

RENEWABLE ENERGY SYSTEMS FOR BUILDING PROFESSIONALS
Friday, January 30, 2009 — Lansing, MI • Radisson Hotel Lansing, 111 North Grand Avenue



HalfMoon LLC
PO Box 268
Eau Claire, WI 54702-0268



PRESORTED
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5 REASONS... You Won't Want To Miss This Seminar!

1. You'll learn about photovoltaic solar technology and equipment.
2. You'll learn how to utilize a solar thermal energy system.
3. You'll review the prerequisites to installing a wind turbine.
4. You'll learn about the cost benefits of geothermal heating and cooling.
5. You'll review green energy systems case studies.

Renewable Energy Systems for Building Professionals

A practical one-day seminar where you'll:

- ▶ **Analyze** energy needs and conservation opportunities
- ▶ **Explore** types of solar energy systems
- ▶ **Examine** the technology of small wind systems
- ▶ **Evaluate** the cost benefits of geothermal heating and cooling
- ▶ **Review** actual case studies of green energy systems

Lansing, MI
Friday, January 30, 2009

6.0 AIA SD/HSW Learning Units
6.0 CSI HSW CEUs
6.0 Continuing Education Hours for
Architects and Engineers

(See inside for details)



HMS
Continuing Legal Education
a division of HalfMoon LLC

Visit our web site at www.halfmoonseminars.com



SEMINAR AGENDA

Utilizing a Photovoltaic (PV) Solar Energy System

A. Brix

- ▶ Ann Arbor's Energy Challenge and Solar America Cities
- ▶ Analyzing energy needs and conservation opportunities
- ▶ Examining the cost benefits of a PV system
 - Federal and state solar incentives
 - Utility company's treatment of solar power
- ▶ Understanding PV technology and equipment
 - Solar collectors
 - Conversion of solar energy into electric power
- ▶ Sizing a PV solar energy system
- ▶ Purchasing and installing PV systems
- ▶ Case studies

Utilizing a Solar Thermal (ST) Energy System

W. Appleyard

- ▶ Understanding ST technologies and equipment
 - Direct and indirect systems
 - Passive and active systems
- ▶ Sizing an ST energy system
- ▶ Purchasing and installing ST systems
- ▶ Case studies
- ▶ Examining the cost benefits of an ST system
- ▶ Incentives and financing
- ▶ Exploring other types of solar energy systems

Installing a Small Wind Energy System

J. Patten

- ▶ Understanding the technology of small wind systems
- ▶ Reviewing the prerequisites to installing a wind turbine
 - Utility company's treatment of wind power
 - Local zoning and permitting
 - Wind energy incentives
- ▶ Sizing a wind energy system
- ▶ Purchasing and installing the turbine
- ▶ Case study

Installing a Geothermal Heat Pump

J. Hardin

- ▶ Evaluating the cost benefits of geothermal heating and cooling
- ▶ Understanding heat pump technology and equipment
 - Heating and cooling processes
- ▶ Obtaining financing and installation incentives
- ▶ Installing the system
- ▶ Case study

SEMINAR FACULTY

Andrew Brix has worked for the Ann Arbor Energy Office since 2004. Mr. Brix's duties include implementing energy efficiency and renewable energy projects, monitoring energy use and greenhouse gas emissions, managing grants, and planning for a green energy future in Ann Arbor. As the local liaison to the utility company and the Ann Arbor Energy Commission, he is helping lead the effort to meet Ann Arbor's "Green Energy Challenge." Mr. Brix holds degrees in Urban Planning and Economics from the University of Michigan.

Wayne Appleyard is an architect and co-founder of Sunstructures Architects in Ann Arbor. He has been designing energy-efficient, passive solar buildings since the mid 1970s. His early work included the Upland Hills Awareness Center and countless passive solar houses. More recent projects include The Leslie Science Nature House and Michigan's first two co-housing communities: Sunward and Great Oak. Some of his current projects include a 5,350 square foot straw bale environmental center for Chatfield School in Lapeer, two straw bale residences, and the Parsons Center, a multidisciplinary environmental center for Eastern Michigan University. He has also designed solar domestic hot water systems, active solar thermal space heating systems and solar photovoltaic systems. Mr. Appleyard has worked on the actual installation of solar thermal, photovoltaic, and wind turbines. He has spoken extensively on renewable energies and their integration into architecture at local and national forums. He is also a member of the Ann Arbor Energy Commission and works on the Mayor's Renewable Energy Challenge and the Ann Arbor 5000 Solar Roof Program.

