Pennsylvania Housing Research Center

PHRC Magazine

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Fall 2025

Building for the Future

PHRC Fall 2025

Magazine

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PHRC Associate Director Update

Chris Hine, associate director

On behalf of the Pennsylvania Housing Research Center (PHRC) team, I hope the past year has brought you both personal and professional fulfillment. As we head into the fall, things are picking up momentum here at the PHRC, and we're excited about what's ahead.

Each year, this magazine gives us a chance to share what we've been working on, what's coming up, and a little bit about the people behind it all. One of the biggest updates this year is the addition of Danielle Nattermann, our new administrative assistant. If you joined us at the 2025 PHRC Housing Conference in March, you might've seen her in action, as it was her first day on the job! You can get to know her a bit more inside this magazine. We're really glad to have Danielle on board, and I'm happy to report that our team is now fully staffed and ready to dive into the 2025-26 project year.

Fall is always a busy and productive season for the PHRC, and this one is no exception. In this issue, you'll read about ongoing initiatives, such as our webinar series, featured staff projects, and student activities at Penn State. Over the past year, we've reached more than 3,000 individuals through webinars, speaking engagements, and guest appearances at conferences. We're excited to bring you fresh topics this year and would love to connect with you again.

If you're looking for ways to connect, just reach out, as we're always happy to chat and point you in the right direction. We know the residential construction industry is facing some big challenges, but there's also a lot of opportunity out there. Our job is to support you through offering resources, insights, and a bit of stability in an ever-changing industry.

Mix It Up: Concurrent PHRC Conferences

March 18-19, 2026

The Penn Stater Hotel & Conference Center · State College, Pennsylvania

Attend your choice of panels and talks from both conferences!

2026 PHRC Housing Conference

The PHRC Housing Conference highlights best practices, regulation, and innovation in the housing industry. Invited speakers present on a wide-range of topics, including construction materials and methods, residential code, land development and planning, retrofits and existing construction, and high-performance housing.

- Registration opens in late 2025!
- PHRC and Pennsylvania Builders Association (PBA) members, code officials, nonprofit staff members, and students receive a registration discount. Reach out to your association for your discount code.
- Continuing education is available for sessions, which may include AIA, ICC, PA L&I, NARI, PA PDHs for engineers in Pennsylvania, and RLA CEUs for Registered Landscape Architects in the Land Development and Planning track.
- After educational sessions end for the day, enjoy the Networking on the Exhibit Floor reception with exhibitors! It will be a fun time to catch up, with excellent people, food, and drinks! Check out exhibits from your (soon-to-be) favorite product manufacturers, suppliers, and professional services.
- More information is available at **bit.ly/HousingConference**

8th Residential Building Design & Construction Conference

The RBDCC provides a forum for researchers, design professionals, product manufacturers, builders, developers, and more to discuss opportunities and challenges to advance the quality of, and to introduce innovations in, residential construction of all types.

This paper submission-based event focuses on dissemination of recent research and development results and findings; state-of-the-art technologies; materials, methods, and code developments; emerging materials, components, and systems for residential construction; and new approaches in the field.

Keynote Speakers

Sarah Billington
UPS Foundation Professor
Professor of Civil and Environmental Engineering
Senior Fellow at the Woods Institute for the Environment
Stanford University

"From Concept to Community: Design Strategies for Sustainable Affordable Housing"

Georg Reichard
Professor and Chair, School of Building Construction
College of Design
Georgia Institute of Technology

"The 7 Habits of Successful Builders of High-Performance Homes"

For more information, visit
bit.ly/8thRBDCC2026

Speaking Engagements

*Scan here to learn more about PHRC speaking engagements, or to schedule one for **your** team!*

Fun Facts

The PHRC team travels around the state to deliver short technical presentations to companies, organizations, or associations related to the residential construction industry. Over the past year:

The longest distance traveled was to
Builders Association of NWPA, Erie, Pennsylvania (209 miles one way)

The highest attendance was
Lezzer Lumber with 95, followed by MRD Lumber with 89

The most unique venue was
Wayne Pike, in the Wallenpaupack Environmental Learning Center

The favorite topic to teach was
"Decked Out: A Dive into the Updated 2021 IRC Residential Deck Code Provisions"

The most common topic taught was
PA UCC Residential Code Update Part 1 & Part 2, hands down!

The total number of speaking engagements was
26 speaking engagements with a total of 944 attendees (PHRC also had 7 conference guest presentations, for a total of 284 attendees.)

Raising the Standard: **Residential Building Education**

by Pam Slusser
Residential Design & Construction Specialist

In the ever-evolving world of residential construction, staying ahead of new technologies, standards, and best practices is more than a competitive advantage; it's essential for delivering safe, efficient, and high-performance homes. The PHRC continues to lead the way by translating cutting-edge research into practical education for builders, designers, code officials, and industry professionals throughout the state and beyond.

