guidelines Institute (FGI) guidelines for the design and construction of healthcare facilities, citing six distinct acoustical criteria for site exterior noise, acoustic surfaces, room noise levels, performance of interior wall and floor/ceiling constructions, speech privacy, and building vibration.



Photo credit: Greg Kim/KYUK

# Healthcare Projects

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Project Name **Cleveland Clinic Weston Hospital**

Location Weston, Florida

Year Completed 2018

Project Size 195,800 SF

Description ABD Engineering & Design worked with Skidmore, Owings & Merrill (SOM) on the expansion of the Cleveland Clinic Florida campus. The project included significant expansion of the Emergency Department and Intensive Care Unit (EDICU), and the addition of a 74 bed (expandable to 100) four story patient tower.

Beginning with a noise study and recommendations for the building exterior. ABD's services included Cleveland Clinic's own acoustical criteria. Per Florida code, we also followed the six acoustic sections of FGI 2014: site exterior noise, acoustic surfaces, room noise levels, performance of interior wall and floor/ceiling constructions (noise isolation), speech privacy, and building vibration. Additionally, the facility is designed to meet the LEED Silver standard.

During construction, ABD also performed acoustical testing of four mock-up patient rooms: (Emergency Department treatment, observation, ICU, and ECU). These tests verified compliance with our recommendations to meet the various acoustical criteria.



Promotional photo courtesy of Cleveland Clinic.

# Healthcare Projects

Project Name **Kaiser Permanente  
Sunnyside Medical Center  
Hybrid OR and CVL**

Location Clackamas, Oregon

Year Completed 2018

Description Selecting and verifying locations for a hybrid operating room (hybrid OR) and a central venous line (CVL) procedure room requires specialized vibration analysis and mechanical noise and vibration control. ABD Engineering & Design worked closely with PKA Architects (Peterson Kolberg and Associates Inc. PC) to evaluate the site for the Kaiser Permanente Sunnyside Medical Center Hybrid OR and CVL rooms to be sure the site would meet both the manufacturer's vibration criteria as well as FGI footfall vibration criteria. Likewise, coordination with the structural engineer was critical to the project's success.

ABD performed an initial vibration study and provided recommendations for vibration control needed for the vibration-sensitive equipment. Our measurements focused on vibration induced from footfall within the building and from existing mechanical equipment.

Later, when an additional new rooftop mechanical unit was added to the project, we evaluated the HVAC manufacturer's proposed vibration isolation and engineered additional recommendations to further isolate and prevent the potential structure-borne vibrations and airborne noise.



# Healthcare Projects

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Project Name **Tacoma General Hospital  
MRI Suite Renovation and Expansion**

Location Tacoma, Washington

Year Completed 2018

Description ABD Engineering & Design worked with Clark Kjos Architects to conduct an MRI vibration study at the Tacoma General Hospital Multicare Regional Cancer Center.



Our Professional Engineer and vibration expert conducted a vibration study for the renovation and expansion of MRI services at Tacoma General. An additional magnet was added in a new MRI suite. The vibration study included active vibration levels (with vehicle traffic in the adjacent parking lot, pedestrian traffic, opening and closing of doors, elevator operation, etc). Conversely, our engineer made quiet vibration levels with no vehicular or pedestrian traffic in the area or near the proposed MRI. We used noise level measurements to identify HVAC and other sources that might cause vibration levels to exceed the manufacturer's vibration criteria.

Our engineered recommendations included general recommendations for vibration mitigation – through coordination with a structural engineer – as well as specific acoustical design of noise isolation around the MRI suite and between critical adjacent spaces.



# Healthcare Projects

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Project Name **Kaiser Permanente Salmon Creek Medical Office  
MRI Vibration Study**

Location Vancouver, Washington

Year Completed 2018

Description ABD Engineering & Design worked with Anderson Dabrowski Architects to conduct an MRI vibration study at the Kaiser Permanente Salmon Creek Medical Office building.

Our Professional Engineer and vibration expert, performed simultaneous vibration measurements inside the MRI room and at the site of the MRI trailer to determine if the two sites experience similar levels of vibration.

Our consultant also made measurements at exterior locations near the MRI room and near the nearby interstate to identify any structures that were resonating and amplifying vibration levels from I-5 traffic.



# Healthcare Projects

Project Name	<b>Cleveland Clinic Richard E. Jacobs Health Center Tower Expansion</b>
Location	Avon, OH
Year Completed	2016
Size and Cost	221,500 SF, \$143 Million
Description	ABD Engineering & Design provided comprehensive consultation for Architectural Acoustics including external freeway noise mitigation, room noise, sound isolation, and acoustical finishes, in compliance with the FGI Guidelines for Design and Construction of Healthcare Facilities, and LEED for Healthcare. Designed as a “hospital of the future,” Cleveland Clinic’s Avon Patient Tower expansion has 126 private hospital rooms, including a small intensive care unit which can be converted into an observation or a medical-surgical unit based on patient needs.



# Residential Healthcare Projects

Project Name **Beacon Hill at Eastgate  
Senior Living Community  
Auditorium**

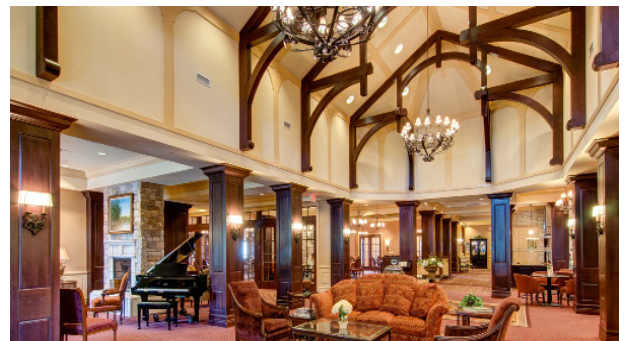
Location Grand Rapids, Michigan

Year Completed 2017

Description ABD Engineering & Design provided comprehensive acoustical consulting, along with audio, video, and theatrical lighting design for this senior living community center auditorium.

