



PRICE RESEARCH CENTER NORTH

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EXPERIENCE PRCN

Price Research Center North (PRCN) demonstrates Price's leadership in the market and is an excellent resource that can help you find the best possible solution for any HVAC project. Whether it's a new product introduction, specific project mock-up or general tour and product presentation, you will be given the opportunity to interact with the largest and most experienced engineering team in the HVAC industry.

VISITS

With the most knowledgeable design and application engineers in the industry, the presentations and tours available at PRCN are world class. Coming to PRCN will help you understand the wide range of solutions offered by Price.

SCHEDULE A VISIT TODAY

Contact your local Price representative today to arrange for a visit to PRCN or have a mock-up scheduled. We look forward to hosting you soon.



PRICE RESEARCH CENTER NORTH

INTRODUCTION TO PRCN

WHAT'S NEW?

Price adds 9,000 sq. ft. of testing space in 2015, bringing PRCN to 29,000 sq. ft. in total.

WHAT MAKES PRCN SPECIAL?

Ability to mock up different system configurations to any customer specification and extensive testing capabilities.

Price's continued commitment to customer service and superior technology led us to construct Price Research Center North (PRCN), the only facility of its kind in North America. PRCN is a 29,000 square foot state-of-the-art laboratory and testing facility providing the most accurate and reliable test data in the industry.

Originally comprised of only two rooms, PRCN has expanded numerous times since its inception in 1978 and now houses 16 specialized testing rooms, 3 fan rooms, and 2 sound testing chambers.

PRCN is an excellent place for engineers, contractors, architects, and owners to view Price products under a variety of installation and operating conditions.

It is Price's ongoing commitment to our customers and relentless innovation that has driven this facility to become what it is today; the most advanced, extensive, and comprehensive HVAC research center in North America.

RESEARCH & DEVELOPMENT

PRCN is a unique, cutting-edge facility that provides you with the opportunity to customize test conditions and products in a real-time environment, resulting in accurate, reliable test data and interactive product experiences.

MOCK-UPS

The mock-up capabilities available at PRCN are perfect for the study of unique applications or technologies. They leave a strong and lasting impression by demonstrating how designs and products work together firsthand. The team at PRCN is able to mock up hundreds of different system configurations, helping to resolve any uncertainty for a proposed HVAC design.

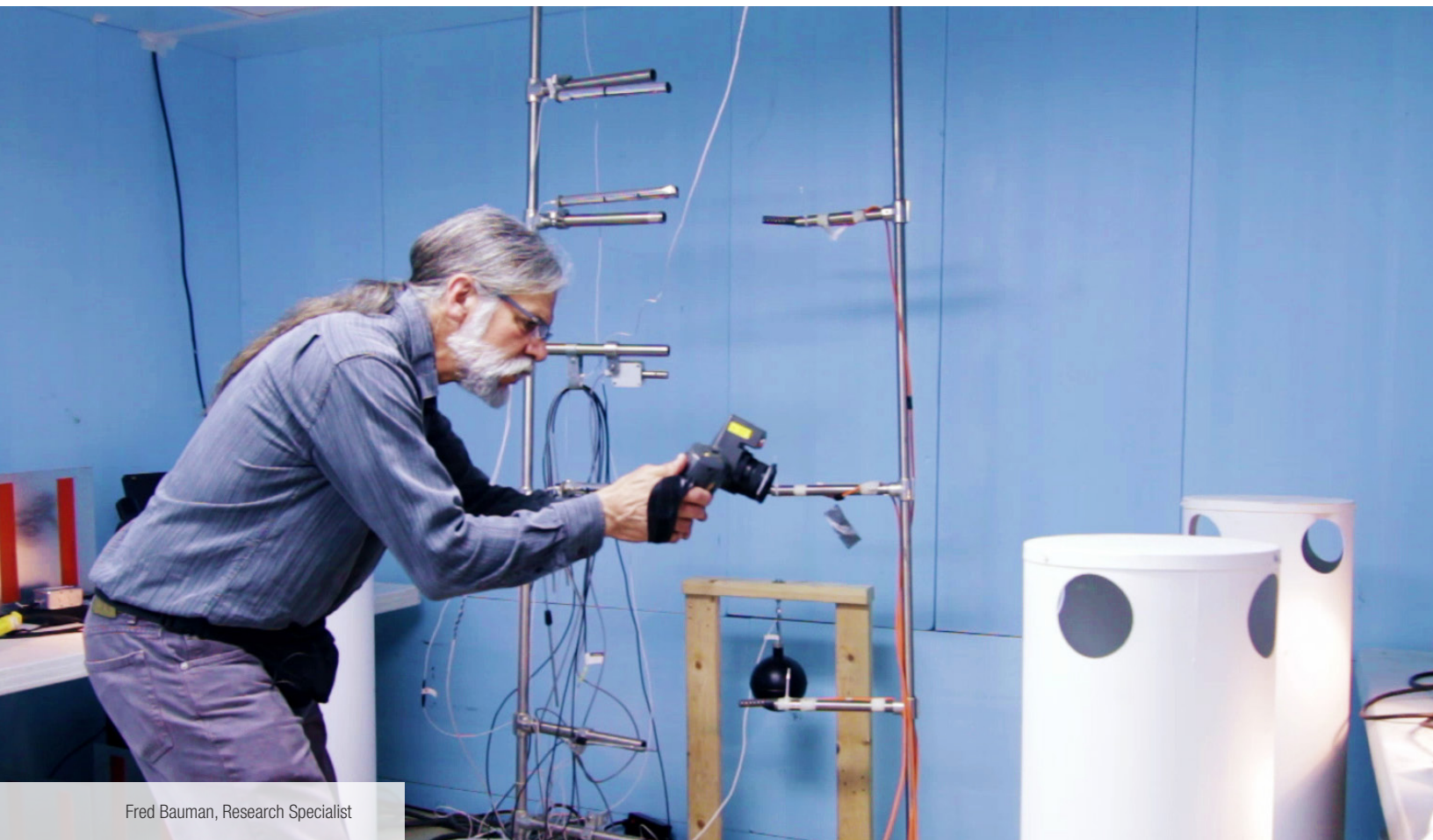
RESEARCH & DEVELOPMENT

Innovative technology and unparalleled testing capability have attracted top researchers from across North America. Price has collaborated with distinguished partners such as the National Research Council of Canada, Texas A&M University, and the University of California, Berkeley.