At the heart of PHRC's mission is a commitment to bridging the gap between research and practice. With a growing lineup of webinars, in-person presentations, and speaking engagements, the PHRC team is helping to raise the standard of construction through education grounded in science, building codes, and sustainable design. Upcoming webinars for the 2025–26 educational year will explore timely and technical topics impacting the residential building sector. These sessions are designed not only to inform but to empower professionals to apply knowledge in real-world scenarios. Among the highlights:

"Heating Up Efficiency: Exploring Heat Pumps" guides attendees through the latest in air-source, ground-source, and ducted mini-split systems. With Pennsylvania's varied climate zones, understanding which system fits which context is crucial. The webinar examines performance data, energy savings, installation best practices, and sustainability considerations.

"Advanced Framing Techniques for High-Performance Homes" focuses on material efficiency and thermal performance. Attendees will gain insights into techniques that improve structural integrity while supporting energy code compliance.

"Designing for All Ages: Aging in Place and Intergenerational Homes" offers a fresh look at inclusive design principles. As demographics shift, builders must consider mobility, accessibility, and multigenerational living needs when designing spaces.

"Inside the Envelope: Modern Ductwork Strategies for Energy-Efficient Pennsylvania Homes" tackles airflow, pressure balancing, and energy performance. Poor ductwork design can compromise indoor air quality and energy efficiency—this session helps prevent that.

"Putting the Pieces Together: Levels of Offsite Construction" explores modular, panelized, and hybrid construction strategies, showcasing how these methods can improve quality control, reduce waste, and speed up timelines.

Each topic is driven by the latest research and trends observed in the field. PHRC's staff actively engages in applied research, turning insights into actionable education for the residential construction industry.

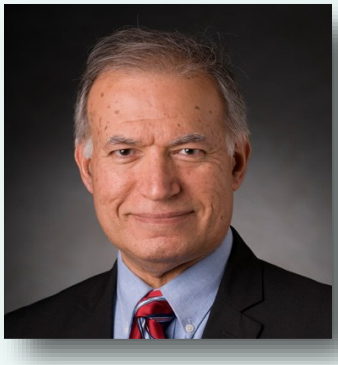
While webinars remain a cornerstone of PHRC's outreach, the team also delivers expert presentations at conferences, code official trainings, and builder association events. This past year, the most in-demand speaking topics were the *2021 IRC Code Updates* and *Deck Design Best Practices*. These sessions were praised for their clarity, real-world relevance, and ability to connect complex code language to practical application.

PHRC staff are also available for customized training sessions across Pennsylvania, ensuring that rural communities, urban centers, and everyone in between have access to high-quality education.

Whether you're a builder managing crews, a designer drawing the next generation of homes, or a code official reviewing plans, PHRC's commitment to education is clear: raising the standard of residential construction benefits everyone. Through research-based education, targeted webinars, and community engagement, PHRC is not only informing the industry—it's shaping the future of housing in Pennsylvania.

See pages 8-9 for PHRC's complete 2025-26 webinar schedule

Hankin Chair Update



Hankin Chair Ali Memari

The Residential Construction (RC) program at Penn State has had another successful year, thanks to the excellent work that the course instructors and the PHRC staff provide in various aspects of the outreach side of our activities. The overarching educational program consists of the 22-credit Residential Construction Minor, which includes multiple courses related to residential building design and construction, construction management of residential buildings, passive house principles, and residential subdivision design. Each year, we have about 15-20 students enrolled in the minor. The RC program also provides opportunities for students to participate in two national competitions, the National Association of Home Builders Student Competition and Department of Energy's BuildingsNEXT™ (formerly known as the Solar Decathlon) Student Design Competition.

The RC program also offers research opportunities to graduate students. Students' research supports their pursuit of graduate degrees, while contributing to the advancement of state-of-the-art research in residential construction materials, components, systems, and methods for improved sustainability, energy efficiency, and hazard mitigation, among other areas. The results of this research are generally published in scholarly journals and conference proceedings.

The third area of RC program activity is outreach related, organizing the biennial academic conference, Residential Building Design & Construction Conference (RBDCC). The program has held seven conferences so far, with the 8th conference planned for March 2026. While the main contributors to the conference are domestic scholars, practitioners, and product manufacturers, the conference also attracts international presenters. The papers submitted to the conference go through a peer review process of revision prior to publication in the proceedings. The proceedings of the past seven conferences are available on PHRC's website (bit.ly/RBDCCPastProceedings) and provide a wealth of accumulated knowledge related to various topics of interest for RC. The RBDCC will be held concurrently with the 2026 PHRC Housing Conference, which is an industry-focused event.