ABD worked with the developer on initial concepts and usage of the auditorium, and successfully transitioned throughout the project to work with the owner, construction manager, and crews. Our acoustical engineers and AV designers also provided Construction Administration services to help verify our designs were implemented to achieve the desired results.

Some photos, courtesy of Beacon Hill at Eastgate.



# Residential Healthcare Projects

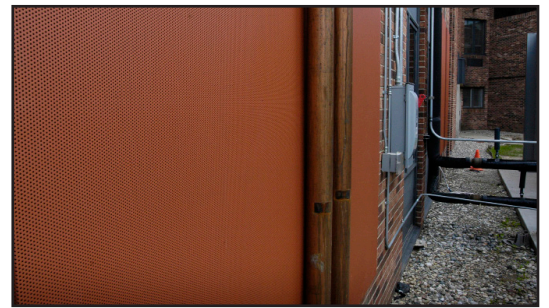
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Project Name **Holland Home  
Residential Healthcare**

Location Grand Rapids, Michigan

Year Completed 2014

Description Holland Home contacted ABD Engineering & Design to address concerns from the residents regarding the HVAC noise in the courtyard. ABD provided acoustical measurements of the equipment, and took ambient noise measurements inside residences. Mitigation recommendations were described in our report to reduce the noise. Following construction of the prescribed enclosures and other measures, ABD was invited back to take follow up measurements, to show the reduction in mechanical systems noise.



# Healthcare Projects

Project **Genesys Regional Medical Center, MI**

Client Genesys Regional Medical Center  
Grand Blanc, Michigan 48439

Completion Date 2012

Description ABD Engineering & Design provided comprehensive noise study services including measurements, analysis, mitigation recommendations, and reporting for the 410-bed Genesys Regional Medical Center in Grand Blanc, Michigan. Our professional engineers performed a detailed noise study to identify and rank order the major noise sources throughout the hospital. Our findings and analysis led to engineered recommendations and noise mitigation strategies that now allow Genesys to create a quiet healing environment for their patients and staff alike.



# Healthcare Projects

LEED Gold Certified  
by the U.S. Green Building  
Council



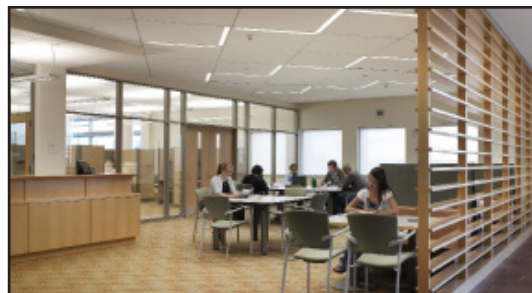
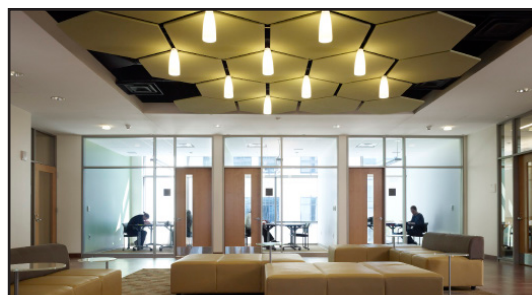
Project Name **Michigan State University Secchia Center  
College of Human Medicine**

Location Grand Rapids, Michigan

Year Completed 2011

Size and Cost 180,000 SF, \$90 Million

Description ABD Engineering & Design was brought in by URS Corporation to offer consultation in architectural acoustics, noise isolation, and building systems noise control for Michigan State University's new Secchia Center College of Human Medicine in downtown Grand Rapids, Michigan. Several acoustical challenges included: exterior noise isolation from an adjacent freeway, architectural acoustics for the large multi-level atrium, building systems noise control for the top floor mechanical room – including a floating floor, concrete isolation pad. Our professional engineers used ray-tracing computer models to predict the acoustical needs of the space even before construction began. The design was acoustically optimized, cost effective, and aesthetically appealing. The building is optimized to conserve energy and preserve the environment. At the recent dedication ceremony, the building was awarded LEED Gold Certification.



# Healthcare Projects

LEED Gold Certified  
by the U.S. Green Building  
Council



Project Name **Helen DeVos Children's Hospital  
Grand Rapids, Michigan**

Size & Cost 440,000 SF, \$154 Million

Year Completed 2010

Description ABD Engineering & Design worked with the hospital to design sound isolation features to meet the acoustical requirements of the new FGI Guidelines for Design and Construction of Health Care Facilities. The 13-story tower in downtown Grand Rapids, Michigan, features neo-natal pediatric intensive care units, patient rooms, emergency room, radiology department, and surgery/procedure rooms. One of the challenges was noise flanking around the patient room and neo-natal intensive care unit walls due to the curtain wall design. Vibration mitigation recommendations were made for electrical transformers above sleep study rooms, patient exam rooms, and hospital support rooms. Finally, we offered noise mitigation solutions for the cooling tower pump noise to ensure a quiet environment for the chapel and the family retreat areas. The building has been awarded LEED Gold certification.



**ABD Engineering & Design**  
Architectural Acoustics • AV Design • Noise & Vibration

# Healthcare Projects

Certified LEED Gold  
by the U.S. Green Building Council



Project Name **Albert Einstein Hospital Auditorium**

Location São Paulo, Brazil

Year Completed 2010

Size 750,000 SF

- Description
- LEED Gold Certified
  - 500 Seat Auditorium
  - Large Multipurpose Room
  - 15 Training and Conference Rooms
  - Video Production and Streaming
  - Audio System Design
  - Video System Design
  - Platform Lighting System Design
  - Digital Signage System Design
  - Control System Design
  - Acoustics, Noise Isolation
  - Mechanical Noise Control



# Healthcare Projects

Certified LEED Silver  
by the U.S. Green Building Council



Project Name	<b>Henry Ford West Bloomfield Hospital</b>
Location	West Bloomfield, Michigan
Year Completed	2009
Size and Cost	730,000 SF, \$360 Million
Description	Henry Ford's dream for a "hotel for sick people" came to fruition with the 2009 opening of the Henry Ford West Bloomfield Hospital. This beautiful "northern Michigan lodge" styled facility recently received LEED Silver certification. The hospital is designed with a comprehensive approach to acoustics including noise isolation, speech privacy, room acoustics, HVAC noise control. Additionally, ABD made property line noise measurements to assure compliance with the local noise ordinance.



