

# Monday, February 25

Special Full-Day Preconference Training

8:00 am–4:30 pm

## Hydronics Optimized for Low-energy Houses

Hydronic heating has been used in the United States for over a century. When properly applied, it consistently delivers superior comfort. However, over the last two decades it's also developed the reputation of being expensive and complex relative to other methods of heating. As such, hydronic heating is too often perceived as being limited to large high-budget homes.

This full-day workshop is meant to dispel that perception and show how **modern hydronics technology can be specifically tailored to the needs of energy-efficient homes.**

This session will discuss the heating and cooling characteristics of low-energy houses. It will survey a variety of hydronic hardware for creating, distributing and delivering both heating and cooling in low-energy homes. It will also discuss what to avoid in these systems.

This information will then be applied to examples of several complete systems that are synergistic to the heating, cooling and domestic hot water needs of low-energy houses. Some of these systems are capable of delivering heat to a 2,500-square-foot house, on a cold winter day, using only 25 watts of “distribution power.”

This session will also examine practical ways to integrate renewable energy heat sources such as solar thermal collectors and heat pumps into hydronic systems.



**John Siegenthaler, P.E.**, is a mechanical engineering graduate of Rensselaer Polytechnic Institute, a licensed professional engineer, and professor emeritus of Engineering Technology at Mohawk Valley Community College. “Siggy” has over 33 years of experience in designing modern hydronic heating systems. He is a hall-of-fame member of the Radiant Professionals Alliance and principal of Appropriate Designs—a consulting engineering firm in Holland Patent, N.Y. The third edition of his textbook, “Modern Hydronic Heating,” was released in January 2011. John writes about hydronic heating and solar thermal system design for several trade publications including: Plumbing & Mechanical, PM Engineer, The Journal of Light Construction, Fine Homebuilding, and HomePower.

**\$160 separate registration fee for preconference (includes lunch)**

Preconference sponsored by:



and energy-efficiency education for 23 years.

# Tuesday, February 26

Please see the following pages for detailed course descriptions.

## 6:30–7:00 am • Early Session Registration

7:00  
–  
8:15

Complete seven hours of your MN Builder credit CEU requirements per day (pending approval from the Minnesota Department of Labor and Industry). You must attend the 7:00 a.m. session to receive all seven credits.

**Get Full Value for Your R Value**  
*Richard Stone, University of Minnesota Extension*

**What Will the New Energy Code Mean for You?**  
(Part 1 of 2)  
*Don Sivigney, Department of Labor and Industry; Paul Morin, Energy Conservatory*

## 7:30–8:30 am • Registration • Exhibit Hall Opens

### Building Science—High-performance Housing—EEBA Houses That Work™

### Human Health and Buildings

### Materials and Methods

### Energy Efficiency in Business

### Hands-on

### I'll Take "Water" for \$500

8:30  
–  
10:00

**Houses That Work for Existing Homes: Remodeling for Energy Efficiency**  
(Part 1 of 4)  
*Gord Cooke, Building Knowledge, Inc.*

**Indoor Weather and Climate**  
*McGregor Pearce, IAQ Consultant*

**Performance Glazing, Coatings, Layers and Gases**  
*Ken Modeen, Marvin Windows*

**What Will the New Energy Code Mean for You?**  
(Part 2 of 2)  
*Don Sivigney, Department of Labor and Industry; Paul Morin, Energy Conservatory*

**Practical Methods to Repair and Paint Lead Safely**  
*Bob Rogalla, Lake States Environmental*

**Hot Water 101**  
(Part 1 of 2)  
*Bill Hoover, William R. Hoover LLC*

## 10:00–10:30 am • Break • Exhibits

10:30  
–  
12:00

**Houses That Work for Existing Homes: Remodeling for Energy Efficiency**  
(Part 2 of 4)  
*Gord Cooke, Building Knowledge, Inc.*

**Anticipating Depressurization Issues Due to Air Tightness and Ventilation Needs**  
*Rebecca Olson, Neighborhood Energy Connection*

**Air Sealing Beyond the Attic: Windows, Doors, Exteriors and Attached Garages**  
*Bob Pfeiffer, WECC*

**Bringing Trends Home: The Latest in Decor and Green Inspiration for Your Clients**  
*Cindy Ojczyk, Simply Green Design*

**Recommended Window Installation Techniques**  
*Eric Klein and Erick Filby, Marvin Windows*

**Hot Water 101**  
(Part 2 of 2)  
*Bill Hoover, William R. Hoover LLC*

## 12:00 noon–1:00 pm • Lunch • Exhibits

1:00  
–  
2:30

**Houses That Work for Existing Homes: Remodeling for Energy Efficiency**  
(Part 3 of 4)  
*Gord Cooke, Building Knowledge, Inc.*

