

PHRC NEWS



The Pennsylvania Housing Resource/Research Center (PHRC) serves the home building and remodeling industries and the citizens of Pennsylvania by improving the quality and affordability of housing. The PHRC conducts applied research, fosters the development and commercialization of innovative technologies, and transfers appropriate technologies to the housing community.

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Register Now!

February 10-11, 2010

CONFERENCE



Training Sessions Day 2

On February 10 & 11, the PHRC will hold its 18th annual conference in Cranberry Township, PA. The conference strives to be the premier technical conference for housing and land development issues in Pennsylvania. This 2-day conference provides the latest information on emerging technologies and how to resolve problems facing the housing industry.

February 10th is intended for all sectors of the housing industry including builders, remodelers, code officials, educators, design professionals and modular and HUD-code builders.

February 11th will offer multiple training events:

- Residential Mechanical Performance: Improving system performance & code compliance
- Designing and Inspecting Residential Sprinkler Systems
- Energy Efficiency for Remodeling Contractors
- Modular Construction: From the Factory to Occupancy

Please visit www.engr.psu.edu/phrc for more information and to register.

New Training Programs

PHRC LAUNCHES 2009 IRC UPDATE PROGRAM

In September the PHRC held its first Update Program. This program is intended to help builders, code officials, design professionals, remodelers, trades and others involved in the residential construction industry prepare for the new 2009 IRC. Participants will not only receive an understanding of the changes in the code, but how it will impact the way houses are designed, built and inspected. Changes that will be discussed include:

- New requirement for the habitable attics
- Carbon monoxide detectors
- Cast-in-place and pre-cast concrete foundations
- Deck ledger attachments requirements
- Wall construction and wall bracing
- Residential sprinklers
- Mechanical, plumbing and electrical changes

This program has already been held across the Commonwealth.

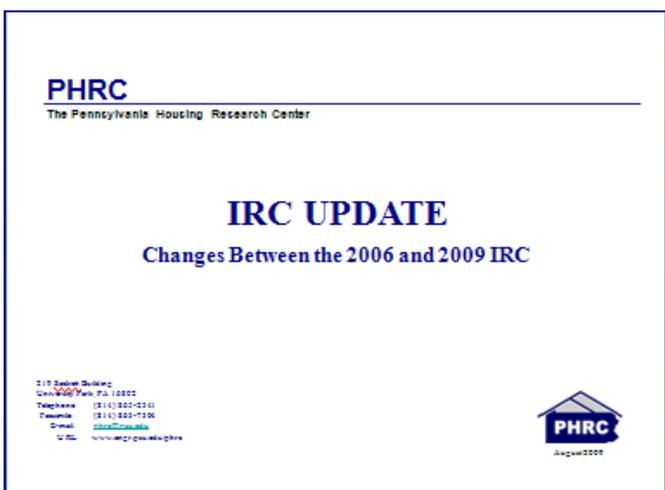
For more information or to schedule a program—please contact Tracy Dorman at tsd5@psu.edu.

TWO-FAMILY DWELLINGS AND TOWNHOUSE PROGRAM

Pennsylvania's Uniform Construction Code has adopted the International Residential Code (IRC) for the design and construction of single family, two-family dwellings and townhouses not more than three stories in height. While many requirements of the IRC apply equally to all residential structures within its scope, there are certainly unique requirements and challenges that apply solely to two-family dwellings and townhouse construction. This course addresses these unique issues in a practical manner. Topics include:

- Exterior walls and fire separation distances
- Fire rated assemblies
- Maintaining fire rating of penetrations of a rated assembly
- Air sealing and fire blocking challenges
- When accessible units are required
- Challenges for dryer exhaust systems
- Fire separation issues created by unusual geometrics, decks and garages.
- A virtual inspection of a townhouse inspection

For more information or to schedule a program—please contact Tracy Dorman at tsd5@psu.edu.