Product development is also a focus of the lab with countless new products ranging from high-end niche products such as hospital lab controllers to commodity products including grilles, registers, and diffusers developed every year at PRCN.

“There is excellent support from the professional colleagues here and this allows us to get a lot done in a really high quality test facility.”

Fred Bauman, Research Specialist,
Center for the Built Environment,
University of California, Berkeley



Fred Bauman, Research Specialist



Ian Nelson, Graduate Student - Mechanical Engineering

RESEARCH VISITS

University of California, Berkeley The Center for the Built Environment

Fred Bauman, Research Specialist

Purpose: To investigate the combined relationship between displacement ventilation and radiant cooling/heating systems for optimization of energy usage and improved thermal comfort.

Texas A&M University

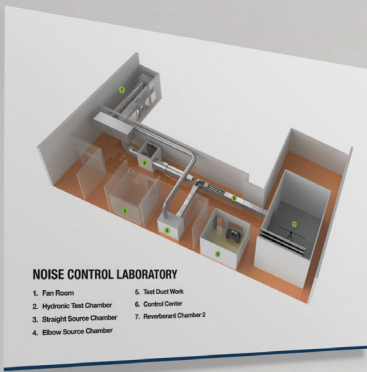
Ian Nelson, Graduate Student
in Mechanical Engineering

Purpose: To research the effect of heat source configurations on the performance of active chilled beams.

Center for Mechanical and Environmental Systems (UNLV)

University of Nevada, Las Vegas Team

Purpose: To study the effect of length, liner thickness, and aspect ratio on the attenuation of lined ducts in HVAC systems.



Noise Control Laboratory at PRCN

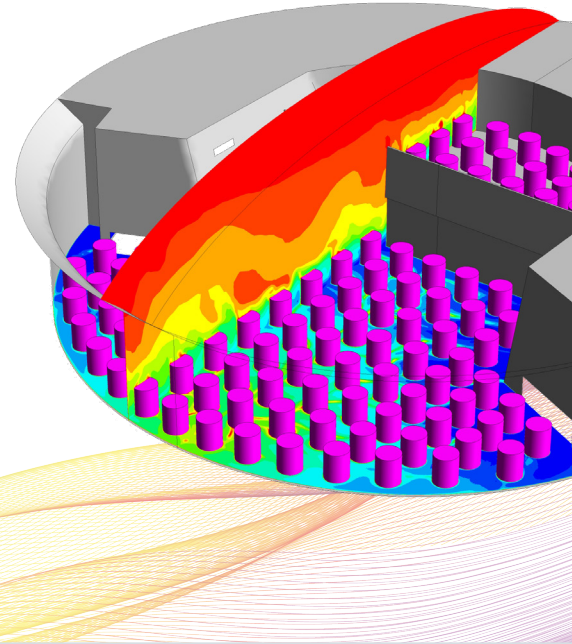
PRODUCT EVALUATION

COMPUTATIONAL FLUID DYNAMICS

Computational Fluid Dynamics (CFD) is an analytical tool that allows for the evaluation of an air distribution system before construction begins. It helps solve variables such as temperature, velocity, air quality, and various thermal comfort indices in an occupied space. Price's CFD software is rigorously validated against test data from the numerous specialized test rooms at PRCN, making it a very useful design tool when a space is too large or complex to mock up in our lab. Any type of space can be simulated, from hospital operating rooms to offices to large theaters.

HIGHLIGHTS:

- Lab validated boundary conditions
- Comprehensive and accurate CFD analysis using ANSYS CFX software
- Steady-state and time-varying simulations
- Simulations account for a wide variety of physical phenomena: turbulence, buoyancy, thermal radiation, and particle support
- Ability to analyze any type of space
- Interactive online review of results
- Highly trained and experienced analysts
- Design assistance



PRODUCT DEMONSTRATION

CONTROLS DISPLAY

The industry leader in custom controls, Price manufactures a comprehensive line of controls solutions including rooftop, motor, and multiple zone controls. These solutions all incorporate the latest BACnet technologies.

Price now has a suite of controls with BACnet Testing Laboratories (BTL) certification and membership. After rigorous testing at BTL, these products earned their certification with ease, going through the program quicker than most BACnet Master Slave/Token Passing (MS/TP) devices while requiring virtually no changes. Custom development of control solutions allows for increased flexibility, giving customers exactly what they need for optimal performance for

their specific requirements. Whether your building is large or small, Price controls will meet the demands of your facility.

The Controls Display showcases the wide range of innovative controls options that Price offers.

HIGHLIGHTS:

- Controls solutions from rooftop to zone controls
- Latest BACnet technologies available giving optimal system control
- End-to-end solutions for optimal occupant comfort
- Allows for customizable sequences resulting in the best possible performance



PRODUCT DEMONSTRATION

FLOW VISUALIZATION ROOM

The Flow Visualization Room allows you to experience a range of Price products, from our wide selection of overhead grilles, registers, and diffusers (GRDs) to our most innovative displacement and underfloor air distribution technologies.

This room demonstrates the dynamic effect that a diffuser has on the occupants of a space. In this controlled environment, heated mannequins simulate human bodies. Heat loads from other objects such as computers can also be examined. A sensor tree utilizes velocity and temperature probes to capture and display the results on plasma screens in real time. All of these tools make this room an invaluable resource for the planning and designing of a ventilation system.

