

Session Descriptions

Wednesday

7:00–8:15 am

Flashing Details and Water Management — Water leaking into building enclosures from the outside will almost surely compromise the safety, health, durability, comfort and energy efficiency of the building and its occupants. Basic water management concepts are simple, but complex building designs and the sequencing of tasks by different trades can combine to keep the job from being simple. This session revisits water management basics, showing examples of frequently seen construction defects along with examples of how to avoid defects by thoughtful planning and execution of exterior water management details.

Dick Stone, University of Minnesota Extension

Diagnosing Home Performance Problems (advanced session) — A range of home performance issues will be diagnosed using a digital manometer, blower door and the “House of Pressure” model home. These issues include combustion safety, comfort, durability, ventilation and energy use. Attendees will be encouraged to ask questions and share insights gained from their field experiences.

Kevin Brauer, Center for Energy and Environment; Bruce Stahlberg, Affordable Energy Solutions, Inc.

Exceeding Energy Code Compliance with SIPs Today and Tomorrow — Building with Structural Insulated Panels (SIPs) today will provide the energy efficiency that building codes will require in the not so distant future. This course will explain how SIPs comply with the current Minnesota Energy Code, as well as LEED and Minnesota GreenStar programs. Learn about the design, manufacture and installation of SIPs, and get a more in-depth look at the science of building with SIPs. In addition, a glimpse of what we can expect energy codes to look like in the future will be examined.

Curt Stendel, Panelworks Plus, Inc.

How Lead Regulations Are Changing for Remodelers — EPA’s new regulation under TSCA 402(c)(3), or the Renovation, Repair, and Painting Rule (RRP), will have an impact on general contractors, painting contractors and other building trades as it relates to renovation work conducted in a residence- or child-occupied facility constructed prior to 1978. The RRP regulation will require training on lead-safe practices and accreditation for the company and responsible individual. The Minnesota Department of Health (MDH) is working towards the development of a compliance program, which will adopt the RRP requirements into its current lead abatement regulations (Chapter 4761). This presentation will provide an overview of the history of lead in paint, its health effects in humans, lead-safe practices and an update on the RRP regulation. This training is intended for contractors seeking continuing education in lead abatement.

Minnesota Department of Health

Xtreme Home Delivered Fuels Makeover: A Guide to Understanding the Energy Value, Efficiency and Emissions of Heating Fuels — This course is intended to help builders and trade allies assist their customers in determining best energy options and will provide a detailed summary of the fuels used for heating in the residential sector by energy yield per standard purchase quantity, efficiency and amount of CO₂ and other emissions produced. Using national and regional five-year price trends, reported emissions and efficiency data, we will look at the recent history and energy values for electricity, natural gas, propane, fuel oil, corn and wood. We will compare the overall efficiency of these fuels and their associated greenhouse gas emissions.

Michael Mayerchak, Jeff Byron, Xcel Energy

Wednesday

8:30–10:00 am

Insulation and Air Sealing: Attaining Optimal Insulation Effectiveness in High-performance Homes (Part 1 of 2) — This half-day workshop will help participants understand the key principles for ensuring they attain optimal insulation effectiveness in high-performance homes. The session will review the basic physics of air, heat and moisture flow covered in the Houses That Work I workshop and then will cover the essential questions related to creating an effective thermal barrier. Participants will learn the advantages and differences between each type of insulation and will be given valuable techniques and strategies to maximize the performance of each type.

Justin Wilson, Building Performance Solutions, Inc.

Mold for Weatherizers and Remodelers — Increasing energy efficiency by insulating and air tightening can reduce the drying potential of the building envelope. Mold can turn wet buildings into sick buildings. This course is designed as a heads-up for weatherization professionals and remodelers on how to prevent green buildings from turning green and smelly. It will cover the basics of mold biology and case studies in weatherization-related mold problems.

McGregor Pearce, IAQ Consultant

Energy/Sustainable Development: Where Do We Go from Here? — Future development has always been an extension of the past with the presumption that energy will always be available in the quantity desired and at a reasonable price. However, that presumption is changing. Geological limits on oil production and a lack of investment in alternative options are about to impose huge changes in building and sustainable development efforts. This session will discuss what is soon to come.