RESIDENTIAL MECHANICAL PERFORMANCE

This full-day program is intended to help HVAC contractors and building code officials alike improve both system performance and code compliance. The program highlights common mechanical code compliance problem areas and significant changes in the 2009 IRC. Sections of this program include: HVAC installation, duct installation and design, gas piping and bonding, clearances to combustibles, combustion air, direct-vent appliance piping, drilling and notching, fireblocking, and exhaust systems. By attending this session you will improve your code compliance if you are a HVAC contractor or improve your residential mechanical inspections if you are a code official.

For more information or to schedule a program—please contact Tracy Dorman at tsd5@psu.edu.

WEBINARS

The PHRC is continuing the popular webinar series. These web-based training programs meet the needs for free interactive training that can be available both live and archived for future viewing.

The following are some of the topics that are offered as web-based training:

December 15, 2009 – Building habitable attics and five floor buildings under the IRC

January 12, 2010 – Introduction to the 2009 IRC wall bracing requirements

March 2, 2010 – Performing air tightness testing – a primer for code officials and builders

April 13, 2010 – Zero Energy Houses in PA – A technical review

May 11, 2010 – To be Determined

PA RESIDENTIAL SPRINKLER FORUM

The PHRC, with its partner, held a series of half-day sprinkler forums in Harrisburg. The program provided builders and building code officials with a technical overview of the sprinkler requirements in the 2009 IRC. The presentations and panel discussion focused on the technical issues of designing, installing, inspecting and commissioning of sprinkler systems.

The initial program scheduled for September 15th sold out in three days. An additional program was added and it filled within two weeks. A total of 240 builders and building code officials attended the event.

The program was developed in partnership with the PA Construction Code Academy (PCCA). Other partners who assisted in the marketing of the program included the Pennsylvania Association Building Code Officials (PABCO), the Pennsylvania Builders Association (PBA) and the PA Department of Community and Economic Development (DCED)

★ registration required ★

Pennsylvania Residential Sprinkler Forum

September 15th, 2009
 Registration begins at 12:30
 1:00 to 5:00
 Harrisburg, PA

For more info and to register :
www.engr.psu.edu/phrc/

This state-wide open forum for builders, municipal decision-makers, water authority officials, water company officials & code officials (especially plumbing plan reviewers and inspectors)

Get your questions answered.

UCC Continuing Education
 (3.0 contact hours)
 certificates available for \$20

Even with the potential for legislative changes – it is likely that we will see more residential sprinklers required in Pennsylvania than ever before.

Will you be ready?

2009 PA ALTERNATIVE RESIDENTIAL ENERGY PROVISIONS DEVELOPED

The PHRC developed and released the *Pennsylvania Alternative Residential Energy Provisions* (PA-Alt) for consideration by the PA Department of Labor and Industry (DLI) to meet their legislated mandate. The UCC legislation requires DLI to promulgate regulations to implement the requirements of the legislation and, in addition, to consider the development of alternative prescriptive methods for energy conservation that account for the various climatic regions within the Commonwealth. In deriving these energy standards, the DLI was to seek to balance energy savings with initial construction costs.

The PA-Alt was developed with the intent of being:

- simpler to build to and easier to enforce;
- more rational and flexible;
- focused on Pennsylvania in terms of climatic and other conditions; and,
- equivalent to the provisions of the International Energy Conservation Code (IECC).

The Development of the PA-Alt was led by the PHRC with guidance from an Advisory Committee. The PHRC would like to recognize the following members of the Advisory Committee for their contribution of time and knowledge:

Andy Bowman (Code Official)
Manheim Township Commissioners

Scott Cannon (Builder)
Cannon Custom Homes

Ed Carr (Energy Consultant)
Comfort Home Corporation

Don DeLess (Builder)
D&C Development Company

Jerry Leach (Builder)
Pennsylvania Builders Association

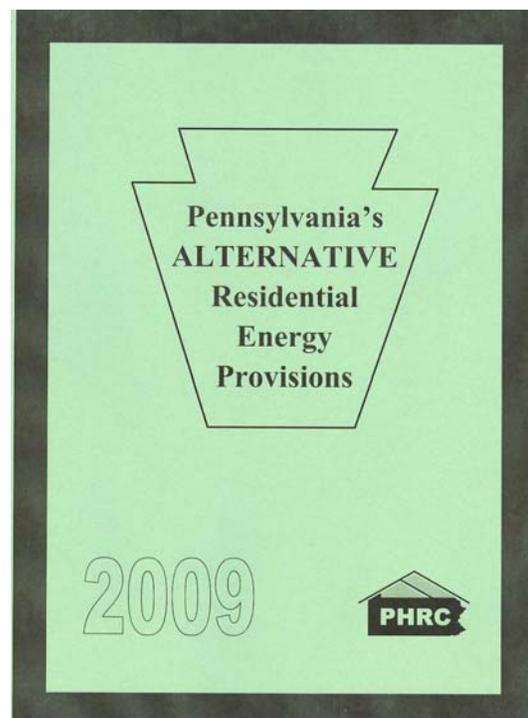
R. Clem Malot (Code Official)
Commonwealth Code Inspection Service

Mike Landis (Code Official)
Borough of Carlisle

Tim Palaski (Code Official)
Middle Department Inspection Agency, Inc.

Frank C. Thompson, (Builder)
Sweetwater Builders, Inc.

To download the 2009 PA-Alt please go to:
<http://www.engr.psu.edu/phrc>.



RESEARCH UPDATE

Our research activities grew within the last year significantly. Within the past year, eight graduate students were involved in various research projects. A few of these projects are highlighted in the section below.

Analysis of the International Residential Code 2006 Bracing Requirements for Pennsylvania—Residential buildings in Pennsylvania currently must be designed for 90 mph winds as shown on the ASCE-7 Standard wind speed map. For this research, wind speed data from anemometer stations all over PA and its surrounding states are compared statistically using extreme value distributions. An overall lower wind speed than the Standard's 90mph was found to be statistically accurate. Currently the International Residential Code 2006 Bracing Requirements Table R602.10.1 starts at wind speeds of 100mph or less. The new wind speed found for Pennsylvania is used to redevelop the bracing requirements table to incorporate areas with lower wind speeds than 100mph. The new bracing requirements were found to be stricter than the 2006 code. Since this work used engineering principles in analyzing the bracing requirements, it is applicable regardless of the version of code in force. Tanya Myers, the first PHRC Fellow worked on this project resulting in her master of science thesis.

Quantitative Radiographic Investigation Of Mechanical Fasteners In Wood Connections—This project investigated new technologies (low-energy battery-operated portable x-ray) in evaluation of deformations of mechanical fasteners. Digital image processing was used to extract deformation of bolts that will otherwise be undetected. This research has practical implications in evaluation of existing buildings, quality control (detection of fasteners and connections) and post-disaster investigations.

Hygro-Thermal Performance of Imperfectly Protected Below-grade Walls with Interior Insulation—This project addresses the issues to the effectiveness of imperfectly protected standard basement wall systems. The objective of this project is to assess the influence of moisture retarders and the overall hygro-

thermal behavior of interior insulated CMU walls. Three different interior insulation layers are studied: extruder polystyrene(XPS), glass-fiber-reinforced polyisocyanurate foam (Thermax), and typical bat glass-fiber insulation. The selected systems represent modern trends and typical system (bat insulation) with fundamentally different mass transfer parameters while the heat-transfer properties are similar. The tests showed that for simulated conditions (wet and cold soil side and dry and warm interior side) all tested systems performed similarly.

Additional projects include study on wind loads on low-rise buildings; composite reinforcement of laminated timber arches; using computational fluid dynamics to estimate wind pressure distribution on residential structures and other fundamental research.

IMPACT OF THE UNIFORM CONSTRUCTION CODE IN RURAL PENNSYLVANIA

This multi-faceted study is being funded, in large part, by the Center for Rural Pennsylvania, a legislative agency of the Pennsylvania General Assembly. Major goals of this study include: (1) identifying the mix of code enforcement approaches among Pennsylvania municipalities, (2) assessing the potential fiscal impact of building permit, inspection and board of appeals fees on development, (3) assessing the degree of uniformity of code requirements, (4) analyzing and comparing data on the number of building permits issued, (5) determining the potential impact of the UCC on homeowner's insurance premiums. The PHRC implemented a survey to assess many of the above goals, and garnered over 1,000 responses from municipalities. The data from this survey have been cleaned and organized, and analysis is underway. The final report is anticipated to be issued in the second quarter of 2010. For more information contact Mike Turns at 814-863-0623 or miketurns@psu.edu.