HIGHLIGHTS:

- Showcases over 20 displacement, underfloor, and overhead diffusers
- Smoke tests of a number of Price GRDs can be demonstrated with the click of a mouse
- Highlights Price hydronic products including chilled beams and chilled sails
- The instrumentation tree is equipped with seven velocity and nine temperature measurement locations
- Air patterns can be examined as they interact with heated mannequins

“Being an engineer, I like to see things working and being able to go in there and see the performance of the different styles of grilles and diffusers with the smoke injection in them.”

Justin Kirchart,
ACCO Engineered Systems

PRODUCT TESTING

ISOLATION ROOM

The Isolation Room allows for the testing of room pressurization controls and monitors, and is used extensively in the ongoing development of Price's healthcare controls solutions.

In hospital environments, there's simply no room for error. With this in mind, the isolation room was carefully designed to mimic an actual patient environment complete with an attached anteroom and toilet room. The layout also allows Price to set up, test, and validate any room pressure configuration in both positive and negative pressure arrangements.

The room also features a hot/cold wall with nine independent radiant panels, allowing precise control over surface temperatures

in the environment. Additionally, multiple diffuser options including DV, FRFD, high/low level exhaust, and an adjustable Unitee CR Ceiling Grid allow for testing under a wide range of conditions.

HIGHLIGHTS:

- Fully-controlled mechanical system
- Price Room Pressure Monitor (PRPM) and Controller (PRPC) in conjunction with Price Venturi Valves
- Real-time, interactive measurement and room pressurization displays
- Isolation Room size – 275 ft²
- Anteroom size – 54 ft²
- Toilet Room size – 54 ft²

MEASUREMENTS:

- Humidity
- Room pressure
- Valve differential pressure
- Supply, exhaust, and room temperature
- Airflow measurement for supply/exhaust

MECHANICAL EQUIPMENT:

- Price BCH Supply Blower Coil (52 MBH and 800 CFM)
- Price Mechanical Custom Exhaust Fan
- Humidifier/humidity control (capacity of 14 kg/hour)
- Electric reheat supply (Isolation Room 7 kW and Anteroom 1.5 kW)
- HEPA filter bank



PRODUCT TESTING

LABORATORY DEMONSTRATION ROOM

The Laboratory Demonstration Room is a fully operational laboratory demonstration space. The room is outfitted with a variety of fully-functional fume hoods, each of which are integrated with Price's laboratory control solutions. This allows venturi valves, blade dampers, and other critical environment solutions to be tested under strict, real-world conditions.

Like the Isolation Room, the Laboratory Demonstration Room offers multiple diffuser options including laminar flow and radial flow which increases the number of possible testing configurations. A fume extractor, laboratory exhaust bypass control, and adaptable ceiling grid further enhance the room's mock-up and demonstration capabilities.

HIGHLIGHTS:

- Venturi valves
- Fully-controlled mechanical system
- Real-time fume hood performance and room pressurization displays
- Smoke demonstrations
- Ability to test in accordance with ASHRAE 110 standards
- Room size – 380 ft²

MEASUREMENTS:

- Supply, exhaust, and room temperature
- Humidity
- Room pressure
- Valve differential pressure
- Airflow (piezoelectric fan array)
- Fume hood face velocity

MECHANICAL EQUIPMENT:

- Price Mechanical Air Handler - 5,000 CFM at 7.5 in. of static pressure with a 120 MBH cooling coil
- Exhaust Fan with an output of 3,000 CFM at 3 in. of static pressure with a 140 MBH heating coil

“I think the tour was very good, and all the people were obviously very knowledgeable and very engaged, it's a very impressive company.”

Peter Basso,
Peter Basso Associates Inc.





PRODUCT TESTING

OPERATING ROOM SUITES

PRCN houses two operating theaters: the OR Demonstration Suite and the OR Test Suite. Together, these spaces facilitate Price's operating room air distribution research.

TYPES OF SUITES

The OR Demonstration Suite highlights both Price's Hospital Operating Room Diffusion (HORD) and Laminar Flow solutions. The suite includes three separate airflow supplies for independent smoke visualization of front, back, and side slots, as well as laminar flow. The suite is able to switch back and forth between these solutions for visual comparison.

The OR Test Suite works similarly to the Demonstration Suite and is designed to develop Price's Air Curtain Systems. The room is able to perform a variety of

different tests including particle, thermal comfort, air velocity, and smoke visualization testing. The 10-foot-high ceiling is outfitted with a Unitee CR Ceiling System for easy layout changes depending on the specific test product and configuration.

HIGHLIGHTS:

- Can be supplied with HEPA filtered air
- Flexible ceiling layout for HORD/LFD grid sizes up to 15 ft. x 20 ft.
- Fully controlled mechanical system
- All testing in accordance with ASHRAE 170, DIN 1948-4:2008-12, and HTM 03-01 standards
- Test Suite size – 470 ft²
- Demo Suite size – 435 ft²

MEASUREMENTS:

- Airflow
- Supply, return, and room temperature
- Hot wire anemometer velocity
- Duct static pressure

MECHANICAL EQUIPMENT:

- Price Mechanical Air Handlers
 - 3,200 CFM at 3 in. of static pressure, HEPA filtration, and a 133 MBH glycol cooling coil
- Price Mechanical Custom Exhaust Fans
 - 3,200 CFM at 2 in. of static pressure

PRODUCT DEMONSTRATION

VENTURI VALVE DISPLAY

These interactive display walls provide an excellent hands-on demonstration of Price's air control valves, room pressurization, and laboratory controls. The display offers a combination of static and dynamic displays including real-time airflow volume and duct static pressure.

The venturi valve display wall shows a variety of venturi demo capabilities such as valve mechanical pressure independence in a manifolded system and the effect of a silencer on valve noise levels, or how inlet and discharge conditions do not alter valve performance.

“The level of testing that is at the lab is far greater than we’ve seen at other manufacturing companies.”