Held in honor of the late Bernard Hankin, the Hankin Distinguished Lecture is an annual lecture, which began 17 years ago. Over 45 years ago, the Hankin family financially contributed to Penn State for the creation of an endowed chair professorship to lead the RC program. All the past lectures are recorded and available on the PHRC website (bit.ly/HankinLecture).

The RC program relies on the dedication of the students, the PHRC staff, and the faculty and staff of the Departments of Civil and Environmental Engineering and Architectural Engineering, as well as the industry sponsors and supporters of the program. We are highly indebted to their support and look forward to seeing their increasing involvement and engagement in future program activities.

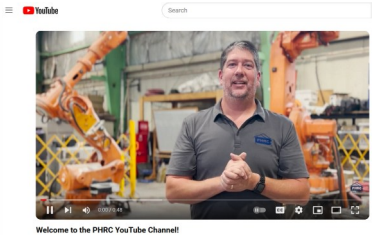
2025 HANKIN
DISTINGUISHED LECTURE

"The Future of Housing is Now"

DENNIS STEIGERWALT, HOUSING INNOVATION ALLIANCE

November 19 at 4 p.m. ET
Robb Hall, Hintz Family Alumni Center

Just Press Play!



Subscribe to PHRC's YouTube channel for short, focused videos covering a variety of topics; our complete recorded webinars in one convenient place; the latest PHRC updates and industry news—and more! Find us on YouTube at @PHRCPennState, or scan the QR code to dive right in!

Educating the Industry:

How PHRC Is Helping to Shape the Future of Building in PA

by Darrin Wright
High-Performance Housing Specialist

At the PHRC, we understand that today's residential construction industry is evolving at a rapid pace. Whether it's new building codes, high-performance methods and materials, or sustainability practices, the need for well-trained professionals has never been more critical. Every day, we work to ensure that builders, code officials, designers, and even homeowners are equipped with the knowledge and tools they need to meet these challenges.

Located within the Department of Civil and Environmental Engineering at Penn State, we're proud to serve as a bridge between research and real-world application. While research is a part of what we do, our mission extends far beyond that. We are deeply committed to educating the industry by offering technical trainings, both online and in person, hands-on learning opportunities, and resources to support Pennsylvania's housing professionals.

As the industry changes, we see firsthand how difficult it can be for professionals to stay current. New energy codes, emerging materials, and more complex building systems require ongoing education, and many in the field simply don't have access to reliable training that is specific to PA and its unique and varied climate. Our workshops and technical seminars are designed to meet real jobsite and code enforcement challenges. Topics like building envelope design, air sealing, continuous exterior insulation, and structural framing are consistently in demand. We also offer a growing library of on-demand webinars—making learning flexible and accessible, whether you're on a jobsite in Pittsburgh or reviewing code updates in rural Tioga County. For those with specific needs, we provide customized training programs tailored for municipalities, home builders' associations, or private firms. And because professional development matters, our monthly webinars and on-demand courses offer continuing education units (CEUs) to help attendees maintain certifications and grow their careers.

Being part of Penn State gives us a unique advantage. Our work is informed by leading-edge research, and we engage students directly through competitions and applied learning projects. This allows us to stay grounded in both innovation and practicality—and helps us to nurture the next generation of building professionals. We're especially passionate about extending our reach to underserved and rural communities. We know that access to training isn't always equitable, so we've made it a priority to expand virtual offerings, partner with local organizations, and create materials that are both high-quality and widely available.

The results speak for themselves. Builders have told us how our sessions help them meet energy goals and pass inspections with confidence. Inspectors have shared how our trainings clarify complex UCC updates and improve their code enforcement.

Looking ahead, we're excited to expand our programming to include topics like zero-energy ready homes, AI integration in homebuilding, and resilient design. We constantly listen to industry feedback to shape and improve our offerings. At PHRC, we believe that education is the cornerstone of better housing. We're proud to play a role in shaping the future of construction in Pennsylvania—one course, one connection, and one project at a time. To learn more, or to register for upcoming trainings, visit **phrc.psu.edu**.

2025-26 Webinar Schedule

Tune in every second Tuesday of the month, 1-2 p.m. ET, and occasionally on the last Thursday of the month, 11 a.m.- noon ET, for free webinars! Live webinars are approved for American Institute of Architects (AIA) learning units, International Code Council (ICC) contact hours or continuing education units (CEUs), Pennsylvania Department of Labor and Industry (L&I) contact hours, National Association of the Remodeling Industry (NARI) CEUs, and Pennsylvania professional development hours (PDHs) for licensed professional engineers in Pennsylvania and include a certificate for $25. Past webinars are available to view on our website under “Industry.”

Register for upcoming webinars

bit.ly/PHRCWebinars

Energy Code Compliance Options in PA

September 9 @ 1 p.m.