Gary Moore, DBA Consultants

Solar 101: An Introduction to Residential and Commercial Solar Energy Options — This session will review the primary solar technologies, including a balanced discussion of solar air heat, solar water heat, and solar electric (PV). Site assessment for each of the technologies will be introduced, as well as performing load analyses for best matching your needs with your solar system. Additionally, we will cover current available incentives, estimated costs and benefits, and other opportunities and limitations with various solar applications.

Jason Edens, Rural Renewable Energy Alliance

Safe Deep Energy Retrofits (advanced session) — This class will explore the various techniques available for improving the energy efficiency of a home without damaging the home or the occupants. Learn about effective strategies for achieving a 30 percent plus reduction in energy use and the potential problems associated with these strategies. A review of materials available, performance impact, and health considerations for the occupants will help attendees understand the complexities and options in safe deep energy retrofits.

Michael Anshel, Verified Green

Green Building for Dummies—In this lecture you will hear about the emerging field of green building, see some of the most exciting technologies available, and get a glimpse of the inevitable future of our buildings. Join us in an energetic and lively discussion on green architecture from one of the pioneers in the field. Eric Corey Freed is an award-winning green architect and principal of organicARCHITECT, a research and design firm based in San Francisco. Learning outcomes include the two main misconceptions in green architecture, what is the lifecycle and how does that affect the design of buildings, how to sell these ideas to your clients, and five case studies demonstrating these ideas.

Eric Corey Freed, organicARCHITECT

A Get Rich Slow Scheme — Existing urban buildings often offer multiple challenges to multiple interests. From non-producing tax roles, energy inefficiency and compromised appearances to failing neighborhoods for lack of support, many structures need surprisingly little work to become presentable and viable business locations, particularly when partially owner-occupied. Be a witness to this “get rich slow scheme” and maybe even try it on for size — it is often a one size fits all.

Mike Weiss, NAHB Weiss RCMI

Session Descriptions

Wednesday

10:30 am–12:00 noon

Insulation and Air Sealing: Attaining Optimal Insulation Effectiveness in High-performance Homes (Part 2 of 2) — A thorough discussion of proper installation methods will be covered, including the importance of air sealing and air sealing methods. This presentation will allow participants to discuss insulation issues and their experiences through the use of case studies and group exercises to ensure a wide variety of construction types and systems relevant to the home building industry are covered.
Justin Wilson, Building Performance Solutions, Inc.

Assessment and Strategy for Energy Efficiency in Rehab (advanced session) — This class will discuss the importance of thorough review and assessment of structure and systems prior to design or construction. We will discuss what tests to perform, how to interpret the results, and how they should influence the direction of the project. We will discuss the importance of design and planning prior to a construction start and multi-disciplinary planning. This class will have a building science component as we discuss wall systems, pressure systems, traditional mechanical systems, how moisture moves, ventilation and back-drafting. Payback options related to energy will be discussed, as will the idea of durability as affordability.
Michael Ansel, Verified Green

Shades of Green: Separating Hope from Hype — This session will be a moderated panel discussion about opportunities, obstacles and relative merits of various approaches to constructing and operating buildings sustainably. Available energy supplies and technologies will be considered, in regard to their current and future impact and viability. Panel members will be four seasoned veterans in business and research related to energy supplies, building science, green building and building energy, and the environmental impacts of energy use.

Rachel Wagner, Wagner Zaun Architecture; Pat Huelman, University of Minnesota; Mike LeBeau, Conservation Technologies; John Heino, Como Oil & Propane; Phil Cook, U.S. EPA and Superior Highland Maple Syrup Co.

Solar Thermal Water Heating in a Cold Northern Climate — The potential for solar thermal heating in cold northern climates is beginning to be more widely understood by regulators, utilities, contractors and consumers. This session will discuss different applications for solar thermal hot water in residential and small commercial buildings. Applications we will discuss include domestic water heating, space heating and pool heating. Considerations to be covered are mounting, mechanical requirements, possible uses, cost, energy savings, carbon offset and marketing value.

Kurt Koegel, Solar Skies Manufacturing

A Survey of the Health Effects Related to Indoor Environmental Problems (advanced session) — Indoor air quality (IAQ) related health effects come from both biological and the nonbiological sources. Mold causes many problems, but other issues that must not be forgotten include the many causes of allergies, CO and gases, formaldehyde and other VOCs, lead, asbestos and radon. Learn from an allergist with over 30 years of experience and a deep understanding of building science. Discover how the effects of the IAQ pollutants will be integrated with the effect of building science problems. There will be a review of the major indoor pollutants and how these materials can be prevented or controlled such that adverse health effects will be minimized or eliminated.