Frank Post, Post Air Systems



PRODUCT ASSEMBLY

CLEANROOM

In critical spaces, airborne contamination is unacceptable. The addition of a Cleanroom allows Price to test its products under the most carefully controlled conditions available in the industry. All products that use HEPA or ULPA filters will receive DOP testing, final assembly, and final packaging inside the room. This ensures that air quality is never compromised when manufacturing high-efficiency filtration products for hospitals, pharmacies, and laboratories.

HIGHLIGHTS:

- DOP testing verifies casing integrity is 100%
- Cleanroom air is HEPA filtered
- Restricted access to room
- Used in testing Price Fan Filter Units, Laminar Flow Diffusers, and Radial Flow Diffusers



HYDRONIC TEST CHAMBER

The Hydronic Test Chamber is designed to quantify the thermal performance of Price's Active Beams and Radiant product lineup. The chamber has proven to be one of Price's most productive test areas, playing a vital part in the development of 12 product lines, as well as generating the entirety of Price's thermal catalog data for chilled beams and radiant panels.

TEST CHAMBER DESIGN

When constructing the test chamber, engineers from Price visited labs across Europe to perform third-party calibration testing to ensure our chamber yielded identical results to labs of similar design and construction. This strategic addition was PRCN's first foray into "lights out" testing, where the entire testing process, lab control, and data collection system are fully automated. This automation reduces test time from 72 hours to 23 hours for a single product line. This represents current state-of-the-art chilled beam technology.

The Hydronic Test Chamber is essentially a room within a room. The lab started with the shell of a walk-in cooler and was then lined with Price Radiant Panels to allow for absolute control over every surface in the chamber.

The tests are controlled by three primary independent mechanically decoupled control systems. The first is the primary cooling system, the second controls the room's interior surfaces, and the third controls the product under test.

The Hydronic Test Chamber is extremely versatile and allows for multiple configurations including hybrid type systems such as displacement tests and mechanical efficiency tests. The chamber also utilizes the best instrumentation available, allowing it to collect over 300 measurements each second - more than any other chamber in the world.

With the chamber at peak operating conditions, up to seven unique EN tests can be completed within a week, allowing for rapid prototype development. This would not be possible without Price's commitment to automation and desire to advance current testing procedures. All of this solidifies the PRCN Hydronic Test Chamber as one of the most sophisticated radiant test facility in the world.

RESEARCH

The efficiency and instrumentation of the Hydronic Test Chamber allow us to collaborate with research centers in North America and Europe. Price is actively involved in advancing the state of radiant and chilled beam systems through leadership and membership in organizations like the Center for the Built Environment. This dedication has led Price to publish three papers in two years. Other research partners include the University of Manitoba and Texas A&M University.

HIGHLIGHTS:

- Extensive automation means test results that take our competitors three days can be done at PRCN in less than one day
- Test a wide range of radiant products, including chilled beams, sails, and panels
- Testing in accordance with EN standards 14037, 14240, 14518, and 15116, as well as ASHRAE standards 138 and SPC 200
- Ideal for mock-ups and research
- Designed and built by Price engineers
- Room size – 191 ft²

MECHANICAL EQUIPMENT:

- Price Linear Radiant Panels (RPL)
- 2 Price High Performance Fan Coils (FCHG), size 40 with 5 kW of electric heat
- Custom plumbing system
- Coriolis mass flow meter
- 6-stage vertically integrated high pressure pumps
- Nuclear grade pressure sensors and platinum tipped temperature sensors

“I’ve been very impressed with the research lab capabilities and also the flexibility and how the people working in the research laboratory can help us look at different applications.”

John Swift, Cannon Design



SOUND LABORATORY

NOISE CONTROL TESTING

The Noise Control Laboratory is a state-of-the-art acoustical test facility. From ground breaking through commissioning, great care was taken to ensure that the noise data produced by the lab would be accurate, repeatable, and the most reliable in the industry.

At peak capacity, the lab is capable of testing over 30 silencers a week. This high testing output has enabled Price to develop the most thoroughly tested product line in the industry.

All components of the lab have been designed to meet or exceed both current and future versions of ASTM E477 Standard for testing acoustical duct silencers.

The solid concrete Sound Source Chambers can generate over 100 decibels (dB) of sound pressure which allows us to attain accurate insertion loss measurements for long silencers. This gives us the flexibility to test a wide range of products including fan systems, air handling units, and silencers.

The Control Center houses the heart of the operation; a data acquisition system, frequency analyzer, and sound generator that leave nothing to chance.

The Test Duct Work employed in the system had to be designed to minimize sound break-out and break-in of the high test signals produced by the Source Chambers. Multiple layers of sheet metal, drywall mass, and insulation were employed to keep the sound power levels in the general lab area below 70 dB.

The Fan Room consists of a vane axial fan that can produce over 25,000 CFM at 4 in. of static pressure. To ensure that quiet acoustically treated air is used for silencer testing, a range of different noise control solutions are employed including axial fan silencers (AFS), rectangular silencers (RL), acoustical plenums, and custom elbow plenums. Two airflow measuring stations are used to obtain accurate airflow and pressure drop data.

As a part of Price's ongoing commitment to quality and innovation, the laboratory is accredited by NIST's National Voluntary Laboratory Accreditation Program (NVLAP) for testing in accordance with ASTM E477. The NVLAP accreditation audits the lab management systems and technical capabilities and ensures that systems are in place to guarantee the best data possible.

HIGHLIGHTS:

Sound Source Chambers

- Completely insulated to minimize breakout noise
- Generates over 100 dB of sound pressure

Fan Room

- Vane axial fan capable of over 25,000 CFM at 4 in. of static pressure

Reverberant Chamber 2

- Chamber measures over 20,000 ft³ and is completely isolated from the surrounding building and mechanical systems
- Accurate for measurements from 50 Hz to 10,000 Hz



NOISE CONTROL LABORATORY



REVERBERANT CHAMBER 2

“This is a very impressive lab. The sound rooms and all the other testing facilities here are high end, very up to date, very impressive.”