Understanding the 2021 IRC and IECC energy codes is challenging enough, but when you factor in Pennsylvania’s unique modifications under the Uniform Construction Code (UCC), it becomes even more complex. This session will walk participants through the residential energy compliance options available in Pennsylvania, including the prescriptive path, total building performance, Energy Rating Index (ERI), and the new 2025 Pennsylvania Alternative Residential Energy Provisions. Participants will gain clarity on these paths and learn how to choose the right one for your project.

Advanced Framing Techniques for High-Performance Homes

October 14 @ 1 p.m.

As energy codes become more stringent, residential builders and design professionals are under increasing pressure to deliver high-performance homes without significantly increasing costs. This session explores advanced framing techniques and construction methods that optimize material use and improve thermal performance to help professionals meet or exceed new energy efficiency standards. Get an in-depth look at how strategic framing adjustments can reduce thermal bridging, increase insulation space, and minimize waste while maintaining structural integrity. This session covers practical design details, code compliance considerations, and real-world examples that demonstrate both energy and cost savings.

Heating up Efficiency: Exploring Heat Pump Options in PA

October 30 @ 11 a.m.

This session provides an overview of the primary heat pump systems used in residential construction in Pennsylvania, including air-source, ground-source, and ducted mini-split options. Learn how different technologies perform across Pennsylvania’s climate zones and housing types, while highlighting their energy efficiency benefits and operational characteristics. This session also explores key installation considerations, design best practices and potential challenges to ensure successful system integration and long-term performance.

Best Practices for High-Performance Hot Water Systems

November 11 @ 1 p.m.

Do you want higher performance at lower costs? Every decision that increases pipe length decreases efficiency and adds costs. Right-sizing pipes and water heaters is essential. Integrating air source heat pump water heaters into high-performance homes can be challenging. This session will do a deep dive into the essentials. Bring the key questions you would like to have answered!

Putting the Pieces Together: Levels of Offsite Construction

December 9 @ 1 p.m.

Learn about various possibilities for offsite residential construction focusing on single-family applications. The options range from panelized walls to component cassettes that include exterior walls with the cladding and insulation already installed to fully modular units and manufactured homes. This session will consider the opportunities and challenges that may influence the decision to pursue offsite or site-built construction. Participants will leave with an understanding that offsite construction is not a one-size-fits-all approach.

Advancing Indoor Air Quality Strategies in Residential Building Design

January 13 @ 1 p.m.

Indoor air quality (IAQ) is the first—and arguably most critical—topic within the broader concept of Indoor Environmental Quality (IEQ), which includes thermal comfort, acoustics, and lighting. This session introduces a structured approach to IAQ planning in residential design, tailored for Pennsylvania's climate and construction practices. Using the IAQ Guide and Checklist for Architects , participants will learn how to assess occupant health needs, identify pollutant sources, and integrate ventilation, filtration, and material choices into the design process. The session emphasizes practical strategies to promote healthier, safer, and more comfortable living environments, while aligning with sustainability and wellness priorities.

A Blueprint for Compliance: Understanding Chapter 102 Regulations and the 2024 PAG-02 General NPDES Permit

February 10 @ 1 p.m.

Construction activities with earth disturbances greater than or equal to one acre require National Pollutant Discharge Elimination System (NPDES) permit coverage under federal and state regulation. This session will provide an overview of the 25 PA Code Chapter 102 regulations which address NPDES permit requirements and compliance in Pennsylvania. Participants will be introduced to the 2024 version of the PAG-02 permit, exploring the pertinent changes from the 2019 version, as well as the additional record keeping the permit conditions will now require. This session will dive into the various permit requirements and touch on some helpful design recommendations to keep your application moving through the process. Finally, this session will wrap up with a discussion about how to get a site started, stay on schedule, and achieve successful project completion while maintaining permit compliance.

Inside the Envelope: Modern Ductwork Strategies for Energy-Efficient Pennsylvania Homes

April 14 @ 1 p.m.

This session will provide an overview of modern strategies for placing ductwork within conditioned spaces to improve energy efficiency, comfort, and system performance in homes. Participants will learn about common and innovative duct placement methods, such as soffits, dropped ceilings, and unvented attic spaces, as well as the design and application of ducted mini-split and low-profile systems. This session will also cover best practices for installation, air-sealing, and insulation to support code compliance and maximize overall system effectiveness.

Harnessing AI to Transform Residential Design and Construction

April 30 @ 1 p.m.

Artificial intelligence is reshaping the way homes are designed, built, and managed. From predictive design tools and automated project scheduling to real-time site monitoring and energy optimization, AI is helping the residential construction industry boost efficiency, reduce costs, and deliver smarter, more sustainable homes. This session will explore how AI technologies are being applied across various stages of the residential construction process. Learn how builders, architects, and developers can leverage AI-driven tools to streamline workflows, improve accuracy, and make data-driven decisions. Whether you're already using smart tech or just beginning to explore its potential, this session will offer valuable insights into the future of homebuilding.