**Practical Green Building: The Pine City Case Study**  
*Michael Ansel, Verified Green*

**Challenging Framing Details**  
*Richard Stone, University of Minnesota Extension*

**Use Minnesota Housing's Home Improvement Program to Increase Your Business**  
*Chris Allen, Minnesota Housing*

**Passive House: A Building Revolution (Viewing of documentary film)**  
*Faith Morgan, Arthur Morgan Institute for Community Solutions*

**Water Disaster Recovery**  
*McGregor Pearce, IAQ Consultant*

## 2:30–3:00 pm • Break • Exhibits

3:00  
–  
4:30

**Houses That Work for Existing Homes: Remodeling for Energy Efficiency**  
(Part 4 of 4)  
*Gord Cooke, Building Knowledge, Inc.*

**Home Sweet Home or Home Sick Home: What Are You Leaving Your Clients?**  
*Cindy Ojczyk, Simply Green Design*

**Building with the Architecture of Trees**  
*Ronald Gundersen, Whole Trees*

**Triple E Energy-Efficient Building Program**  
*Doug Manthey, Energy Plus, Inc.; Chad Trebilcock, Minnesota Power*

**Tanks vs. Tankless Water Heaters: How to Choose**  
*Bill Hoover, William R. Hoover LLC*

## 4:30–6:00 pm • Reception • Door Prizes • Refreshments • Exhibits

# Wednesday, February 27

Please see the following pages for detailed course descriptions.

6:30–7:00 am • Early Session Registration

7:00  
–  
8:15

Complete seven hours of your MN Builder credit CEU requirements per day (pending approval from the Minnesota Department of Labor and Industry). You must attend the 7:00 a.m. session to receive all seven credits.

**Flashing Details and Water Management**  
*Richard Stone, University of Minnesota Extension*

**Air Sealing Beyond the Attic: Windows, Doors, Exteriors and Attached Garages**  
*Bob Pfeiffer, WECC*

7:30–8:30 am • Registration • Exhibit Hall Opens

## Building Science—High-performance Housing—EEBA Houses That Work™

### Systems

### Remodeling and Retrofits

### High-performance Housing

### Solar and Sustainability

8:30  
–  
10:00

**Attaining Optimal Insulation Effectiveness in High-Performance Homes**  
*(Part 1 of 2)*  
*Justin Wilson, Building Knowledge, Inc.*

**Combining Space and Water Heating with Highly Efficient Results**  
*Ben Schoenbauer, Center for Energy and Environment; Jake McAlpine, Sustainable Resources Center*

**Project Overcoat: An Exterior Insulation Technique for Existing Homes**  
*Pat Huelman, University of Minnesota Extension*

**ENERGY STAR® V3 Made Easy**  
*Ross Anderson, Residential Science Resources*

**Solar Energy 101**  
*Jason Edens, Rural Renewable Energy Alliance*

10:00–10:30 am • Break • Exhibits

10:30  
–  
12:00

**Attaining Optimal Insulation Effectiveness in High-Performance Homes**  
*(Part 2 of 2)*  
*Justin Wilson, Building Knowledge, Inc.*

**Ground Source Heat Pump Loop Options: Is There a Single Best Way?**  
*Mark Sakry, Northern Groundsource, Inc.*

**A Tale of Two Retrofits: Case Studies in Integrated Design**  
*Rachel Wagner, Wagner Zaun Architecture*

**IECC 2012 and ENERGY STAR®, Tested Strategies in Affordable Housing**  
*Molly Berg, Jason Mather, Dave Alaspa and Brian Wimmer, Habitat for Humanity*

**Beyond LEED: The Living Building Challenge**  
*Thomas Brown, University of Wisconsin—Stevens Point*

12:00–1:00 pm • Lunch • Exhibits

1:00  
–  
2:30

**Houses That Work: Ventilation Strategies**  
*(Part 1 of 2)*  
*Justin Wilson, Building Knowledge, Inc.*

**The Value of Air Source Heat Pumps in Light of Variable Energy Prices**  
*Jeff Haase, Great River Energy*

**Remodeling Strategies for Green Bathrooms and Laundry**  
*Cindy Ojczyk, Simply Green Design*

**Moving to High-performance Homes: Will They Be Robust or Fragile?**  
*Pat Huelman, University of Minnesota Extension*

**Planning for Solar: Building Solar Ready and Using Passive Solar Design**  
*Stacy Miller, Minnesota Department of Commerce; Rachel Wagner, Wagner Zaun Architecture*

2:30–3:00 pm • Break • Exhibits

3:00  
–  
4:30

**Houses That Work: Ventilation Strategies**  
*(Part 2 of 2)*  
*Justin Wilson, Building Knowledge, Inc.*

**Two Cold Climate Geothermal Case Studies: Residential and Commercial**  
*Mark Sakry, Northern Groundsource, Inc.*

**Foundation Insulation for Existing Homes**  
*Pat Huelman, University of Minnesota Extension*

**Building Science and Building Details: Lessons Learned From Cold Climate Residential Envelopes**  
*Rolf Jacobson, Center for Sustainable Building Research*