Tim Orris, AMCA International



SOUND SOURCE CHAMBER

REVERBERANT CHAMBER 2

The key to a successfully constructed sound lab is the Reverberant Chamber, which is where noise levels are actually measured. To maintain accuracy for a wide range of sound measurements, PRCN's Reverberant Chamber 2 was constructed with size, dimensions, mass, and acoustic isolation in mind. The result is a structure that is completely isolated from the rest of the building so that all vibration and noise infiltration are eliminated. The chamber's walls and ceiling are made of 8-inch-thick pre-cast reinforced cinder aggregates, and its acoustical doors are rated at STC 55. The room is designed with a discharge silencer that can handle up to 60,000 CFM of airflow for testing axial fan silencing systems and can accommodate a duct connection as large as 9 ft. by 8 ft. through the test wall.

REVERBERANT CHAMBER 1

Reverberant Chamber 1 has been a work horse for Price for over 30 years, generating catalog and performance data including AHRI certified ratings for Price's extensive line of Terminal Units and GRD products. These test results drive our product development and innovation and are applied to our designs on a constant basis.

The room utilizes cutting-edge Brüel & Kjær sound measuring equipment, ensuring that Price's Terminal Units and GRD products continue to set the bar for product performance. Once measured, sound and vibration data is collected using the Brüel & Kjær PULSE LabShop software platform.

Mock-up witness tests are often conducted to fulfill specific project requirements, providing test results that are applicable to the actual job site.

HIGHLIGHTS:

- Capable of collecting 500 measurement points in less than 50 seconds of microphone boom rotation
- Wall, ceiling, and floor are 9 in. cinder block coated with epoxy paint
- Testing in accordance with AHRI Standards 880 and 260, as well as ANSI/AMCA Standard 300-08, ANSI/AHRI Standard 350, and ANSI/ASHRAE Standard 70-2006
- 3 rotating vane anemometers capable of measuring from 50 to 5,000 CFM
- Room volume – 5,300 ft³

MECHANICAL EQUIPMENT:

- Air handler - 4,000 CFM at 12 in. of static pressure
- 80 MBH glycol cooling system
- 59 MBH DX cooling coil
- 65 MBH water heating coil

TESTING

CONTROLS TEST CHAMBER

The Controls Test Chamber is a simulated office space which allows for evaluation of Price Controls and control strategies under a variety of design conditions. The chamber is also an effective training tool for understanding the wide range of innovative Price Control solutions available.

HIGHLIGHTS:

- Two radiant walls simulate cooling and heating loads
- Simulated occupancy and lighting loads can be turned on or off
- Multiple sensors and data acquisition system allow real time monitoring of controls response
- Room Size – 9 ft. by 10 ft. with a 9 ft. ceiling

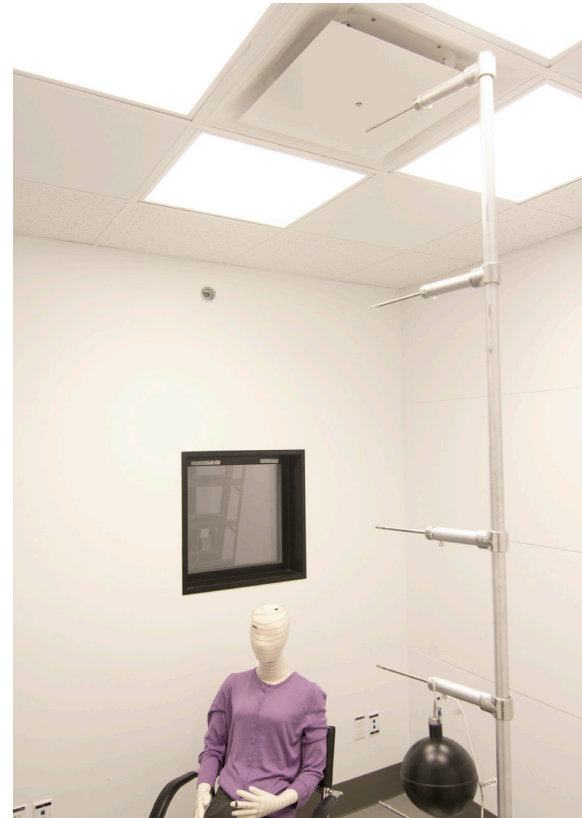
Products Tested:

- Prodigy and Varitherm Diffusers
- Price VAV and Rooftop Controls
- Price SCR electric duct heater control
- Full line of Price Thermostats including Wireless
- BACnet MS/TP network
- Webserver graphical interface

MECHANICAL EQUIPMENT:

Air Handler (FCHG 30)

- Airflow 600 CFM
- 4.7 kW electric heat with SCR
- 13 MBH total cooling capacity
- Duct Pressure Control
- Discharge Air Temperature Control





TERMINALS & FAN COILS TESTING

FAN COIL TEST CHAMBER

The Fan Coil Test Chamber tests all of Price's Fan Coil products, providing precise and real-time test results. The chamber uses dedicated humidity and temperature control to condition the incoming air. Water temperature and flow control are achieved by using a standalone hot/chilled water system that incorporates heat exchangers, an inline heater, and water pumps. These features make it possible to test products in a precise, simulated environment.

HIGHLIGHTS:

- 100% automation, hands-free operation
- Instrumental in the development of Price's Fan Coil and Chilled Beam lines
- Real-time simulation identifies products that will provide optimal functionality
- Testing in accordance with ASHRAE Standard 79 and AHRI Standard 440
- Room size – 157 ft²

MECHANICAL EQUIPMENT:

Waterside & Airside

- 120 gallon storage tank
- 10 kW heater
- Glycol water heat exchanger
- Two circulation pumps
- Price Fan Powered Terminal Unit - Model FDCG 50
- 35 MBH cooling coil
- 10 kW electric heater
- 30 kW humidifier

“It’s an excellent facility and . . . has given us an opportunity to learn something about the products we use on a day-to-day basis.”

Bill Aho, Central Mechanical Systems Ltd.