Designing for All Ages: Aging in Place and Intergenerational Homes

May 12 @ 1 p.m.

Faced with the reality of Pennsylvania's aging population and cultural shifts in the makeup of households, this session will address best practices and considerations for new single-family construction to enable occupants to age in place and to accommodate intergenerational living. The session will also consider modifications that can be made to existing construction, creating homes that support the needs of all ages. Participants will take away how to design and modify homes for all ages.

Hitting the Ground Running: Meet Danielle Nattermann

For the PHRC's newest team member, Administrative Assistant Danielle Nattermann, the first day on the job was at the 2025 PHRC Housing Conference in Harrisburg, Pennsylvania, on March 26-27. She laughs remembering the surprised reactions of conference participants, who kept saying "Chris said this is your first day?!" While her coworkers hoped that the PHRC Housing Conference would give Danielle an opportunity to get her feet wet in the work of the PHRC, she did not hesitate to dive right in and assist in facilitating the conference.

Danielle expresses appreciation for work environments that require full engagement and a faster pace: "when you have to move and go the whole time, how can you lose interest?" Her background includes working as an accountant at the State Theatre and working at the Pennsylvania School Study Council, a nonprofit that provides research and education for teachers and other public education professionals. "I would say I'm a pretty good multi-tasker, I'm a pretty good worker, and I do well under pressure," she says.

Danielle comes from "a construction family"; her father is a general contractor in State College, and her brothers work with him. He started the business, doing primarily full-house construction, over 40 years ago. "I just grew up around that all the time," Danielle says, so the PHRC seemed like a good fit. "My understanding is on a very basic level, but if people have a conversation and they're talking about, like, egress, or something like that, where a lot of people wouldn't know what that is, I at least have a basic understanding of it, so I think that going forward, it will be helpful and useful to have that kind of a background."

Danielle values team functionality and cohesiveness most in a workplace: "When you're working in a team environment, I think that while knowledge is important, effort and cohesiveness within a team are almost more important—a willingness to work together and support each other and communicate well, I think, gets you so much further." She noted that everyone she has met on the PHRC team and at its events has been very friendly, welcoming, and encouraging. "Everything that I've experienced so far has been very, very positive. It gives me a good positive outlook for the future," both in terms of "where I'm going in the position, and where the PHRC is." She appreciates the helpfulness of the PHRC's work to those, like her father, in residential construction. "It seems like we have the right reasons for doing what we're doing—just wanting to educate and get the information out there, make it available."

Danielle has three young sons who keep her very busy with, among other things, involvement in multiple sports. "I spend a lot of time at basketball courts and football fields and soccer fields." She recalls "times where we have three kids in three different sports at three different fields on the same day, so it's like a Rubik's Cube trying to find out who's picking up, who's dropping off, where are they going? It's a whole thing. But I wouldn't have it any other way." When she has free time, she enjoys "laid back" activities, such as working out, playing with her dog, and reading. She enjoys watching stand-up comedy, especially comedians who are storytellers. "Honestly, though, in the day-to-day life, it's my kids" who make Danielle laugh hardest, "the things they say and do. They didn't tell you this before you had kids. Everyone's like, this is great, this is terrible, but they don't tell you about just like the off-the-wall ideas that they come up with, and the things they say." Danielle says that her number one goal is "raising happy, healthy, kind children into being productive members of society when they become adults. Good people, kind people."

Asked what message she would share with the world if she could, Danielle says she would ask people "just to be kind. We're all humans, and none of us know what the hell we're doing—like we really don't." Despite the fact that "there's a lot of judgment, there's a lot of hate" in the world, "everyone's doing the best they can, everyone's trying to be happy, trying to show happiness even if they aren't happy. So I just think, be nice."

Materials that Make a Difference

by Pam Slusser
Residential Design & Construction Specialist

In an era in which environmental awareness is reshaping how we live and build, sustainable materials are becoming a cornerstone of modern residential construction. But what exactly makes a building material "sustainable," and how can homeowners, builders, and designers identify truly eco-friendly choices?

Sustainability in the residential building industry refers to the use of materials and methods that reduce environmental harm while promoting energy efficiency, long-term durability, and healthier indoor environments. A sustainable material minimizes the depletion of natural resources, limits pollution throughout its life cycle, and often supports a circular economy where products are reused, repurposed, or recycled rather than discarded as waste.

At the core of sustainability are several key principles. One is resource efficiency, which emphasizes the use of materials that are renewable, recycled, or abundantly available with minimal environmental disruption. Another is low embodied energy, meaning the material requires less energy during its production, transportation, and installation. Sustainability also considers the longevity of a product; durable materials that perform well over time reduce the need for frequent replacements and associated waste. Additionally, sustainable materials contribute to healthier living spaces, by avoiding toxic chemicals and promoting indoor air quality. Finally, products that can be reused, repurposed, or recycled at the end of their useful life help close the loop in responsible material management.