John Ouellette, M.D., IAQ Consultant

Certified Passive House Energy Standard (advanced session) — This session is an introduction to the Certified Passive House (TM) building energy standard. Passive House represents today's highest certified building energy standard in the world, with the promise of reducing the total energy consumption of buildings by up to 90 percent while providing superior comfort and indoor environmental quality — all at little or no additional up-front cost. When combined with renewable energy systems, such as solar photovoltaic or solar thermal, Passive House puts true zero energy buildings and carbon neutrality within reach.

Tim Eian, TE Studio, Ltd.

Key Factors Influencing Natural Gas Markets for 2010 — Review issues impacting today's natural gas markets, including the perceptions and realities of growing domestic natural gas supply, forecasting methodologies, gas shale, seasonal natural gas and large-volume customer demand, underground storage, long-term supply abundance, role of energy efficiency, as well as developments in pipeline infrastructure, liquefied natural gas, and Canadian imports. Views on the potential influence of climate change legislation are also explored.

Chris McGill, American Gas Association

Wednesday

1:00–2:30 pm

HVAC Strategies for High-performance Homes: Taking HVAC to the Next Level (Part 1 of 2) (advanced session) — One of the many benefits of high-performance housing is the ability to downsize the heating and cooling systems, reducing overall cost while increasing efficiency. This session will explore the impacts of high-performance housing on reduced heating and cooling loads and present the implications of efficient design and layout of HVAC systems.

Justin Wilson, Building Performance Solutions, Inc.

Deep Energy Reductions Using Passive House Tools (advanced session) — This session focuses on Deep Energy Reduction Retrofit—a way to cut 70 percent or more of the energy consumption of existing buildings. In the past, this approach has sometimes been referred to as the “chainsaw retrofit,” a term that Harold Orr coined. Typically, these projects include added insulation (think egg-cozy), new doors and windows, increased air-tightness, as well as heat recovery ventilation. They help move existing buildings toward carbon neutrality, and increase comfort, durability and performance to 21st-century levels.

Tim Eian, TE Studio, Ltd.

The Myth of Sisyphus: A Road Map to Greening Our Buildings — The Greek myth of Sisyphus tells the story of a man forced to roll a boulder uphill for eternity, and that is what our buildings do — eternally consume energy and resources. In this thought-provoking talk, you will uncover the hidden opportunities across suburbia, Las Vegas and New Orleans, and uncover how we are missing opportunities to save energy, water and money. You will laugh, cry and never look at your world in quite the same way again. This talk will provide you with a road map for greening our buildings for the next 50 years. Presented by the author of *Green Building and Remodeling for Dummies*.

Eric Corey Freed, organicARCHITECT

The Changing Face of Solar Electric (PV) in Commercial Building Projects — The solar PV landscape is changing. Five years ago, the largest array in Minnesota was 10 kW and installers were small companies operating out of their pickups. Today there are several installed at or above 100 kW, and a project will draw as many as 10 companies now focused on PV. Larger projects in the works include a 400 kW system for the city of Minneapolis. Integrated PV and ion storage are emerging and picking up speed. This session will show architects how they can use PV on their projects, available grants and other financing mechanisms.

Rick Carter, David Williams, LHB, Inc.

Indoor Air Quality: A Field Report (advanced session) — There are a lot of opinions about indoor air quality and health. There are also a lot of myths and legends but precious few facts to correlate occupant exposures to occupant health outcomes. Just because we can measure the presence of a contaminant does not necessarily mean there is much risk of harm. There are endless lists of contaminants and control strategies, but in the end, well-designed, properly operated and well-maintained homes and buildings are the healthiest places to live and work in. This session will emphasize building features that promote or threaten occupant health, based both on case studies and the latest health information.

McGregor Pearce, IAQ Consultant; Pat Huelman, University of Minnesota

Session Descriptions

New Tools for Sustainable Building 2030 and B3 Programs — This session will provide attendees with new tools and information they can directly apply to their projects to meet Sustainable Building 2030 goals. In addition, an updated B3 Guidelines Workflow Tool will also be presented that incorporates the SB 2030 standards. The B3 Energy Benchmarking Web site used to screen buildings for energy performance improvements has undergone major enhancements that allow users to track actual carbon emissions and fuel sources to a weather-normalized baseline to measure improvements in building energy use from month to month or year to year. Our presentation will show how these new reporting and graphing tools can improve your energy management capabilities.