TERMINALS & FAN COILS TESTING

AIR MOVING TEST AREA 1

AIR MOVING TEST AREA 1

Air Moving Test Area 1 evaluates Price Terminal Units, Fan Coil Units and Fan Filter Units based on variables such as fan curves, power consumption, and flow sensor accuracy.

Test results are conducted in accordance with the latest ASHRAE standards and are published to provide the most up-to-date AHRI certified data to the industry.

Price can also mock up terminal units to examine their performance in non-standard or critical conditions, demonstrating firsthand how the unit will work on the job site.

HIGHLIGHTS:

- Hundreds of Price Terminal Units tested to ASHRAE and AHRI standards every year
- User-defined testing capabilities
- Includes two supply/exhaust drops complete with temperature control capable of delivering up to 10,000 CFM
- Multiple power supplies capable of supplying any voltage from across the world up to 600 V
- Electric coil certification testing in accordance with UL1995
- ECM motor program development capability
- Room size – 1,033 ft²

MECHANICAL EQUIPMENT:

- Air handler with capacity of up to 10,000 CFM
- Omega pressure transducers
- Yokogawa digital power meter
- Thermocouple temperature measurement
- Two rotating vane anemometers capable of measuring 75 - 4,000 CFM

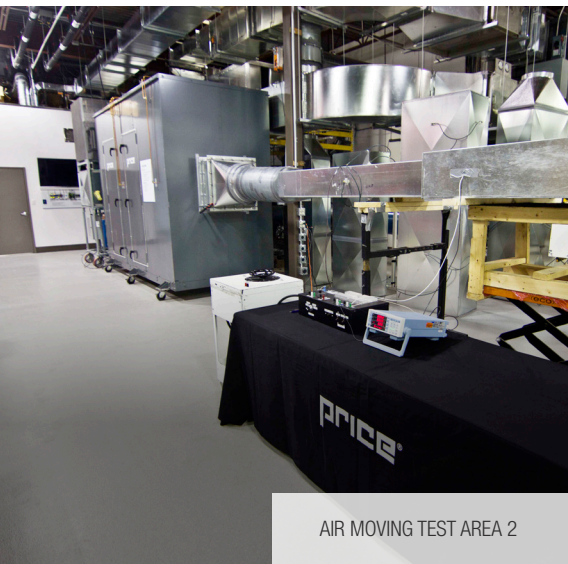
TERMINALS & FAN COILS TESTING

AIR MOVING TEST AREA 2

Similar to Air Moving Test Area 1, this space is used to test the air flow performance of various Air Moving products. The larger area (1,500 sq. ft.) and expanded air flow measurement to 10,000 CFM accommodates larger, higher capacity units including blower coils and air handlers. Adding the additional space increases testing capacity and Price's ability to grow the air movement product line.

HIGHLIGHTS:

- Nozzle bank airflow measurement station built to the AMCA 210 standard with a measurement range of 100 CFM to 10,000 CFM
- Dedicated primary air fan system with rotating vane anemometer flow measurement
- High quality pressure, temperature and power measurement instrumentation
- Full data acquisition and control system
- Multiple power supplies provide different voltage simulations from across the world



AIR MOVING TEST AREA 2



DRUM LOUVER

TESTING

NOZZLE DIFFUSER DEMONSTRATION AREA

The Nozzle Diffuser Demonstration Area showcases a selection of Price's nozzle and industrial grille products. The 70-foot-long test area allows demonstration and testing of these long throw outlets at various operating conditions.

HIGHLIGHTS:

- Visually demonstrates air pattern of outlets with different pattern adjustments and supply air temperatures
- Provides a quick comparison of various outlet models operating at real world conditions
- Allows for accurate lab measurements of long throw outlets
- Outlets can be mocked up to suit specific project parameters

MECHANICAL EQUIPMENT:

Price Blower Coil (BCH 16)

- 1,500 CFM capacity
- 74 MBH glycol cooling coil
- 14 kW electric heating coil

Long Throw Air Outlets

- Drum Louver
- Nozzle Diffusers
- Industrial Grilles

MOCK-UP ROOMS

PRCN houses two mock-up rooms that are designed to replicate real-world installations in a controlled laboratory setting. The ability to experience a facility in a mock-up setting gives you confidence that the space will perform similarly in the field.

MOCK-UP ROOM 1

A number of different environments have been mocked up in this room – from hospital systems and underfloor to displacement ventilation and casinos. Additionally, this mock-up room is capable of performing ventilation effectiveness tests.

HIGHLIGHTS (ROOM 1):

Customizable Overhead Ceiling System

Allows for evaluation of the perimeter and interior zone diffusers in the space at various operating conditions and ceiling configurations.

Controllable Perimeter

The environmental chamber is complete with a glass wall that allows for the evaluation of comfort criteria at the perimeter zone for outside design conditions ranging from -30°F to 100°F. Space temperatures and velocities can all be tested in a real-life environment to ensure optimal Price product selection and performance.

Solar Simulator Wall

The solar simulator wall is the most recent addition to this room. Engineers from Price worked with scientists from the University of California, Berkeley to develop a functional design for a system that simulated the effect of sun on a building, which allows Price to more closely simulate the effects of solar gains on buildings and improve our understanding of the complex reactions between lighting and human comfort.

Raised Floor

The raised floor is customizable to examine various underfloor designs and is set up using the latest in underfloor technology. A pressurized plenum can be set up to test all Price underfloor products and customer design conditions.

MOCK-UP ROOM 2

With the largest offering of commodity air distribution products in the industry, it is necessary to have a room flexible enough to provide literally hundreds of different mock-up configurations. The second of the two Mock-Up Rooms (Throw Room) adapts to the precise design specifications required for accurate testing of thermal comfort, ventilation effectiveness, and air distribution performance.

Using two custom Price Terminal Units, conditioned air can be precisely controlled by measurement and automation software to match any specified application. This allows all types of air outlets to be tested in a variety of environmental conditions. Room layout and diffuser placement can be customized, allowing products to be extensively tested prior to arriving at the job site.