Identifying sustainable materials involves looking at several aspects of their life cycle. It's important to consider how and where the material is sourced. Renewable materials like natural fibers or rapidly regrowing plants, as well as products made from recycled content, are strong indicators of sustainability. Understanding the manufacturing process is also essential; materials that are produced using clean energy, low water consumption, and minimal chemical treatments are more environmentally friendly. Transporting materials over long distances can significantly increase their carbon footprint, so locally-sourced materials often represent a more sustainable choice.

In addition, many sustainable materials offer benefits beyond their environmental impact, such as improved thermal insulation or soundproofing, which can enhance energy efficiency and comfort in the home. Certifications from recognized third-party organizations may also provide assurance that a product meets specific environmental or health standards.

Using sustainable materials in residential construction is more than just an environmental statement; it represents a commitment to long-term value, healthier homes, and responsible resource use. These materials can contribute to lower utility bills, increased durability, and reduced reliance on nonrenewable resources. As the demand for eco-conscious construction grows, so does the availability of innovative building materials that offer both performance and sustainability.

Whether you are building a new home or renovating an existing one, understanding what makes a material sustainable can lead to smarter decisions that support both your living environment and the planet. Sustainability in construction is not just a passing trend; it's a vital, forward-thinking approach that helps shape a better future for everyone.

On-Demand Courses

Receive continuing education credits from the PHRC at any time, any day of the week! In addition to live webinars for continuing education, the PHRC offers on-demand courses to assist residential construction industry professionals in meeting ongoing continuing education requirements. Typical continuing education approvals include PA Department of Labor and Industry contact hours, professional development hours for licensed professional engineers in Pennsylvania, American Institute of Architects learning units, International Code Council contact hours or continuing education units (CEUs), and National Association of the Remodeling Industry CEUs. To find out more, scan the QR code to the right, or visit:

bit.ly/PHRC-On-Demand

Become a Member!

Join the PHRC as a member today! Members receive additional access to trainings, discounts, and advertisement opportunities. PHRC membership fees support the outreach activities of the PHRC, students involved in the National Association of Home Builders Student Chapter at Penn State, and more.

PHRC Membership Levels

Platinum $5,000	• Recognition at the Penn State NAHB Student Chapter Awards & Industry Mixer through a $1,000 student scholarship and invitation to the event • Two additional free speaking engagements (in-state or out of state up to approximately 250 miles from State College).[1] [2] • Company logo hotlinked on PHRC Membership webpage • Company logo listed in annual magazine • Company logo listed in the PHRC Housing Conference program • $700 credit toward conference sponsorship at the PHRC Housing Conference • Three free PHRC Housing Conference registrations
Gold $2,000	• Recognition at the Penn State NAHB Student Chapter Awards & Industry Mixer through a $500 student scholarship and invitation to the event • One additional free speaking engagement (in-state or out of state up to approximately 250 miles from State College).[1] [2] • Company logo hotlinked on PHRC Membership webpage • Company logo listed in annual magazine • Company logo listed in the PHRC Housing Conference program • $300 credit toward conference sponsorship at the PHRC Housing Conference • Two free PHRC Housing Conference registrations
Silver $1,000	• Company logo hotlinked on PHRC Membership webpage • Company logo listed in the PHRC Housing Conference program • Company name listed in annual magazine • $100 credit toward conference sponsorship at the PHRC Housing Conference • One free PHRC Housing Conference registration • One additional free speaking engagement (travel in-state)[1]
Bronze $500	• Company name hotlinked on PHRC Membership webpage • Company name listed in annual magazine • 50% discount on one PHRC Housing Conference registration off the standard rate • One additional free speaking engagement (travel in-state)[1] [2]
Association[3] *$200*	• Association name listed on PHRC Membership webpage • Association name listed in annual magazine • 25% discount on one PHRC Housing Conference registration off the standard rate • One additional free speaking engagement (travel in-state)[1] [2]
Individual $125	• Individual name listed on PHRC Membership webpage • Individual name listed in annual magazine • 25% discount on one PHRC Housing Conference registration off the standard rate • One free enrollment in a PHRC one-hour on-demand course upon request

[1] Speaking engagements may be limited based on the availability of staff. Includes maximum amount of 2 hours of instruction. Does not include overnight travel.

[2] Upon request, the PHRC will provide continuing education certificates for attendees for PA Labor & Industry, PA engineers, AIA, ICC, and/or NARI based on session approval. As continuing education approvals require varying lead time from specific providers, please allow for a minimum of one month's notice for session approval.

[3] Association level is only for member-based associations. Companies must join at the Bronze level or higher. If a company joins at the Association level, you will be contacted to switch to a Bronze membership and invoiced for your remaining balance.

