

# ENERGY

performance

# Modeling

ARCH 598: April 1 - June 3rd, 2011: Fridays 9:30 - 12:30 at the IDL

This course is built around the relationship between designing for radically high levels of energy efficiency and the needed energy performance modeling required to guide and test the results of those decisions. Performance Modeling is taught in two modules of five classes each. Module One is a primer on energy modeling with DOE2/Equest, and is intended for students who have little or no experience with energy modeling. Module Two is an applications-focused series using the BetterBricks document, *Integrating Energy Engineering and Performance Modeling into the Design Process*.



# Meeting Architecture 2030?

## Try >> ARCH 598: Performance Modeling: Designing for Energy Efficiency

Mike Hatten, SOLARC Architecture & Engineering

### Week-by-Week Course Outline:

- ☒ **Introduction to Energy Modeling:**  
What is DOE2, Equest? Thermal Zoning
- ☒ **Modeling the Building Envelope:**  
Energy Transfer Across the Envelope
- ☒ **Modeling Internal Loads:**  
People, Lights, and Equipment
- ☒ **Modeling HVAC Systems:**  
Fans, Packaged Systems, Built-up Systems
- ☒ **Modeling Central Energy Plants:**  
Boilers, Chillers, Pumps
- ☒ **Pre-Design Modeling Applications:**  
Energy Codes and Modeling Protocols for a Code Baseline
- ☒ **Conceptual Design Modeling Applications:**  
Segregating Building & Systems-imposed Loads for Heating & Cooling
- ☒ **Schematic Design Modeling Applications:**  
Alternative Thinking: "Passiv Haus" and Net Zero Energy
- ☒ **Design Development Modeling Applications:**  
Alternate Systems: De-coupled HVAC and Passive System Integration
- ☒ **Final Design Modeling Applications:**  
Model Weaknesses: Infiltration, Occupancy Schedules, and Temperature Set-points