This room features a customizable T-bar ceiling to allow for layout changes depending on specific test requirements. The room can also be separated into two individual test chambers, which allows catalog testing and product development mock-ups to be performed at the same time.

This highly customizable and flexible space has been used for a variety of job specific space mock-ups including hospital operating rooms, classrooms, firing ranges, offices, and critical laboratory spaces.

HIGHLIGHTS (ROOM 2):

- Ability to test specialized niche products for critical spaces like firing ranges, healthcare areas, and laboratory spaces
- Dedicated air handlers with automated controls allow supply air to be conditioned to precise design specifications
- Testing in accordance with ASHRAE Standards 70-2006, 55-2010, and 129-1997 (RA 2002)

MECHANICAL EQUIPMENT:

Mock Up Room 1

- Air handler - 700 CFM with a 35 MBH glycol cooling coil and 10 kW electric heating coil

Mock Up Room 2

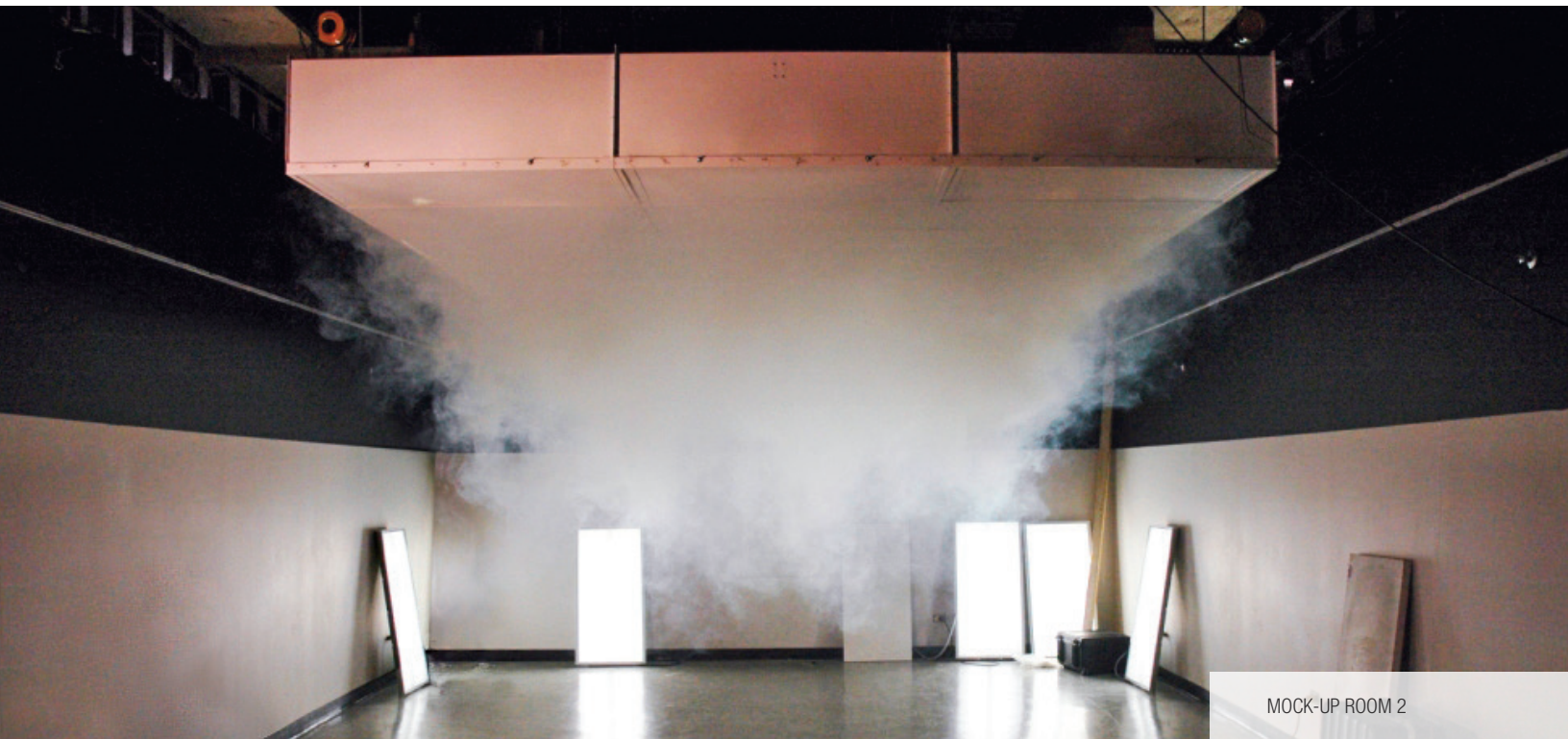
- Two Price Mechanical Air Handlers:
 - Air Handler 1: Capacity of 1,200 CFM with a 37 MBH cooling coil and 17 kW electric heating coil
 - Air Handler 2: Capacity of 700 CFM with a 19 MBH cooling coil and 10 kW electric heating coil

“I think I can say that the benefit . . . is the ability to provide us with highly sophisticated data allowing us to do efficient designs, cost effective designs for our clients, and I can say in my own case that I’ve used the lab many times, I don’t hesitate for a second.”

Laird O’Connor,
Broadway Refrigeration



MOCK-UP ROOM 1



MOCK-UP ROOM 2



TESTING

HIGH BAY DIFFUSER TEST AREA

With a ceiling height measuring 30 ft., the High Bay Diffuser Test Area features GRD and displacement products as well as the ability to mock-up custom tall space applications.

“Having the customer see the facilities has an impact on how they see Price as a supplier and differentiates them in all projects.”

Mike Thornton, TMS Johnson Inc.