As technology, codes, and building science evolve, the sheer volume of information to digest and compare can be overwhelming, or even contradictory. Joining the PHRC provided an opportunity to gain a deeper understanding of diverse perspectives and the rationale behind code requirements and technical advancements. This helped me develop design solutions that are advantageous and constructible, and easy to communicate to others.

This is excellent organization to be a member of if you are an architect, a builder, a contractor, a code official, an engineer, etc., because they are very knowledgeable on all aspects of building construction. You will be able to network with many others for valuable information, and it is an opportunity for professional development.

I have been a PHRC member since 2008, and the value has been immense. The access to resources and research produced by the staff span both cutting-edge innovations and long-standing industry topics we encounter daily. The PHRC brings together an impressive variety of professionals—code officials, design experts, manufacturer representatives, and contractors—creating a true forum for dialogue across all levels of expertise. By facilitating these discussions and presenting the latest trends, research, and insights, the PHRC advances the residential construction industry as a whole. Their incredibly talented staff actively educates and disseminates the information through trainings, publications and conferences, and serves as a trusted resource for stakeholders.

2025 Members

Platinum

Hankin Group℠

Gold

BERKS HOMES since 1973

Silver

Comfort Specialists — When you're comfortable, life is good.

Lezzer Lumber — Building Materials Centers

PBA Pennsylvania Builders Association®

PCMA pennsylvania concrete masonry association

PMHA Pennsylvania Manufactured Housing Association

S&A HOMES Building Forward

UpStreet ARCHITECTS INC.

Bronze

- The AZEK Company
- Cove Lumber
- MRD Lumber Company
- Panasonic Eco Systems North America
- Parry Custom Homes
- Sukonik Building Companies
- Your Building Centers

Association

- Blair-Bedford Builders Association
- BIA of Lancaster
- BIA of Philadelphia
- Builders Association of Cambria County
- Builders Association of Central PA
- Builders Association of NWPA
- Carbon Builders Association
- Central Keystone COG
- Central Susquehanna Builders Association
- Code.sys Code Consulting, Inc.
- HBA of Berks County
- HBA of Bucks & Montgomery Counties
- Indiana Armstrong Builders Association
- Lebanon County Builders Association
- Manheim Township
- PENNBOC Region 6
- Pittsburgh Dept. of Permits, Licenses, & Inspections
- Pocono Builders Association
- Wayne Pike BIA
- West Branch Susquehanna Builders Association
- York Builders Association

Individual

- Joanna Beres
- Steve Fleming
- Jim Franey
- Richard Hankin
- Dean Hilliard
- John Hudak
- Gary Knarr
- Thomas McCosby
- Rodney Neitz
- Megan Viator
- Brian Willis
- Chris Warren
- Lisa Whitney
- Carla Zapotek

2025 NAHB Student Competition

The Penn State National Association of Home Builders (NAHB) Student Chapter proudly competed in the Production Homes category at the 2025 NAHB Student Competition, held during the International Builders' Show (IBS) in Las Vegas. This prestigious event brought together 24 universities from across the nation, challenging student teams to solve a real-world residential construction management problem. This year's competition site was a 48-acre parcel in Georgetown, Texas—a fast-growing submarket within the Austin Metropolitan Statistical Area. Tasked with transforming this site into a residential development, the Penn State team produced a comprehensive 50-page proposal for a 116-unit single-family subdivision. Their plan featured four thoughtfully designed one- and two-story home layouts, ranging from 2,413 to 3,982 square feet. Each design emphasized efficiency, family connectivity, and sustainability, aiming to meet the National Green Building Standard's Silver rating. Beyond design, the team conducted in-depth market research, financial modeling, risk assessment, and land development planning to create a well-rounded and competitive proposal.

The 2025 presentation team included Emily Yarnall, architecture, as project manager; Sumner Hosterman, civil engineering; Kennais Simms, architectural engineering; Eric Cheng, architectural engineering; Paris Pavelchik, architectural engineering; and Jonathan Bodenschatz, finance. Jackie Lewis, architectural engineering; Ashley Kirk, architecture; and Paul Sussex, civil engineering traveled as alternative presenters. The student team was coached by Chris Hine; Pam Slusser; Darrin Wright; Ali Memari; and Carl Bankert, a residential construction program instructor.

"The 2025 project presented a unique set of challenges" Slusser said. "The students had to navigate complexities like floodplain restriction, proximity to an active quarry, and the pressures of a highly competitive market. What impressed me most was how they rose to the occasion, proactively seeking out industry professionals for guidance and support throughout the process. Presenting first at the national competition, even with a few glitches, they demonstrated poise and professionalism. While they may not have placed in the top three, the knowledge and experience they gained puts them well ahead of their peers and ready for the workforce."

"Our goal as coaches is to provide the atmosphere of a lifelike corporate board room and construction meeting room experience," Hine noted.