# Healthcare Projects

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Project Name    **Lakeland Healthcare**

Location        Saint Joseph, Michigan

Year Completed    2009

Size              143,000 SF, 118 Beds

Description      ABD Engineering & Design worked with BSA Lifestructures, Maregatti Interiors, and Lakeland Healthcare to design comprehensive acoustical improvements for the new patient tower. From the start, Lakeland had a clear goal: to become the quietest hospital in Michigan and perhaps even the world. From the moment you walk into the new facility, the acoustical design in the lobby creates a relaxed environment that continues throughout the building and into the patient rooms, which are free from unwanted noise and interruptions.

When the project was finished, many facets of the design contributed to the optimized acoustical environment including: single patient rooms with acoustical finishes for comfort and noise isolation for privacy, maximum absorption around the decentralized nurses stations, HVAC noise control measures, background noise attenuation, and acoustical absorption in the halls and corridors.





# Residential Healthcare

Project Name	<b>Independence Station</b>
Location	Independence, Oregon
Project Size	57,000 sq ft
Year Completed	2010
ABD Contact Person	Melinda Miller, Principal Engineer
Description	This mixed-use structure included moderately affordable condominiums, in an innovative lifestyle wellness program. It now includes extensive on-site healthcare and support facilities, including optional residential treatment programs that utilize hospitality suites designed in the upper floors.



Ankrom Moisan, and Aldeia Development worked with our Professional Engineer, Melinda Miller for HVAC system modeling, mechanical noise control, room acoustics and noise isolation, to deliver a building that would set a new standard for responsible living and working in the growing Willamette Valley. As a result, Independence Station features an incredibly sustainable, environmentally friendly design and is seeking, not only LEED-NC Platinum status, but is on track to earn designation as one of the greenest buildings in the world.



\* Work performed by Melinda Miller, while employed by Listen Acoustics

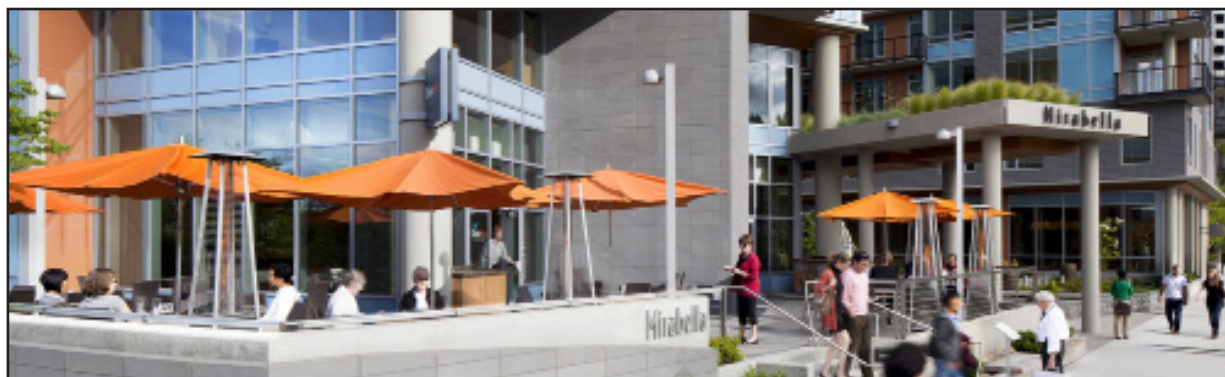
# Residential Healthcare

LEED Platinum Certified  
by the U.S. Green Building Council



Project Name	<b>Mirabella Portland</b>
Location	Portland, Oregon
Year Completed	2007
Size and Cost	30 Stories, 517,000 sq ft.
ABD Contact Person	Melinda Miller, Principal Engineer
Description	<p>Mirabella is the first LEED Platinum Continuing Care Retirement Community (CCRC) in the United States. The client's vision included building in an urban location that would enable seniors to remain connected and engaged with the greater downtown Portland community. The 30-story, 284 unit, sustainable residential tower includes an adjacent 4-story podium, containing the healthcare program. Mirabella's innovative design and its residents' active involvement in post-occupancy sustainability are making it a model of senior living nationwide.</p>

Ankrom Moisan architects worked with our Professional Engineer, Melinda Miller, to achieve the LEED required mechanical noise control and noise isolation throughout the facility, including the always-challenging floors of the fitness rooms. Pleasing room acoustics throughout the common spaces, health and fitness centers, helped to earn Mirabella a variety of awards for design, green sustainable residential community merit, and various senior living Gold Nugget prizes.



\* Work performed by Melinda Miller, while employed by Listen Acoustics

# Healthcare Projects

LEED Certified  
by the U.S. Green Building Council



Project Name **Pine Rest Postma Center**

Location Grand Rapids, Michigan

Year Completed 2007

Description ABD Engineering & Design was contracted by Integrated Architecture to develop an audio-visual design and architectural acoustics plan for Pine Rest's Postma Center. Since Pine Rest frequently treats mentally ill patients, great care was taken to make sure that the facility was free from mechanical noise, excess reverberation, and crosstalk between rooms. Our precision design work helped to increase patient satisfaction and confidentiality. In addition we provided specifications for audio-visual features that enhanced the communication capabilities of the staff. The technical system was integrated for variable-use applications, from professional communication to religious worship services.