HIGHLIGHTS:

- Smoke demonstration of a wide range of commercial and industrial diffusers
- Demonstrate the pattern of various air outlets under heating and cooling conditions in a high ceiling setting
- Allows for accurate throw measurement of diffusers in a high ceiling installation
- Custom mock-up capability to simulate specific project requirements
- Room Size – 37 ft. by 35 ft. with a 30 ft. ceiling

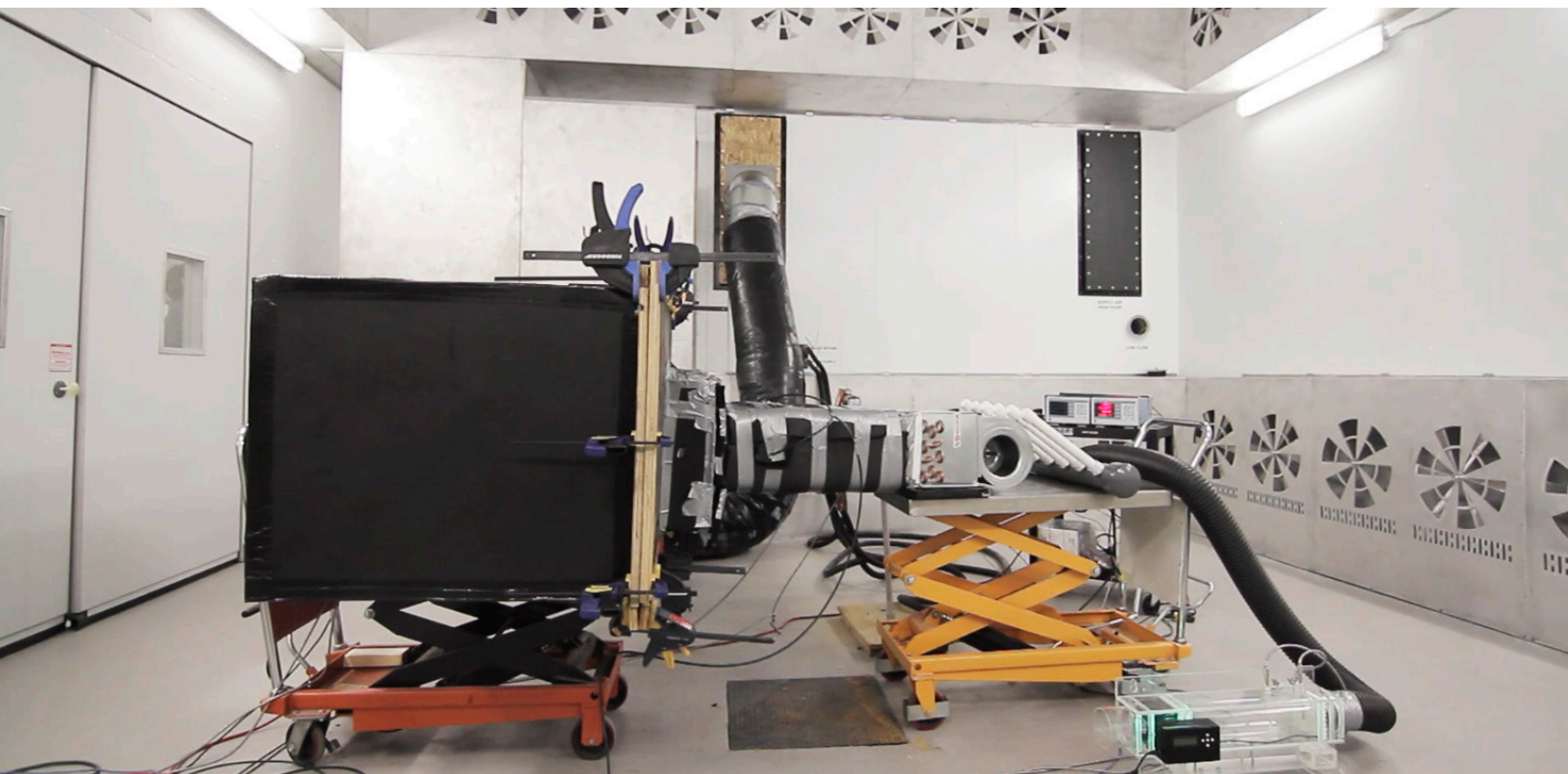
MECHANICAL EQUIPMENT:

Price Blower Coil (BCH 16)

- 1,500 CFM capacity
- 74 MBH glycol cooling coil
- 14 kW electric heating coil

Air Outlets

- Heat/Cool Changeover
- Twist Outlets
- Round Industrial
- Duct Hung Displacement
- Jet Slot Diffusers
- Industrial Displacement



TESTING

PSYCHROMETRIC CHAMBER

This exciting "next generation" environmental chamber was specially designed and constructed to facilitate highly accurate measurement of the cooling and heating capacity for fan coils, blower coils, water coils and large air moving equipment. The chamber allows Price to advance our product offering in the higher capacity air moving market with reliable and repeatable performance data up to a cooling capacity of 40 tons.

"The lab is probably the most professional lab I've seen, and I'm impressed with the commitment to research and development."

David Greenberg, Creative Acoustics

HIGHLIGHTS:

- Capable of performance tests in accordance with AHRI 440 and 410 and ASHRAE Standard 79
- Allows for product development of Price Mechanical air handling units
- State of the art measurement equipment, including Coriolis flow meter, high precision temperature, pressure and power meters
- PLC controls and data acquisition system provide fully automated testing
- Room conditioning equipment capable of conditioning to a wide range of temperature and humidity setpoints
- Water supply has an expanded range of temperature, flow and pressure capable of exceeding any of our products fluid supply requirements
- Room Size – 22 ft. by 25 ft.

MECHANICAL EQUIPMENT:

- 200-10,000 CFM range nozzle bank constructed in accordance with ANSI/ASHRAE Standard 51 and ANSI/AMCA Standard 210
- 50 GPM fluid supply system with 140 kW heater and 480,000 BtuH cooling capacity
- 24,000 CFM reconditioning air handler with electric heat, cooling coil, steam generator, and dehumidification coil
- Variable speed drives on blowers and pumps

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