Upcoming Training Programs

Date	Course Title	Location
December 15, 2009	IRC 2009 Update Program	Lebanon County Builders Association
December 16, 2009	IRC 2009 Update Program	Northeastern PA Builders Association
December 16, 2009	IRC 2009 Update Program	Pike County Builders Association
December 17, 2009	IRC 2009 Update Program	HBA of Berks County
January 14, 2010	IRC 2009 Update Program	Lancaster County Code Association

For more information visit: www.engr.psu.edu/phrc

Upcoming PHRC/PCCA Training Programs

Date	Course Title	County
December 8, 2009	Two Family Dwellings and Multi-Family Housing	Luzerne
December 16, 2009	IRC 2009 Update Program	Butler
January 13, 2010	Two Family Dwellings and Multi-Family Housing	Delaware
January 26, 2010	IRC 2009 Update Program	Lackawanna
February 16, 2010	IRC 2009 Update Program	Lycoming
February 22, 2010	Blue Print Reading	TBD
February 23 - 26, 2010	International Residential Code (IRC) Building Essentials	TBD
March 2-3, 2010	Residential Energy Essentials	TBD
March 8 - 11, 2010	Residential Mechanical Essentials	TBD
March 23 -25, 2010	Residential Plumbing Essentials	TBD
April 6, 2010	Residential Decks	Westmoreland
April 13-14, 2010	Residential Inspections	York
April 27, 2010	Residential Decks	Lycoming
April 28-29, 2010	International Energy Conservation Code Essentials	Luzerne
May 13, 2010	Residential Decks	Delaware
May 19, 2010	Two Family Dwellings and Multi-Family Housing	Butler

For more information visit: www.paconstructioncodesacademy.org

PHRC Members

Leadership

BA of Metro Pittsburgh
 BIA of Lancaster
 Blair Bedford Builders Association
 Borough of Carlisle
 Builders Association of Northwestern PA
 Cannon Custom Homes
 CertainTeed Corporation
 City of Philadelphia
 CMX
 Curtis E. Schneck, Inc.
 Department of Community and Economic Development
 Dow Chemical Company
 DuPont Building Innovations
 Electra-Save, Inc.
 Glunt Development Co., Inc.
 Governor's Center for Local Government Service
 Hankin Group
 HBA Metropolitan Harrisburg
 HBA of Chester and Delaware Counties
 Indiana-Armstrong Builders Association
 JHW C/M Consultant
 JRG Advisors
 Lebanon County Builders Association
 Lehigh Valley Home Builders Association
 Liberty Homes Custom Builders
 Mercer County Builders Association
 Modular Building Systems Association
 PA Association of Township Supervisors
 PA Department of Community & Economic Development
 PA Manufactured Housing Association
 PennBOC
 Pennsylvania Association of Bldg. Code Officials
 Pennsylvania Association of Code Officials
 Pennsylvania Builders Association
 Pennsylvania College of Technology
 Pennsylvania Construction Codes Academy
 Pennsylvania State University
 The Housing Alliance of Pennsylvania

Supporting

BA of Central PA
 Benjamin Obdyke Incorporated
 Cedar Knoll Builders
 Central Susquehanna Builders Assoc.
 Clarion County Career Center
 Comfort Home Corporation
 Commonwealth Code Inspection Service
 Fine Line Homes
 Irwin Contracting Custom Homes, LLC
 Lackawanna HBA
 Muncy Homes, Inc.
 PA Association of Professional Soil Scientists
 Pennsylvania Concrete Masonry Association
 Pennsylvania Housing Finance Agency
 Pulte Homes Corporation
 S&A Homes
 Sota Construction Services, Inc.
 Superior Walls of America, Ltd.
 T.H. Properties
 West Penn Power Sustainable Energy
 Weyerhaeuser Company
 York Corrugating Co.
 York County Builders Association

