

Tuesday 7:00–8:15 am

Challenging Framing Details — Framing provides more than just the structure of a building and something to hang the exterior and interior finishes from. It also creates enclosures for insulation and provides the basis for effective air sealing. Getting the framing details right makes all the difference when it comes to delivering a finished home that is safe, healthy, durable, comfortable and energy-efficient. This session addresses the little details that all builders should know, but are often missing from blueprints and detail pages.

Dick Stone, University of Minnesota Extension

Advanced Air Sealing for Existing Homes: Tightening the Shell — This session will demonstrate how to save money and make an existing home more comfortable through effective air sealing. Learn what construction details are common to air leaks to the attic, how to identify those areas, and techniques on how to effectively seal attic bypasses holes and knee wall details. Mike will also cover other key junctures in the house that can benefit from air sealing (rim joists, crawlspaces, walls), how this can affect excess humidity RH%, radon and indoor air quality (IAQ). Performance testing and combustion safety will also be covered.

Mike Wilson, Dakota Supply Group

Conserving Energy with Structural Insulated Panels (SIPs) — This course is designed to help building contractors understand that SIPs are becoming more mainstream and are not just another alternative building system. Today's new home buyer or homeowner looking to remodel is demanding products and procedures that are "green." Topics to be covered include the design, makeup and manufacturing of Structural Insulated Panels, and the proper techniques for handling, installing and sealing panels. The course will also explain the importance of vapor retarders, rain screens, whole house performance evaluations, and give an overview of building in a manner of environmental responsibility.

Curt Stendel, Panelworks Plus, Inc.

Federal and State Wetland Regulation — Wetland Recognition — What Is a Wetland? — This session will provide builders and developers an overview on permitting requirements in Minnesota. Know when is a permit required, the types of permits, information required with the application submittal, and compensatory mitigation requirements. Also covered will be permitting issues and guidelines for ground source heat pump loop fields and information on the Minnesota Wetland Conservation Act (WCA). There will be time for questions and answers.

Timothy Peterson, Daryl Wierzbinski, U.S. Army Corps of Engineers; Joan Weyandt, Minnesota Board of Water and Soils Resources

Tuesday 8:30–10:00 am

Green Remodeling and Rehab: Building Science with Respect to Older Houses (Part 1 of 2) (advanced session) — This half-day workshop will explore cost-effective opportunities to implement energy-efficient and green technologies and strategies into remodeling projects for existing homes. The fundamentals of building science — air, heat and moisture flow — will be applied to help participants understand how elements of a house all work together as a system and how this knowledge can be used by remodelers to reduce risks and find the most cost-effective energy improvements for individual homes.

Gord Cooke, Building Knowledge, Inc.

Model, Measure, Manage: The Whole Energy Story in Real Time (advanced session) — This case study of a 51,000 square-foot headquarters building in Avon, Minnesota, illustrates how energy modeling comes full circle, providing measurable results in an accessible format to meet stakeholder and environmental goals. Real-time energy use of this building is shown through customized dashboards specifically designed for the project — views that display not only current energy uses, but compare the actual results to the original energy model to facilitate continuous improvement for energy savings. This is providing the owner with clarity into the operation of the owner's building and unparalleled understanding of the return on investment of building energy systems.

Tom McDougall, The Weidt Group

Dense-pack Cellulose: An Overview — Dense pack cellulose has been used effectively for decades for insulating walls and attics while reducing a building's air leakage rate. This session will highlight how to obtain and verify proper densities and proven techniques and applications for achieving maximum product performance. Bob is a seasoned and experienced installer who will share tips and tricks while welcoming class input to share experiences and knowledge.

Bob Pfeiffer, Wisconsin Energy Conservation Corporation

Geothermal Heat Pump (GHP) Basics for Builders and Remodelers — With the increased interest in GHP technology, it is beneficial for builders and remodelers to understand what to look for with site considerations and design issues related to GHP installations. Learn about the fundamentals of GHP technology and installations so you can talk to your clients with confidence. Topics include GHP overview, how loop design affects performance, loop field sizing and location, ductwork sizing, radiant floor systems, and cost and payback analysis.

