Re-Arch: The Initiative for Renewable Energy in Architecture

Renewable Energy in Commercial Buildings

Design Guidelines for Integrating Renewable Energy in Commercial Buildings
By Loren Abraham, AIA, LEED AP

Project Team:
University of Minnesota College of Design (CDes)
Minnesota Renewable Energy Society (MRES)
Center for Sustainable Building Research (CSBR)
Midwest Renewable Energy Association (MREA)
American Institute of Architects Minnesota (AIA MN)
Green Institute

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Spring Workshops: register at [www.aiamn.org](http://www.aiamn.org) ($60 each)

**April 4, 2007: Rochester**
Best Practices in Daylighting and Passive Systems for Small Commercial Buildings
**Tom Brown**, HSW credits: 3.75; *Time*: 8:00-12:00
Radisson Plaza Hotel, 150 South Broadway, Rochester, MN

**April 16, 2007: Duluth**
Designing Solar Hydronic Space and Hot Water Heating Systems for Single and Multi-family Residential Buildings;
**Bob Ramlow**, HSW credits: 3.75; *Time*: 1:00-5:00
Radisson Hotel Harborview, 505 West Superior St, Duluth, MN

**May 16, 2007: St. Paul**
Designing Solar Hydronic Space and Hot Water Heating Systems for Single and Multi-family Residential Buildings;
**Bob Ramlow**, HSW credits: 3.75; *Time*: 8:00-12:00,
Continuing Education and Conference Center, University of Minnesota, St. Paul, MN
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American Institute of Architects Minnesota (AIA MN)

Context: Architecture and Global Warming Emissions
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National & Local Carbon Reduction Initiatives in Architecture

AIA Minnesota 2004 Climate Change Position Statement
- Energy Efficient Residential and Commercial Buildings
- 20% Renewable Energy by 2020

Architecture 2030 Challenge - Carbon Neutral Buildings
(adopted by AIA National and US Council of Mayors)
- 60% CO2 Reduction by 2010
- 70% CO2 Reduction by 2015
- 80% CO2 Reduction by 2020
- 90% CO2 Reduction by 2025
- Carbon Neutral by 2030
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Workshop Schedule (4 Hour)

I. Schedule, Context, Goals & Objectives 10 Min.
II. The process of designing buildings with RE 15
III. Overview of Renewable Energy Choices 20
IV. General Rules and Design Guidelines 50
Q & A 10

BREAK 15 Min.

V. Finance: Incentives and Calculating ROI 20
VI. Analysis Tools and Other resources 20
VII. Case Examples 50
VIII. Conclusion 10
Q&A 20
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Course Goals
Participants in this workshop will learn about:
• setting energy goals & optimizing building energy loads.
• determining the feasibility for integration of Renewable Energy (RE) Technologies.
• applying various Renewable Energy strategies in a variety of design applications.
• specific Renewable Energy options & general principals, design guidelines & rules.
• software tools and financial analysis methods.

Objectives
Workshop leader will review:
• preferred process for designing buildings with RE systems.
• various solar, wind and other RE options for commercial projects.
• diverse applications for solar, wind and other renewable technologies.
• current best practices & rules for integrating RE systems into commercial projects.
• financial incentives available for RE systems.
• provide examples of successful RE installations including local projects.
Our Hope for the Future?

"How do we love all children of all species for all time? It’s a fundamental question of human rights."

_William McDonough_