# Healthcare Projects

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Project Name	<b>University of Michigan Rachel Upjohn Building</b>
Location	Ann Arbor, Michigan
Year Completed	2005
Size and Cost	112,500 SF, \$41 Million
Description	ABD Engineering & Design offered comprehensive consultation for Architectural Acoustics, HVAC Noise Control, Noise Isolation, and Sound Masking solutions for the Rachel Upjohn Building, a medical office facility in Ann Arbor, Michigan. Our professional engineers made recommendations that added the proper amount of acoustical treatment to the building without going overboard on extras, thereby improving indoor environmental quality and staying within budget.



# Healthcare Projects

Project Name **Grand Valley State University  
Cook DeVos Center for Health Sciences**

Location Grand Rapids, Michigan

Year Completed 2003

Size and Cost 265,000 SF, \$53 Million

Description ABD Engineering & Design provided comprehensive acoustical consulting for the newly constructed Health Sciences College at the downtown Grand Rapids campus of Grand Valley University. ABD used 3D modeling software to make noise measurements and to predict how the building would sound after construction. With this data at hand, we provided detailed recommendations for architectural acoustics, building systems noise control, and interior noise isolation. Our design played a crucial role in improving the facility's environmental quality and scholastic atmosphere.





Melinda Miller brings her passion for all things sound and 20 years of experience to her role as Principal Engineer of ABD Engineering & Design. Her expertise includes diagnosing and preventing noise problems, designing acoustically optimized environments, and using evidence-based design practices. Melinda has consulted on projects involving architectural acoustics, noise isolation, mechanical noise control, and occupational noise exposure. Her experience includes higher education, K-12 schools, performance and worship spaces, healthcare facilities, industrial facilities, hotel and multi-family residential buildings.

A Professional Acoustical Engineer, licensed by the State of Oregon, Melinda earned her Bachelor's Degree in Mechanical Engineering from the University of Idaho, and Master's from the University of Illinois, Chicago. She has continued her education and training, earning her INCE Board Certification (INCE Bd. Cert.), Evidence-Based Design Accreditation and Certification (EDAC), and LEED AP BD+ C. As an Assistant Professor of Acoustics for Columbia College, she taught undergraduate junior and senior level classes in HVAC design, vibrations, acoustical testing, building noise control, and musical acoustics.

Melinda has chaired sessions on various topics at Noise-con and Inter-noise since 2013, and has served INCE as the Co-Chair of Building Acoustics Technical Activities committee, on the Certification Board since 2018, and the Board of Directors (2021-2024). Likewise, she has presented technical papers and education sessions for the Acoustical Society of America, the American Institute of Architects, and the Chicago Chapter of the Audio Engineering Society.

## Professional Experience

- 2011-Present – Principal Engineer, ABD Engineering & Design, Inc., Portland, Oregon
- 2006-2009 – Acoustical Consultant, Listen Acoustics, Inc., Portland, Oregon
- 2003-2005 – Assistant Professor, Audio Arts and Acoustics Department, Columbia College Chicago, Chicago, IL
- 2001-2003 – Graduate Assistant, Acoustics and Vibrations Laboratory, Department of Mechanical & Industrial Engineering, University of Illinois Chicago, Chicago, Illinois

## Professional Licenses and Memberships

- Acoustical Society of America
- Evidence-Based Design Accreditation and Certification (EDAC)
- Institute of Noise Control Engineering (INCE), Board-Certified Member
- Institute of Noise Control Engineering (INCE), Certification Board, and Board of Directors
- National Council of Acoustical Consultants
- State of Oregon, Professional Engineer, #88158PE
- U.S. Green Building Council LEED AP BD+C

## Education

- Master of Science in Mechanical Engineering, University of Illinois at Chicago, Chicago, Illinois, 2003
- Bachelor of Science in Mechanical Engineering, University of Idaho, Moscow, Idaho, 1998.

## Project Experience

- |  |   |   |
|--|---|---|
| • Cleveland Clinic Richard E. Jacobs Campus, Avon, OH    | • Legacy Good Samaritan Hospital, Portland, OR        | • Randall Children's Family Birth Center, Portland, OR                |
| • Cleveland Clinic Weston Hospital, Weston, FL           | • Marion General Hospital, Springfield, IL            | • Vancouver Clinic Expansion, Camas, Ridgefield, and Salmon Creek, WA |
| • Good Samaritan Regional Medical Center, Corvallis, OR  | • Mayo Clinic, Pharmacy Speech Privacy, Rochester, MN | • Yukon-Kuskokwim Health, Dr. Paul John Calricaraq Center, Bethel, AK |
| • Kaiser Permanente, Beaverton Health Hub, Beaverton, OR | • Neurodiagnostic Institute, Indianapolis, IN         |   |



Erik J Geiger has designed and consulted on audio, video, and technical systems for over 20 years. He has served as an Audiovisual discipline leader and project manager, and carries a wealth of technical system consulting and design experience. Erik brings the heart of a teacher to every project, helping clients and end-users to understand a rapidly changing environment — having held a position at Columbia College, Chicago for many years.

Erik specializes in planning, budgeting and needs analysis studies for audiovisual and media technology-based systems, with a focus on facilities and infrastructure planning to provide life cycle value and long-term cost savings through accommodating future technologies, some of which may only be emergent.

Erik has designed large scale facility-wide audio, video and media distribution systems, leveraging IT network topologies and convergence, as well as high performance sound-reinforcement and large-scale video display systems, recording and media post-production facilities. He has designed interactive and collaborative communications environments, that both augment and move beyond the traditional audio and video conferencing space. He has worked on projects in healthcare, university, K-12 education, and corporate environments, along with auditoriums, convention centers and hospitality venues around the world.

When Erik isn't designing technical systems, he enjoys playing the piano, backpacking, cycling, and photography.