Team travel support was generously provided by the National Housing Endowment IBS Travel Award, the University Park Allocation Committee, the Hankin Foundation, and the PHRC.

2025 NAHB Student Competition team

Crowdfunding Campaign

- **Scholarships for NAHB Student Chapter members**
- **NAHB Student Chapter annual registration ($400)**
- **Site visits to construction sites and finished projects**
- **NAHB Student Competition: Registration fee ($400) and travel funds to the International Builders' Show**
- **Volunteer opportunities with Habitat for Humanity and other local organizations**
- **Community building activities for students**

2025 BuildingsNEXT™ Competition

For the U.S. Department of Energy's 2025 BuildingsNEXT™ (formerly Solar Decathlon) Student Design Competition, the Penn State team competed in the Single-Family Retrofit Division. Students from Penn State and Morgan State University collaborated to develop their project, called Solar Grow, which envisioned solutions to address six challenges in Baltimore City, including 1) food insecurity and energy burden; 2) disproportionate impacts of energy burden and food insecurity; 3) links between energy burden, food insecurity, and housing quality; 4) planned increase in energy costs; 5) effects of climate change and urban heat islands on energy; and 6) urban decay. The team proposed scalable low-energy and resilient retrofitting solutions to convert a vacant uninhabitable building and adjacent property to an ultra-

energy-efficient home and developed its use as a platform for urban farming to produce food locally for the community. Located on the site of the Plantation Park Heights Urban Farm, in the Greenspring neighborhood in the northwest of Baltimore City, the project proposed transformation of the existing home into two dwelling units to accommodate visiting farmers, along with community and support spaces for the farm, with the broader goal for Solar Grow to be a model for retrofitting the existing stock of uninhabitable homes in that area.

The existing building, built in 1920, has leaky skin, which is affected by intruding moisture, leaving a deteriorated building envelope. The interior of the building has been gutted. The retrofit design considered the need for two independent farmer residence units, one large unit, with flexibility for hosting community events and space for indoor planting experiments, and one smaller, accessible unit (Unit B), and accommodating farming both onsite and indoors. The overall retrofit strategy targeted integration of the site, building, envelope, and systems and appliances to accomplish energy efficiency. The following three key strategies were considered in retrofit design: 1) reducing energy demand; 2) providing balanced heat recovery; and 3) accommodating renewable energy generation. The key objective of building envelope design in Solar Grow is to control the flow of heat, vapor, air, and moisture by creating an airtight super-insulated building skin, while preserving and repairing the existing load-bearing brick wall structure/cladding. Several features were proposed to reduce energy demand: airtight high-performance building skin, solar chimney for natural ventilation, high albedo roof materials, internal and external window shading, efficient mechanical systems, Energy Star-certified appliances and LED light bulbs, and thermal zoning. The proposed changes will be cost-effective, high-performance, and occupant-friendly while being durable, resilient, and environmentally friendly. The retrofitting solutions for the building are designed to meet Zero Energy Ready Home (ZERH) requirements and incorporate on-site energy generation through rooftop photovoltaic (PV) systems while preserving the building's brick walls to maintain the home's architectural character. The project was led by students Nina Ferrante and Eric Cheng and presented in-person and remotely by Paris Pavelchik, Tyler Colon, Nina Ferrante, Eric Cheng, and Zia Mohajerzadeh, accompanied by faculty Advisor Rahman Azari, at National Renewable Energy Laboratory (NREL) in Golden, CO, on April 27, 2025. The complete team of students involved in this project included: Eric Cheng, Nina Ferrante, Paris Pavelchik, Tyler Colon, Kevin Castillo, Jakob Gula, Marco Imperato, Allison Minich, Zia Mohajerzadeh, Hanin Othman, Jacob Royer, Derek Su, Grace Teed, and Fatemeh Yazdandoust, with faculty advisors Rahman Azari, Ali Memari, Lisa Iulo, Samia Kirchner, and Mark Kirchner.

Penn State team members Paris Pavelchik and Tyler Colon, and faculty advisor Rahman Azari at NREL in Golden, Colorado.

Join in the fourth crowdfunding campaign to support the Residential Construction program at Penn State! Funds raised benefit student activities, competitions, scholarships, and courses related to residential construction. The campaign ends on Friday, October 20, so don't miss out on this opportunity. Don't forget to ask your employer if they would match your donation. Involvement in this program offers students the opportunity to grow in their understanding of residential construction and prepare them for their careers.

Thank you for investing in the next generation of residential construction industry professionals!

Donate by October 20

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The PHRC collaboratively engages with the residential construction industry to catalyze advancements in homebuilding through education, training, innovation, research, and dissemination. The PHRC envisions a residential construction industry equipped with the knowledge, skills, and technology to build better homes.

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Associate Director: **Chris Hine**
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