Patron

Adams Township
 Alan Hawman Architect
 Avignon Homes, Inc.
 Benchmark Civil Engineering
 BIA of Northeastern PA
 Borough of Fox Chapel
 Borough of Frackville
 Bozzuto Development Co..
 Bursich Associates, Inc.
 Cocalico Properties Inc.
 Columbus Property Management & Dev., Inc.
 CZOP/Specter, Inc.
 DeLuca Homes
 Design Build by Robert P. Baney, LLC
 E&M Engineers and Surveyors, P.C.
 East Petersburg Borough
 ECI Corp.
 Engineering Projects Incorporated
 Franklin County Builders Association
 GAI Consultants
 Gluzko Architects, P.C.
 Gutters Insulation & More
 HDR Engineering
 Independent Quality Alliance
 Jack Gaughen ERA
 James Wentling/Architect
 Jenkintown Associates
 Joy Beck Custom Builders, Inc.
 Kuhns Bros. Log Homes, Inc.
 Lobar Properties
 Lower Swatara Township
 LTS Builders, LLC
 MaGrann Associates
 Manheim Township
 Mesa Wood, Ltd.
 Morrissey Holdings, L.P.
 NHR Real Estate Services
 Nittany Homes
 Old Lycoming Township
 Paul Kearney Inspections
 Paul Macht Architects, LLC
 Penn Terra Engineering, Inc.
 Perry L. Cisney Custom Builder
 Peters Township
 Preferred Solutions, Inc.
 Pure Energy
 Queen Engineering
 Redevelopment Authority of Washington Co.
 Redevelopment Authority Uniontown
 Rettew Associates, Inc.
 Richmond Township
 River Rock Creative Group
 Riverview Homes, Inc.
 Schumacher Homes Greensburg
 Sleighter Engineering, Inc.
 Somerset County Builders Association
 Sweetland Engineering & Assoc., Inc.
 T&T Realty Acquisition Associates
 Thomas Comitta Associates, Inc.
 Thomas J. Wasilowski A. L.A. Architects
 Tim Myers Contracting
 Upper Darby Township
 UpStreet Architects, Inc.
 Vertex Mechanical Inc.
 Wagner Construction
 Watkins Architect, Ltd.
 Wayne County Builders Association
 Weaver Precast, Inc.
 Whitehall Township
 Woodloch Builders, Inc.

**Not a member?
 Join the PHRC today!**

 Name

 Address

 Phone

Method of Payment:

Check

Total: _____

Membership Levels:

Corporate or Trade Associations:

- Leadership \$2,500
- Supporting \$1,000
- Patron \$500

Local Associations:

- Leadership \$1,000
- Supporting \$500
- Patron \$250

Individuals:

- Leadership \$500
- Supporting \$250
- Patron \$100



www.engr.psu.edu/phrc

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Director of Research: Bo Kasal
Housing Program Development Specialist: Mike Turns
Land Use and Development Specialist:
Vacant
Admin. Assistant: Rhonda Decker
Staff Assistant: Tracy Dorman

PHRC at Penn College

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Pennsylvania College of Technology
One College Avenue
Williamsport, PA 17701
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Fax: (570) 320-5239

Upcoming Meetings

February 10, 2010	PA Housing and Land Development Conference Day 1- Pittsburgh	8:30 – 4:30 p.m.
February 10, 2010	PHRC Leadership Reception - Pittsburgh	6:00 – 9:00 p.m.
February 11, 2010	PA Housing and Land Development Conference Day 2- Pittsburgh	8:30 – 4:30 p.m.
April 14, 2010	Operations Committee Meeting – State College	6:00 – 9:00 p.m.
April 15, 2010	Industry Advisory Council Meeting – State College	9:30 – 2:00 p.m.
October 6, 2010	Operations Committee Meeting – Harrisburg	6:00 – 9:00 p.m.
October 7, 2010	Industry Advisory Council – Harrisburg	9:30 – 2:00 p.m.

For additional details on training programs, visit www.engr.psu.edu/phrc