## Professional Experience

- 2016-Present – Director of Audiovisual, ABD Engineering & Design, Inc., Portland, Oregon
- 2011-2016 – Senior Associate, Shen, Milsom & Wilke, LLC – Chicago, Illinois
- 2007-2014 – Adjunct Professor, Audio Arts & Acoustics, Columbia College – Chicago, Illinois
- 2009-2011 – Owner, Geiger Design Consultants – Chicago, Illinois
- 2004-2009 – Associate, Shen, Milsom & Wilke, LLC – Chicago, Illinois
- 1998-2004 – Arnold & O'Sheridan, Inc. – Madison, Wisconsin
- 1995-1998 – Hammel Green & Abrahamson, Inc. – Minneapolis, Minnesota

## Professional Certifications and Memberships

- AVIXA (InfoComm International), Certified Technical Specialist
- CTS-D
- AVIXA (Infocomm) Infrastructure Standards working group

## Education

- Mass Communications, University Of Wisconsin – Madison, Wisconsin
- Audio Recording and Production, Musicians Technical Training Institute – Minneapolis, Minnesota.

## Project Experience

- |  |  |  |
|--|--|--|
| • University of Wisconsin Hospital and Clinics, Clinical Simulation Center (original systems in 2008 and the retrofit in 2015-16), Madison, WI | • Malcolm X College Simulated Hospital Interprofessional Education & Learning Department (SHIELD), Chicago, IL (Concept & Schematic Development) | • Portland Community College, Cascade Campus, Nursing & EMT Simulation Theater, Portland, OR |
| • Jump Trading Simulation & Education Center at University of Illinois, St. Francis Medical Center, Peoria, IL                                 | • University of Tennessee Health Science Center, Clinical Simulation Program, Memphis, TN  | • Presence Health, New Headquarters, Chicago, IL   |
| • University of Western Michigan Homer Stryker School of Medicine, Kalamazoo, MI   | • University of Montana PJW Education Center – Clinical Counselling Suite, Missoula, MT  | • Simpson-Querrey Biomedical Research Center, Northwestern University, Chicago, IL           |
|  |  | • UC-Davis Medical Center, Sacramento, CA  |

Some experience listed is while employed by SMW.



Peter Allen is a senior acoustical engineer with a Master of Engineering degree in Acoustics and over 20 years of experience in the field of acoustics. Peter has been with ABD Engineering & Design since 2016 and provides consulting services on a wide-range of projects types, including education facilities, healthcare facilities, worship spaces, hotels, and multi-family housing, while also specializing in vibration testing and analysis.

Peter uses an evidence-based, data-driven approach to provide acoustical recommendations to clients. Whenever possible, his recommendations include multiple options to help clients meet their aesthetic and budgetary constraints. He has presented his work at various industry symposia as well as at the annual conference for the

Institute of Noise Control Engineering.

Prior to joining ABD, Peter worked as an acoustical consultant at Daly-Standlee & Associates for eight years, where he learned to apply his skills from a research environment to the field of acoustical consulting. He began his career at Southwest Research Institute (SwRI), where he worked for ten years. There, he managed technical projects in vibration analysis, noise control, and environmental testing for clients in the electric utility, telecommunications, aerospace, automotive, and building industries. He taught technical courses within the organization to further develop the skills of others in the organization.

In 2005, Peter obtained his Master's Degree of Engineering in Acoustics from Pennsylvania State University, and he has used his additional education to focus his efforts on the use of field testing and analysis to solve noise and vibration problems. In his personal time, Peter enjoys climbing, yoga, riding his motorcycle, and SCUBA diving.

## Professional Experience

- 2016-Present – Senior Acoustical Engineer, ABD Engineering & Design, Inc., Portland, Oregon
- 2008-2016 – Senior Acoustical Engineer, Daly-Standlee & Associates, Portland, Oregon
- 1998-2008 – Senior Research Engineer, Southwest Research Institute, San Antonio, Texas

## Professional Licenses and Memberships

- Acoustical Society of America
- Institute of Noise Control Engineering (INCE), Board-Certified Member
- National Council of Acoustical Consultants
- State of Oregon, Professional Engineer #84392PE

## Education

- Master of Engineering in Acoustics, Pennsylvania State University, State College, Pennsylvania, 2005
- Bachelor of Science in Engineering, Electrical Emphasis, Texas Christian University, Fort Worth, Texas, 1998.

## Project Experience

- |  |   |   |
|--|---|---|
| • OHSU Center for Health and Healing South, Portland, OR | • Legacy Emmanuel Children's Hospital, Portland, OR           | • Providence St. Vincent Hospital, Portland, OR |
| • Kaiser Beaverton Medical Center, Beaverton, OR         | • Yukon-Kuskokwim Health Care Hospital and Clinic, Bethel, AK | • St. Luke's McCall Medical Center, McCall, ID  |
| • Kaiser Sunnyside Medical Center, Portland, OR          | • Fairbanks Memorial Hospital, Fairbanks, AK                  | • Portland VA Hospital, Portland, OR            |
| • Kaiser Central Interstate Medical Center, Portland, OR | • Boise VA Hospital, Boise, ID                                |   |
|  | • Salem Hospital, Salem, OR                                   |   |



Jeremy Bielecki is a Senior Acoustical Consultant with over 20 years of experience as a consultant, and as a project manager for over 300 building projects. Jeremy has worked in acoustics in the Midwest and Pacific Northwest on projects including healthcare, higher education, workplace, performance spaces, K-12 education, athletics, and multi-family residential.

Jeremy possesses a strong work ethic and creative problem solving skills that have served him and his clients well. Knowing he always wanted to be in engineering and involved with music, Jeremy found acoustics to be the marriage of the two. He gains tremendous satisfaction from being part of a project that starts with lines on a screen and words on a page, eventually becoming a physical space you live within, and get enjoyment from.

Over his career, Jeremy has developed expertise in performing field measurements, creating complex computer prediction models, and analyzing data and drawings to identify primary causes and contributors to noise and vibration problems. He also determines sound isolation ratings, HVAC system noise ratings, and room acoustic performance using reverberation time, acoustical clarity, and speech intelligibility metrics.

In his spare time, Jeremy is a skilled piano tuner and repair technician, musician, and coaches soccer and robotics. He also enjoys 3D printing, and cooking with his family.