John Patten, P.E., Ph.D., CMfg.E. is chair and professor of Manufacturing Engineering at Western Michigan University (WMU) in Kalamazoo and director of the Manufacturing Research Center. Prior to joining WMU in 2003, Professor Patten was on the faculty of the University of North Carolina at Charlotte. After working out of state for more than 20 years (three years in upstate New York and 19 years in North Carolina), he returned to his roots (born and raised in Michigan) to continue his career. In addition to his manufacturing career, Mr. Patten has been active in energy and environmental programs for most of his professional career. Previous work includes positions as energy engineer, solar and wind energy projects, and electric vehicles (solar charged). His latest work involves plug in hybrid electric vehicles (charged with wind energy).

Jim Hardin is the owner of Hardin Geotechnologies in Indianapolis. Mr. Hardin's experience includes maintenance, conceptual design, and construction, as well as managing activities such as electrical engineering and construction, mechanical and plumbing, HVAC, controls, structural (civil) engineering, interior fit, and finish. He has applied for patents for enhancements of geothermal technology.

ADDITIONAL INFORMATION

▶ **Tuition:** \$259.00 for one, or \$239.00 each for 3 or more from the same company or firm registering at the same time. Please make check payable to **HalfMoon LLC**. Each registration includes one copy of *Renewable Energy Systems for Building Professionals*. **Pre-registration is recommended.** *Walk-in registrations will be accepted at the program if space is available.*

▶ **Send Registrations to:** HMS, P.O. Box 268, Eau Claire, WI 54702-0268. You may also register via fax at 715-835-6066, by phone at 715-835-5900, or online at www.halfmoonseminars.com. **We do not send confirmations.** You will be contacted if any scheduling changes occur.

▶ **Date:** **Friday, January 30, 2009**

▶ **Location:** Radisson Hotel Lansing • (517) 482-0188
111 North Grand Avenue
Lansing, MI 48933
(Call the Radisson Hotel or HalfMoon LLC for directions.)

▶ **Schedule:** Registration 8:00 - 8:30 a.m.
Morning Session 8:30 - 11:45 a.m.
Lunch 11:45 a.m. - 1:00 p.m. *(On your own)*
Afternoon Session 1:00 - 4:15 p.m.

▶ **Continuing Education Credit:** This program is registered with the American Institute of Architects Continuing Education System for 6.0 Sustainable Design HSW Learning Units for AIA members (meets the 2009 AIA Sustainable Design requirement). It is also registered with the Construction Specifications Institute Construction Education Network for 6.0 HSW CEUs for CSI members. This program will meet the continuing education requirements for architects and engineers in most states of licensure. Please refer to specific state rules to determine eligibility or contact HalfMoon LLC for assistance. *You may email inquiries to doug@halfmoonseminars.com or call HalfMoon at 715-835-5900.*

▶ **Cancellations:** If your schedule changes and you contact us at **least 48 hours** before the start of the seminar (CST), we will offer you a full tuition refund, minus a \$10.00 service charge for each registrant. If you contact us after that time, we will offer you a credit toward another seminar, or a credit toward the CD/manual package. *If you desire, you may send another person to take your place at the seminar.*

▶ **CD/Manual Package:** A full recording of the seminar is available for \$269.00, which includes shipping and handling. Please allow five weeks from the seminar date for delivery.

*Visit our web site at www.halfmoonseminars.com
for information on other upcoming seminars.*

RENEWABLE ENERGY SYSTEMS FOR BUILDING PROFESSIONALS

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1. Check appropriate product(s):

- Lansing, MI** - Friday, January 30, 2009.
\$259.00 for a single registrant or \$239.00 each for 3 or more from the same firm. *(Includes Manual)*
- CD/Manual Package**, \$269.00, includes shipping and handling.
- Manual only**, \$56.00, includes shipping and handling.

2. Please complete for each registrant:

(Attach duplicate forms if necessary.)

Name: _____
Position: _____
Name: _____
Position: _____
Company/Firm: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone where we can reach you: (_____) _____ - _____

3. I am making payment by:

Check payable to HalfMoon LLC
(___ Yes, I was pre-registered by phone or fax.)

MC VISA AmEx Discover
Card No: _____ Expires: _____

Cardholder Name: _____

Signature: _____

E-mail Address *(for credit card receipt and program changes only)*: _____

4. Detach entire panel and send via fax to
**715-835-6066 or by mail to
HMS, PO Box 268, Eau Claire, WI 54702-0268.**

I need special accommodations. Please contact me.

Program #09042

Thank you