John Carmody, Center for Sustainable Building Research, University of Minnesota; Tom McDougall, The Weidt Group

Successful Scheduling for Project Performance — Ever miss a deadline? What did it cost your bottom line? Do not let it happen again. Keep your projects running smoothly by learning how to set workable schedules. Get comfortable with the latest tools for information and time management. Discover the most effective responses to unexpected problems. This course will help builders, remodelers and site managers deal with those days when nothing goes according to plan. Learn to employ a variety of scheduling tools, including computer applications, the benefits of scheduling, and integrating scheduling with other management activities.

Mike Weiss, NAHB Weiss RCMI

Wednesday

3:00–4:30 pm

HVAC Strategies for High Performance Homes: Taking HVAC to the Next Level (Part 2 of 2) (advanced session) — Understand the HVAC options, system sizing, duct system design, and layout, and the relationship to high-performance building envelopes. Explore why typically installed equipment will not work in a true high-performance home of today or the future. Take advantage of this opportunity to be provided with the latest research and technology in conventional mechanical and air distribution systems, and the importance of diagnostic testing and start-up procedures.

Justin Wilson, Building Performance Solutions, Inc.

Mobile Homes: The Forgotten Housing Stock — Considered to be one of the least efficient types of housing stock, mobile homes present huge opportunities for energy improvements for comfort and reduced energy costs. This session will present whole house solutions, from duct sealing to ventilation, mechanicals and insulation. Learn which retrofits are most cost effective, and what challenges the newer models pose. Also, learn about Focus on Energy's Duct Sealing Pilot Project.

Bob Pfeiffer, Wisconsin Energy Conservation Corporation

Reusing Whole Cities — Through reuse of existing commercial buildings and materials and integrating new sustainable technologies, we will have the best chance to combat climate change, create jobs, and enhance our quality of place on a local level, all the while preserving historical character and generating excitement for our communities, and creating usable spaces for decades to come. Brandon is a ZERI (Zero Emissions Research and Initiatives) Certified Practitioner and works with a firm specializing in reuse of buildings and materials. He has been involved with nearly 100 commercial building projects.

Brandon Pitcher, Fortune Management, Inc.

Small Scale Wind Energy Systems — Wind power has emerged as a more viable, clean and scalable solution to satisfy growing energy needs. Participants will learn how to evaluate wind resources, estimate annual energy output, and about the range of residential wind systems in the marketplace today. Anyone wanting to learn the basics of the wind energy industry will benefit from this seminar. Topics to be covered include an overview of the wind industry, wind energy economics, siting issues, technology and transmission. **Speaker to be announced**

Geothermal Heat Pumps (GHP): Lessons Learned and Future Integration of Renewable Technologies — Geothermal heat pumps are rapidly gaining market share for efficient heating and cooling systems for homes and business. This session will cover the key issues that affect GHP performance, focusing on how loop field design dramatically impacts performance. Other topics covered include integrating solar PV to reach net zero on a home, integrating solar thermal to boost performance (COP), how geothermal with ice storage can reduce peak demand, and thermal mass storage tied to wind-powered GHP.

Jim Cusack, UMR Geothermal

Innovations in Solar Electricity (PV): Advances That Change How We Use Solar and Solar Program and Incentive Updates — New innovations in solar electric (PV) technology are changing, improving the safety, flexibility and overall practicality of solar PV. Presented with a historical perspective, learn how new technology is making solar PV more practical each and every day. Includes specific topics on overcoming common system limitations and developing systems that better meet the needs of the customer. Also learn about the latest updates on state, federal and utility solar incentive programs.

Joel Cannon, tenK Solar; Stacy Miller, Minnesota Office of Energy Security

Duluth Energy Efficiency Program (DEEP) — The Duluth Energy Efficiency Program is a community-wide, non-income-based model for weatherizing and air sealing residential structures. This program aims at reducing energy used to heat homes by 20-30 percent. Under partnership with local utilities, Minnesota Power and Comfort System's Home Performance Program, DEEP utilizes building science and the tools of the trade to diagnose and solve home energy issues. This session will discuss the program model, financial assistance available to homeowners, and how contractors can become DEEP providers. **Note: This program is in the development phase and will be launched in early 2010.**

Jodi Slick, Common Ground; Eric Schlacks, Comfort Systems