## Professional Experience

- 2022-Present – Senior Acoustical Consultant, ABD Engineering & Design, Inc., Grand Rapids, Michigan
- 2005-2022 – Acoustical Consultant, Kolano and Saha Engineers, Inc., Waterford, Michigan
- 2001-2004 – Acoustical Engineer, Michael R. Yantis Associates, Inc., Seattle, Washington

## Professional Memberships

- Acoustical Society of America
- Institute of Noise Control Engineering (INCE)
- American Society of Testing and Materials
- National Council of Acoustical Consultants

## Education

- Bachelor of Science in Mechanical Engineering, University of Michigan, Ann Arbor, 2000.

## Project Experience

- |  |  |   |
|--|--|---|
| • Munson Medical Center<br>Traverse City, MI   | • *Michigan State University, East<br>Lansing, MI<br>Broad Art Museum<br>STEM Power Plant Renovation | • *Charles H Wright Museum<br>of African American History,<br>Detroit, MI |
| • *St. John Hospital, Detroit, MI  | • *Henry Ford Community College,<br>Recording Studio, Dearborn, MI                                   | • *Emagine Theaters, Royal Oak,<br>MI                                     |
| • *Detroit Pistons Performance<br>Center, Detroit, MI  | • *Kendall College of Art and<br>Design, Grand Rapids, MI  | • *Residence Inn by Marriott,<br>Grand Rapids, MI                         |
| • *Greektown Casino Hotel,<br>Detroit, MI  | • *Davidson Foundation<br>Development, Bloomfield Hills,<br>MI                                       | • *Bharatiya Temple, Troy, MI   |
| • *University of Michigan, Ann<br>Arbor, MI<br>Law School: Hutchins Hall,<br>Jeffries Hall<br>Student Union<br>Central Campus Recreation<br>Building<br>Beyster Building Addition<br>Munger Student Residences | • Romeo High School, Auditorium,<br>*Romeo, MI   | • *The Mid: Co-Living, Detroit, MI  |
| • *Central Michigan University,<br>Mount Pleasant, MI<br>Grawn Hall<br>Ronan Hall  | • *Byron Center High School,<br>Byron Center, MI   | • *New Beginning Baptist Church,<br>Waterford, MI                         |
|  | • *Ann Arbor School of the<br>Performing Arts, Ann Arbor, MI   | • *Cobo Center, Detroit, MI   |
|  | • *Toyota Technical Center, Quiet<br>Room, Ann Arbor, MI   | • *Patrick V. McNamara Fitness<br>Center, Detroit, MI                     |
|  |  | • *Theodore Levin U.S.<br>Courthouse, Detroit, MI                         |



# Benjamin Wolf

Senior Acoustical Consultant  
INCE Bd. Cert. [bwolf@abdengineering.com](mailto:bwolf@abdengineering.com)



Benjamin Wolf is a Senior Acoustical Consultant with a Master of Science in Architectural Acoustics from Rensselaer Polytechnic Institute. He specializes in analysis and recommendations for the spaces and structures needed to provide acoustically effective and comfortable environments.

Ben joined ABD Engineering & Design, Inc. in 2016 after four years with Daly-Standlee & Associates. He has worked on architectural projects, including field testing of wall and floor/ceiling systems, HVAC noise analysis, the specification and design of acoustic partitions, and acoustical treatments in churches, movie theaters, offices, apartment buildings, hospitals, and schools. His environmental noise studies include mine and quarry sites, light rail, highway and roadway noise, along with power and industrial facilities.

Ben uses 3D acoustic modeling software to provide a detailed analysis and recommendations for room acoustics, sound distribution, and speech intelligibility. As part of his master's thesis, he modeled accurate acoustical representations of several famous music performance venues allowing musicians to hear their performance simulated in those spaces, in real time, as if they were standing on stage.

In his spare time, Ben plays bass trombone with a wide variety of local groups. He enjoys web design and recording live sound.

## Professional Experience

- 2016-Present – Senior Acoustical Consultant, ABD Engineering & Design, Inc., Portland, Oregon
- 2012-2016 – Acoustical Consultant, Daly-Standlee & Associates, Portland, Oregon

## Professional Memberships

- Acoustical Society of America
- National Council of Acoustical Consultants
- ASTM International, E33 Committee on Building and Environmental Acoustics
- Institute of Noise Control Engineering (INCE), Board-Certified Member

## Education

- Master of Science in Architectural Sciences, Emphasis in Architectural Acoustics, Rensselaer Polytechnic Institute, Troy, New York, 2012
- Bachelor of Arts in Physics, Gustavus Adolphus College, St. Peter, Minnesota, 2011
- Bachelor of Arts in Music Performance, Gustavus Adolphus College, St. Peter, Minnesota, 2011.

## Project Experience

- South Cooper Mountain Apartments, Beaverton, OR
- Wood Village Mixed Use, Wood Village, OR
- Farmdale Apartments, North Hollywood, CA
- L&M Industrial Fabrication, Lot Expansion Barrier Calculations, Tangent, OR
- USANA Sciences Company, Packaging Area, Valley City, UT
- TriMet, Columbia 10, Portland, OR
- Hermiston Schools (Theater Lane Elementary School, Rocky Heights Elementary School, High School Classroom Annex and CTE), Hermiston, OR
- Dry Creek Landfill, Noise Study, Eagle Point, OR
- Kaiser Permanente, Sunnyside Medical Center, Clackamas, OR
- United Natural Foods, Noise and Vibration Study, Ridgefield, WA
- Threemile Canyon Farms, Generator Exhaust, Boardman, OR
- Northwest Pipe Company, Open Office Acoustics, Vancouver, WA
- Columbia Shores Townhouses, Overlay Noise Study, Vancouver, WA
- Wood Village Mixed Use, HUD Noise Study, Wood Village, OR
- Clackamas Federal Credit Union, Corporate Headquarters, Oak Grove, OR



Quincey Smail is a Senior Acoustical Consultant, with a Master of Engineering in acoustics from Penn State. Quincey's expertise includes acoustical design, modeling and testing to provide thoughtful recommendations for a variety of project types from residential and mixed use to K-12, higher education to healthcare, workplace, environmental, and industrial facilities. Quincey earned his Board Certification by the Institute of Noise Control Engineering (INCE) in 2022.

