Tuesday, February 23

Please see the following pages for detailed course descriptions.

Complete seven hours of your MN Builder 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.

<table>
<thead>
<tr>
<th>7:00–8:15 am</th>
<th>Gooseberry</th>
<th>Harborside 203</th>
<th>Harborside 302</th>
<th>French River</th>
<th>Harborside 304</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00–10:00 am</td>
<td>Commercial Applications</td>
<td>Solar</td>
<td>Mechanical Systems</td>
<td>Codes and Standards</td>
<td>Building Science—High Performance Housing—EEBA Houses That Work™</td>
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<tr>
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<td>Commercial Applications</td>
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<td>Building Science—High Performance Housing—EEBA Houses That Work™</td>
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- Panel Discussion: Opportunities for Improving the Efficiency and Operation of Building Ventilation
  - Mark Garofalo, Minnesota Department of Commerce
  - Division of Energy Resources; Josh Quinnell, Center for Energy and Environment; Scott Hackel, Seventhwave; Amalia Hicks, Sustainable Engineering Group

- An Introduction to the Form and Function of Solar Energy in Cold Climates
  - Jason Edens, Rural Renewable Energy Alliance

- The Three P's of Solar: Policies, Products, and Possibilities
  - Stacy Miller, Minnesota Department of Commerce, Division of Energy Resources; and Paul Helstrom, Minnesota Power

- Real Life Experience: Energy Storage, Living Off the Grid, and What That Actually Means
  - Christopher LaForge, Great Northern Solar

- Trials and Tribulations of Energy Code Testing
  - Ross Anderson, Neighborhood Energy Connection

- Houses That Work: Remodeling for Energy Efficiency (Part 1 of 4)
  - Andy Oding, Construction Instruction Inc.

- Houses That Work: Remodeling for Energy Efficiency (Part 2 of 4)
  - Andy Oding, Construction Instruction Inc.

- Houses That Work: Remodeling for Energy Efficiency (Part 3 of 4)
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- Houses That Work: Remodeling for Energy Efficiency (Part 4 of 4)
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- Gooseberry Harborside 203 Harborside 302 French River Harborside 304

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

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<tr>
<td><strong>Pathways for Low-Energy Homes</strong></td>
<td><strong>Materials and Methods</strong></td>
<td><strong>Tools of the Trade</strong></td>
<td><strong>Existing Homes</strong></td>
<td><strong>System Design Time</strong></td>
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<tr>
<td>Michael LeBeau, CR Building Performance Specialists; Katrin Klingenberg, Passive House Institute US</td>
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### 7:30–8:30 am • Registration • Exhibit Hall Opens

- **Introduction to Passive House**
  - Joshua VandeBerg, Western Technical College
- **From Control Layers to High-Performance Enclosures**
  - Patrick Huelman, University of Minnesota
- **Home Performance Business Models: Understanding the Opportunities and Marketing Power of the Whole-House Approach**
  - Peter Roast, Energy Circle; Paul Morin, The Energy Conservatory
- **Beyond Diagnostic Testing: An Interpretation of Home Performance**
  - Tessa Murry, Structure Tech
- **Duct Leakage and Retrofit Duct Sealing in Minnesota Commercial and Institutional Buildings**
  - Josh Quinnell, Center for Energy and Environment

### 10:00–10:30 am • Break • Exhibits

- **Residential Passive House Retrofit (EnerPhit) Case Study Combination**
  - Tim Eian, TE Studio, Ltd.
- **Banging My Head Against the (High Performance) Wall**
  - Rachel Wagner, Wagner Zaun Architecture
- **Paying for Energy Improvements**
  - Eric Rehm, Minnesota Department of Commerce, Division of Energy Resources; Pete Klein, SPPA; Cal Greening, MHFA; Jim Hasnik, CEE
- **Research Update: Residential Condensing Boiler Optimization**
  - Rebecca Olson, The Neighborhood Energy Connection; Ben Schoenbauer, Center for Energy and Environment
- **Lighting Design: It’s Not All or Nothing**
  - Jay Marshall, ON2 Solutions

### 12:00–1:00 pm • Lunch • Exhibits

- **Perspectives on the Zero Energy Home**
  - Patrick Huelman, University of Minnesota; Laurel Johnson, LHB; Brian Wimmer, Rochester Area Habitat for Humanity; Colin Colman, University of Minnesota Team Opti-MN
- **Recommended Window Installation**
  - Erick Filby and Eric Klein, Marvin Windows and Doors
- **Marketing for Builders and Remodelers: How to Make Your Website Perform**
  - Peter Roast, Energy Circle
- **Energy Fit Homes—A Tool to Transform the Market for Energy Efficiency in Existing Homes**
  - Isaac Smith, Center for Energy and Environment; Rebecca Olson, The Neighborhood Energy Connection
- **EV Charging for Multi-Housing and Commercial Properties**
  - Jukka Kukkonen, PlugInConnect, LLC

### 2:30–3:00 pm • Break • Exhibits

- **Lessons from the Deep Energy Retrofit Frontlines**
  - Andrew Webster, Coldham & Hartman Architects
- **High Performance Glazing for Better Buildings**
  - Aynsley and Al Dueck, DUXTON Windows & Doors
- **Builder 2.0: Training and Educating the Next Generation of Construction Professionals**
  - Josh VandeBerg, Western Technical College
- **Emerging Technologies for Cold Weather Residential Heating**
  - Josh Quinnell and Nicole Kessler, Center for Energy and Environment
- **Passive House for Commercial Projects in Cold Climates**
  - Tim Eian, TE Studio Ltd.