



CHPB

**CENTER FOR
HIGH PERFORMANCE
BUILDINGS AT PURDUE**

THE FUTURE OF BUILDINGS IS NOW

PURDUE
UNIVERSITY®

Ray W. Herrick Laboratories



A center dedicated to partnering with industry in the development, demonstration, evaluation, and deployment of new technologies and analysis tools for high performance buildings.

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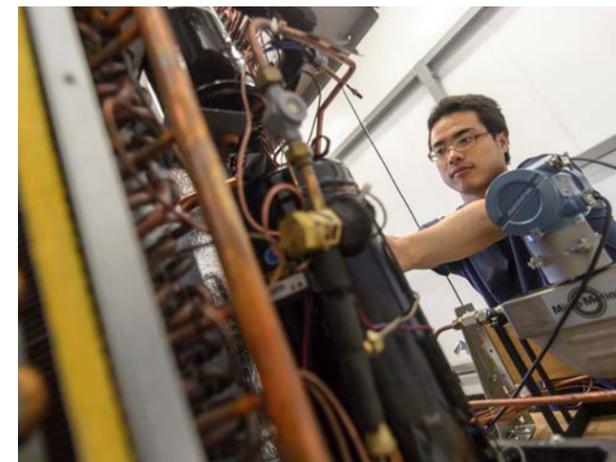
The 21st century is the age of the smart building. Today's technology provides for the possibility of truly interactive buildings with new levels of occupant comfort and feedback, optimal grid-responsive controls, automated diagnostics, and even net-zero energy consumption.

The question is: Do the buildings of the future also include you?

That's why Purdue University created the Center for High Performance Buildings. It's a place where the best of industry and the best of academia join together to conduct groundbreaking research and bring real-life solutions to market.

The centerpiece is a \$30 million laboratory, built in 2013 at Purdue University's Ray W. Herrick Laboratories. This is a building to study buildings, with many unique facilities for considering HVAC equipment, building envelopes, indoor environments, controls, building-human interactions and more. This includes highly reconfigurable office spaces that enable testing of new technologies in a real-world setting with precise monitoring of everything needed to characterize all aspects of energy performance and occupant comfort.

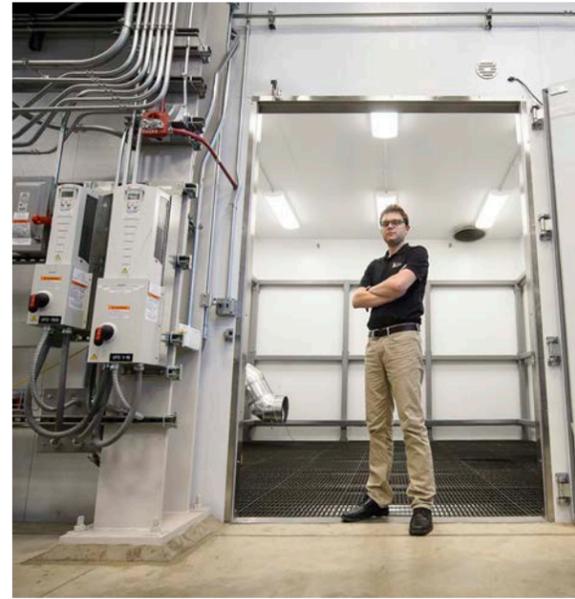
It's the perfect combination of building technology and systems, indoor environment and human perception, and high performance equipment. At the Center for High Performance Buildings, you have access to unmatched facilities and opportunities.



WORLD-CLASS FACILITIES AT YOUR FINGERTIPS

Herrick Labs is the oldest and largest academic HVAC lab in the world. Imagine the research you can conduct at these comprehensive facilities:

- Three pairs of psychrometric chambers: each 7,000 cubic feet, with 5-ton testing capacity (specifically designed to accommodate ASHRAE/ARI test procedures) with precise temperature and humidity control.
- Two Indoor air quality chambers capable of simulating homes, offices, health care environments, vehicles and more; reconfigurable air supply, humidity and particulate concentrations; numerous measurement and instrumentation options.
- Four living labs: identical 34' x 37' office spaces for human-building interaction and building technology studies; completely customizable temperature, humidity, airflow patterns and acoustic treatments; reconfigurable indoor lighting, daylighting/shading controls, mechanical cooling and ventilation controls, and more; thermal delivery by ceiling, floor or side walls, including radiant-floor heating and radiant-chilled beam cooling; replaceable south-facing building envelopes.
- Sixteen geothermal bores: 300 feet deep, with variable flow rates and numerous temperature sensors.
- Perception-based engineering lab: a 43' x 28' x 22' chamber with observational control room; complete control over lighting, sound and temperature in order to study multi-modal responses of human subjects; includes a six-degree-of-freedom shaker and high-resolution motion capture system.
- Architectural engineering labs: room-scale test spaces for precise measurements in real-world weather conditions; reconfigurable windows, lighting and heating/cooling; renewable energy testbeds for photovoltaic-thermal systems and solar collectors.
- HVAC equipment lab: 90-ton centrifugal chiller and ice storage test facility; computer-controlled compressor load stands; psychrometric wind tunnel with dust injection system.
- Acoustic and vibration labs: 12' x 12' x 12' fully anechoic room; semi-anechoic chambers large enough for vehicles; reverberation testing room; comprehensive sensor equipment, including 64-microphone acoustical holography array.



HISTORY OF PARTNERSHIPS

In 1958, Herrick Labs began as a partnership between Purdue researchers and Raymond W. Herrick, air conditioning pioneer and founder of Tecumseh Products. This connection between industry and academia continues today, as dozens of industrial partners work hand-in-hand with CHPB students and faculty on groundbreaking buildings research.

The CHPB and Herrick Labs also host one of the largest worldwide professional conferences on compressors, refrigeration, air conditioning and high performance buildings. Every two years, these conferences attract more than 800 people from 30 countries.



BRISTOL
COMPRESSORS

ENGINEERING
TOMORROW

Danfoss

DUKE
ENERGY

EMERSON
Climate Technologies

Field Diagnostics

GMCC

Honeywell

IR Ingersoll Rand

Johnson
Controls

JLL

KAWNEER
AN ALCOA COMPANY

KK

LENNOX

REGAL

SIEMENS
Ingenuity for life

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

Carrier
United Technologies
turn to the experts

Whirlpool
CORPORATION

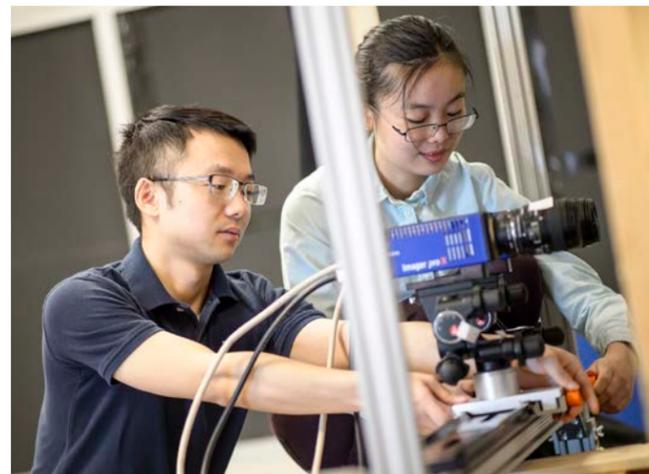


WHY JOIN THE CENTER FOR HIGH PERFORMANCE BUILDINGS?

As a member of the Center for High Performance Buildings, you join a strong consortium of industry partners and the leading minds in academic research. Nowhere else will you find the breadth of facilities and breadth of research faculty dedicated to the technology of high performance buildings.

CHPB partners share their research with you and forge partnerships that will put your organization right at the cutting edge of the industry. You have access to exclusive time-tested proprietary software that is specifically designed to demonstrate, evaluate and deploy new building technologies. At Purdue, you can conduct experiments and conceptual research that would be impossible anywhere else!

The CHPB also is a great place to find your next hire. Students from all over the world come to Purdue specifically to study HVAC, refrigeration and building technology. When you join the Center for High Performance Buildings, you have the opportunity to build relationships with the best and brightest.



USHER IN A NEW ERA

The future of buildings is now, and we want you to become a part of it. It's not just equipment, software or building techniques that will usher in the era of smart buildings — it is the connections between people that will bring these advancements forward. Make those connections today at the Center for High Performance Buildings!





Ray W. Herrick Laboratories
177 S. Russell St.
West Lafayette, IN 47907

765-494-2132

chpb@purdue.edu

CHPB.org