His projects include noise studies of manufacturing equipment in the US and Europe, car wash sites with residential adjacencies, and high-profile commercial locations.

Quincey's musical background has served him and his projects well in performance spaces including the Interlochen Center for the Arts, as well as other public and private music schools, music stores, event centers, plus the particular needs of worship spaces. Quincey is regularly called upon to assist with hotel acoustical needs during design and construction, along with post-occupancy needs. He has also worked with hospitals, hospice, counseling centers, dental offices, and residential healthcare to address FGI and HIPAA requirements.

In his free time, Quincey – a talented baritone – sings in community and church choirs. He can be found enjoying the Grand Rapids local craft-brewery and cocktail culture, trivia nights, and playing tabletop games.

## Professional Experience

- 2016-Present – Senior Acoustical Consultant, ABD Engineering & Design, Inc., Grand Rapids, Michigan
- 2015-2016 – Lead Producer, Penn State University, State College, Pennsylvania
- 2012-2013 – Physics Lab Assistance, Central College Physics Department, Pella, Iowa

## Professional Memberships

- Acoustical Society of America
- American Society of Testing and Materials
- National Council of Acoustical Consultants
- Institute of Noise Control Engineering (INCE), Board-Certified Member
- Boy Scouts of America, Eagle Scout

## Education

- Master of Engineering in Acoustics, Pennsylvania State University, State College, Pennsylvania, 2016
- Bachelor of Arts in Physics, Minors in Mathematics, Music, and German, Central College, Pella, Iowa, 2013.

## Project Experience

- |  |  |   |
|--|--|---|
| • Public Museum, Grand Rapids, MI                                    | • Riverview Church, Auditorium, Holt, MI   | • Forslund Condominium, Impact Isolation, Grand Rapids, MI                            |
| • Courtyard Marriott, Detroit, MI                                    | • 212 River Residential Mixed-Use, Holland, MI                                       | • Domino's Pizza, Boardroom and Warehouse Open Office, Ann Arbor, MI                  |
| • Essity Operations Gennep, Netherlands                              | • Jefferson Lofts Condominium Association, Noise Isolation, St. Joseph, MI           | • Interlochen Center For The Arts, Kresge Amphitheater, Interlochen, MI               |
| • Tri County Area Schools, Cafetorium, Howard City, MI               | • West Ottawa Public Schools, Performing Arts Center, Holland, MI                    | • Grand Valley State University, Product Design and Robotics Studio, Grand Rapids, MI |
| • Nestle Production Studio, Solon, OH                                | • Warner Norcross & Judd, Office Acoustics, Detroit, Grand Rapids, and Kalamazoo, MI | • Ford Motor Company, Conference & Event Center, Dearborn, MI                         |
| • Bendix, Relocation Noise and Vibration, Avon, OH                   | • Tommy Car Wash Systems, Car Wash Noise Study, Hudsonville and Flint, MI            | • Opera Grand Rapids, Grand Rapids, MI  |
| • Western Michigan University, Dunbar Hall, Kalamazoo, MI            |  |   |
| • Western Michigan University, College of Aviation, Battle Creek, MI |  |   |



John Kramer is an acoustical consultant, with a Master of Architectural Engineering from University of Nebraska, Lincoln. John's passion for music and performing arts led to his interest in acoustics and helping to create efficient, comfortable, and healthy acoustical environments. John leverages his experience in acoustics and building systems with an applied background in noise and vibration control in his project work.

John has excelled with both professional and student design teams, including a 1st place finish in the 2020 ASHRAE Student Design Competition (System Selection). He has designed mechanical systems on projects including secure government facilities, corporate headquarters, large scale healthcare, and education. Since joining ABD, John has begun working on projects across the country from wind turbine noise studies to residential acoustics. John is building his experience with acoustically sensitive spaces including: Healthcare, K-12 Schools, Churches, Corporate Offices, and Social Halls, and is quickly developing as a consultant.

In John's spare time he enjoys playing guitar and singing, playing chess, collecting comic books, and is learning his way around West Michigan.

## Professional Experience

- 2021-Present – Acoustical Consultant, ABD Engineering & Design, Inc., Grand Rapids, Michigan
- 2019-2021 – Mechanical Engineering Intern, HDR, Omaha, Nebraska

## Professional Memberships

- Acoustical Society of America
- Institute of Noise Control Engineering (INCE)
- American Society of Testing and Materials
- National Council of Acoustical Consultants

## Education

- Master of Architectural Engineering, University of Nebraska, Lincoln, NE, 2021.
- Bachelor of Science of Architectural Engineering, University of Nebraska, Lincoln, NE, 2020.

## Project Experience

- Oregon State University  
Fairbanks Hall  
Corvallis, OR
- Minot State University  
Hartnett Hall  
Minot, ND
- Sinclair Community College  
Distance Learning  
Dayton, OH
- Grand Rapids Community College  
Secchia Institute for Culinary Education  
Grand Rapids, MI
- Oregon Health and Science University  
Dispatch  
Portland, OR
- Corewell Health Ambulatory  
Grand Rapids, MI
- PeaceHealth Riverbend  
Springfield, OR
- Portland Providence Medical Center  
Main Emergency Department  
Portland, OR
- Interlochen Center for the Arts  
Interlochen, MI
- Jackson Hole Classical Academy  
New High School  
Jackson Hole, WY
- Hudsonville Christian School  
Hudsonville, MI
- Wheaton Academy  
West Chicago, IL
- Kellogg's Headquarters  
Battle Creek, MI
- LinkedIn Detroit  
Detroit, MI
- Disability Advocates of Kent County  
Grand Rapids, MI
- Wolverine Worldwide Broadcast Studio  
Rockford, MI
- Cannon Muskegon Noise Study  
Muskegon, MI
- Grand Rapids Public Museum  
Grand Rapids, MI
- Southtown Guitar  
Grand Rapids, MI



Faulkner Bodbyl-Mast is an audiovisual and acoustical consultant, having earned a bachelor's degree in Sound Engineering, with a minor in Electrical Engineering. Faulkner is an AVIXA Certified Technical Specialist (CTS). You might work with him in either or both capacities at ABD.