Jim Cusack, UMR Geothermal

Small Houses. Big Changes — This case study will explore three homes that were extensively remodeled using the Minnesota GreenStar program in 2008 and look at their energy and resource consumption before and after the remodel. Performance data from almost two years will be used to show the relative and comparative effectiveness of strategies. Heating technologies used include a ground source heat pump tied to radiators, air source heat pump, and traditional furnace. Class will include a discussion of problems encountered in design, construction and in operations.

Michael Ansel, Verified Green

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.

Tuesday 10:30 am–12:00 noon

Green Remodeling and Rehab: Building Science with Respect to Older Houses (Part 2 of 2) (advanced session) — The workshop format recognizes that many remodeling projects are done as specific and discreet projects, such as window replacement, roofing, re-siding or a kitchen remodel. Participants will learn to identify energy-efficient and green opportunities for specific sectors of the remodeling industry of interest to them but always in the context of the whole house opportunities and embracing building science best practices.

Gord Cooke, Building Knowledge, Inc.

Enhanced Pre-design and Early Design Modeling: Lowering Absolute Energy Consumption — Modeling the energy performance of buildings before architectural design can lead to savings not later achievable. This presentation uses case studies of pre-design modeling that set design parameters for new construction projects. Using a building's planned space types, weather files and utility rates, a set of pre-design models defines probable energy performance using alternative technology strategies so that owners and facility operators can work with design teams to set achievable architectural and engineering goals. Once the goals are set, sequential modeling begins to define envelope, glazing, lighting and mechanical systems before integrated refinement models are made.

Brian Wass, The Weidt Group

Keep Your Project Green: Tips to Help Your Clients Select Interior Design Products — A successful green project will require communication and collaboration among all parties involved in the process, including homeowners and their retail sources as well as your vendors. To keep your project on track for green success, arm your clients with good options and good information for making interior design selections consistent with your green goals. This presentation will look at specific interior design categories, the options in those categories that have green attributes, and the retail cost so you have a better idea how to balance aesthetic needs, green goals and price in the project budget.

Cindy Ojczyk, Verified Green

Renewable Energy Best Practices and Realities — The overall interest in renewable energy systems has increased dramatically in recent years with installations becoming a more common phenomenon. This presentation will provide an overview of renewable energy technologies: solar electric, solar hot water and small wind systems. We will discuss the best practices for each of these systems, challenges and obstacles in northern climates, and ways to incorporate renewable energy in new construction and rehab opportunities.

Amy Heart, Midwest Renewable Energy Association

Integrated Design: From Theory into Practice — Integrated design may be described as the incorporation and integration of all the aspects of design that make a building green, energy-efficient, ecologically-sound, healthy and user-friendly. Integrated design in theory is often easier than integrated design in practice. This session looks at current practice, better practice, and how and where integrated design affects the design and aesthetics of the buildings we make. We will look at specific aspects of design and examine how things have been done in the past, how they ideally would be done now, and what design and detailing derivations, implications and difficulties may be.

Elizabeth DiSalvo, Trillium Architects

Systematic Savings: Setting Standards for Existing Homes (advanced session)—Systematic savings is an energy standard for existing homes. The standards are designed for major rehab — though not specifically for gut rehab. It is being applied to the affordable housing marketplace in Wisconsin. In particular, it is being applied to major rehabilitation jobs of organizations such as housing authorities, development corporations, and county and municipal offices. Targets were set to be aggressive and comprehensive, yet attainable, for our Wisconsin market. A case study demonstrates the targets are attainable and can result in deep energy savings; 50 percent projected total energy costs and 70 percent projected heating costs, and project costs are within reasonable payback ranges.

David Kinyon, Wisconsin Energy Conservation Corporation

Tuesday 1:00–2:30 pm

Green Remodeling and Rehab: Risks, Solutions and Doing It Right (Part 1 of 2) (advanced session) — This half-day workshop builds on the morning workshop and focuses on strategies, techniques and products that simultaneously improve the comfort, durability, safety, health and energy efficiency of existing homes. Gord will review the most common remodeling and rehab projects and the opportunities for energy savings (roofs, windows, kitchen and bath, basement finish, residing) and compare the cost effectiveness of enclosure (shell) improvements versus mechanical improvements while providing hints for implementing both. Gain a full understanding of the importance of combustion safety, indoor air quality, how tight is too tight, and effective ventilation strategies.