Faulkner's interest in sound came from his passion for music. He started attending Grand Rapids Symphony Orchestra concerts as a child and developed as an instrumentalist through grade school and high school, picking up the euphonium and carrying it into college. Once exposed to electronic music, Faulkner's interest shifted from performance to technical arts. He combined his early musical training with technology and blossomed into composing, recording, and music production. Faulkner provided sound design for live theater productions and began 3D sound modeling to

create sound design for video games.

Acoustics and AV go together, as the inherent quality of the built environment is designed and tuned by engineering and supported and enhanced by the electronics. Faulkner notes the acoustics of a space and systems within it must compliment each other or they will undermine each other.

Aside from his work in acoustics and audiovisual design, Faulkner is passionate about music. Gifted in composing, performing, and recording electronic pieces, you might find his compositions on SoundCloud.

## Professional Experience

- 2022-Present – Audiovisual & Acoustical Consultant, ABD Engineering & Design, Inc., Grand Rapids, Michigan
- 2022 - Acoustical Intern, Kirkegaard, Chicago, Illinois
- 2019-2022 – Media Assistant, Duderstadt Center, Ann Arbor, Michigan
- 2019-2022 – Audio Director, Composer, Sound Designer, Wolverine Soft Studio, Ann Arbor, Michigan

## Professional Memberships and Certifications

- AVIXA (InfoComm International), Certified Technical Specialist
- CTS
- Audio Engineering Society
- American Institute of Architects, Professional Affiliate
- National Council of Acoustical Consultants

## Education

- Bachelor of Science in Sound Engineering, minor Electrical Engineering, University of Michigan, Ann Arbor, 2022.

## Project Experience

- |   |   |   |
|---|---|---|
| • Hope College<br>Dewitt Center for Economics and Business, Holland, MI | • City of Troy Council Chambers<br>Troy, MI                             | • Amity Middle School and High School<br>Amity, OR                    |
| • Oregon State University<br>Fairbanks Hall<br>Corvallis, OR            | • Portland Art Museum Rothko Pavilion, Portland, OR                     | • Spokane Pubic Schools<br>Lewis and Clark High School<br>Spokane, WA |
| • Oregon State University<br>Student Success Center<br>Corvallis, OR    | • Rogue Credit Union Community Complex Sports and Events<br>Medford, OR | • NAMI Oregon<br>Portland, OR   |
| • Columbia Gorge Community College Nursing SIM Lab<br>The Dalles, OR    | • Wheaton Academy<br>West Chicago, IL                                   | • Peace Church<br>Middleville, MI                                     |
| • Hillsboro Civic Center<br>Hillsboro, OR                               | • St Paul Center<br>Steubenville, OH                                    | • Gardens of Sun City Senior Living, Sun City, AZ                     |
| • Chehalem Cultural Center<br>Newberg, OR                               | • Ben Davis High School<br>Indianapolis IN                              | • Senior Living<br>Peoria AZ  |
|   | • Potter Elementary School<br>Flint, MI                                 | • Happy Valley Library<br>Happy Valley, OR                            |
|   | • Illiana Christian High School<br>Lansing, IL                          |   |



Lauren Slattery is an acoustical consultant newly located in Portland, OR. She is a graduate of Belmont University where she earned her bachelor's of science degree in Audio Engineering Technology, with a Physics minor.

Lauren comes to ABD Engineering & Design directly from her internships at NASA Ames Research Center and NASA Marshall Space Flight Center, where she performed acoustical testing and assisted with acoustical aspects of aircraft, satellites, engines, and their components. Lauren is building her architectural acoustical experience through mentoring with ABD staff. She is proving to be a quick study and is taking on her own project work.

Lauren describes herself as outdoorsy and enjoys hiking, climbing, and kayaking. She loves road trips and travel, reading, and baking - especially pastries.

## Professional Experience

- 2024-Present – Acoustical Consultant, ABD Engineering & Design, Inc., Portland, Oregon
- 2024 – Acoustic Support Intern, NASA Ames Research Center, Mountain View, California
- 2023-2024 – Acoustic Test Support Intern, NASA Marshall Space Flight Center, Huntsville, Alabama
- 2021-2024 – Audiovisual Technician, Columbus Zoo and Aquarium, Columbus, Ohio
- 2022 – School of Music Audio Crew, RF Technician, Stagehand, Belmont University, Nashville, Tennessee

## Education

- Bachelors of Science: Audio Engineering Technology, Physics Minor: Belmont University, Nashville, TN, 2023

## Professional Certifications

- ProTools User Certified
- Dante Certification 3

## Professional Memberships

- Audio Engineering Society
- Women in Audio
- Acoustical Society of America
- Institute of Noise Control Engineering (INCE)
- American Society of Testing and Materials
- National Council of Acoustical Consultants

## Project Experience

- |  |   |   |
|--|---|---|
| • Oregon State University<br>Corvallis, Magruder Hall,<br>Corvallis, OR                      | • Colonia de Valle Prospero,<br>Affordable Housing,<br>Albany, OR                                 | • Wind Tunnel Acoustic Data<br>Processing,<br>Mountainview, CA  |
| • Sous La Rose Social Club and<br>Event Space,<br>Portland, OR                               | • RogueX Credit Union Community<br>Complex, Aquatics, Sports, and<br>Events Center<br>Medford, OR | • Ocean Way Recording Studios,<br>Final Recording Project for<br>Studio Recording II<br>Nashville, TN |
| • Micronesian Islander<br>Community's Voyagers' Village,<br>Affordable Housing,<br>Salem, OR | • Acoustic Test Stand Design,<br>Mountainview, CA   | • Foley and ADR group recording<br>project<br>Nashville, TN   |

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