Gord Cooke, Building Knowledge, Inc.

ARRA (Federal Stimulus) Funding: Where We Are — This session will present an overview of the ARRA funding received by the state of Minnesota through the Office of Energy Security. Presenters will cover weatherization, state energy programs, and utility conservation improvement programs. The challenges and successes of programs that received ARRA funding will also be discussed.

Marilou Cheple, Jeff Haase, Jeremy DeFiebre, Minnesota Office of Energy Security

Windows, Low E — Does One Size Fit All? — This is a presentation of various Low E coatings available on the market today for use in commercial and residential windows and doors, with an in-depth look at how each designed coating affects the solar light spectrum and therefore the heating and lighting of a building.

Ken Modeen, Marvin Windows

Heating with Wood and Biomass: An Assessment of Options — In cold climates, wood and other biomass fuels have been used to deliver heat for centuries. This session offers a comprehensive discussion of current systems available for the home, including wood stoves, pellet stoves, masonry heaters, indoor and outdoor boilers, and more. There is no “one size fits all” product or system when it comes to heating with wood and biomass. The information presented will offer suggestions on what is appropriate given various conditions and the homeowner’s goals.

John Bergstrom, Energy Plus

Less Is More: Simple, Integrated and Innovative Net Zero Architecture — Too often green architecture comes across as expensive, showy, complicated and cluttered. Integrated design skills are essential to produce elegant, sustainable buildings that are high-performance but visually quiet, cost-effective and simple for occupants to understand and maintain. This session will cover the decision-making process, what systems and materials to consider, and case studies of projects.

Carly Coulson, AIA, LEED® AP, COULSON

Tuesday 3:00–4:30 pm

Green Remodeling and Rehab: Risks, Solutions and Doing It Right (Part 2 of 2) (advanced session) — Gord will discuss matching new technology to old materials, methods and designs, and provide successful cold climate case studies. By the end of the session, participants will have a thorough understanding of how to implement energy-efficiency improvements properly and cost-effectively into every remodeling project they undertake. The workshop is based on widely accepted industry information such as the ENERGY STAR® Home Advisor program, LEED for Homes, local weatherization programs and manufacturers’ best practice guides.

Gord Cooke, Building Knowledge, Inc.

Alliance Apartments: A Case Study of Energy Efficiency — This session will present a case study of a highly energy-efficient, affordable multifamily apartment building, with discussions on alternative building systems and the options and strategies explored to enhance the energy efficiency of this new building, which will be seeking LEED certification, and how the integration of all building components (including SIP, mechanical systems, the roof, etc.) enhance energy efficiency. Additionally, there will be a discussion of the cost benefit analysis and long-term payback.

Brad Kruse, Weis Builders, Inc.; Michelle Baitus Pribyl, Cermak-Rhoades Architects; Rosemary Dolata, Aeon; Mark Brengman, Steen Engineering

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

Solar Power and Energy Efficiency in the Mechanical Room — Customers and homeowners want to know the best options for energy efficiency. Learn the basics of solar technologies for residential applications, including how to build solar ready, solar balance of system specifications, how to choose a solar installer, and financial and energy payback considerations. Learn about the net zero energy design process and solution for the 2009 Eco Experience house at the Minnesota State Fair. Your mechanical room and building choices play an important role in a home’s energy costs and energy consumption years into the future, and with knowledge, you can guide homeowners toward the best choices. **Rebecca Lundberg, Powerfully Green**

Case Studies: A Consultant/Contractor Team Approach to Solving Existing Building Problems — This session will highlight two regional projects that experienced avoidable basic building/energy failures that required immediate remedial action and extensive repair at a high cost to the homeowners. One project had a significant exterior drainage plane failure, and the other suffered from numerous air sealing detail failures as the result of a recent remodel. Learn about a team approach (involving the contractor, an energy consultant and an engineer) that was used to develop a solution and strategy that was both cost-effective and practical from a constructability perspective. We will discuss both the process and procedure for finding the problems, designing the solutions and caring for the customers’ needs.

Dan Stanifer, Northway Construction; Doug Manthey, Conservation Technologies