Arch 407/507  Spring 2009
Passive Solar Heating Workshop, Portland
CRN 36817, 36818
Prof. John S. Reynolds, FAIA, University of Oregon, Eugene
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Saturday April 25 at White Stag Building 150
9 AM – 5 PM
1 Credit Hour, P/N only

Do NOT sign up for this workshop if you intend to take JR’s Passive Solar Heating Seminar in Eugene, 2009-2010 academic year.

The primary focus of this one day workshop is on the design impacts of various passive solar heating strategies. Architecture is a combination of aesthetics, social issues, and technical performance; all will be a part of the discussion.

Calculations are required, and the workshop will be profusely illustrated.

We begin with energy conservation techniques, including building form and orientation, and solar access issues. A “band-of-sun” exercise on a north-south building section reveals the suitability of a design for seasonal solar performance: shading in summer, collection in winter.

We look briefly at the Passivhaus approach utilizing superinsulation to greatly reduce space heating needs. The passive solar heating techniques include direct gain (by far the most common), thermal storage walls (Trombe and water walls), and sunspaces (greenhouses). Examples of each will be critiqued.

We study the relationship between passive solar heating and the other passive strategies of daylighting and passive cooling, as well as to mechanical heating equipment.

Participants are expected to have some familiarity with heat gain calculations; those who have completed Arch. 491/591, Environmental Control Systems at the University of Oregon (or equivalent elsewhere) should readily understand the material in this workshop.

Participants should bring a hand calculator, and a copy of Mechanical and Electrical Equipment for Buildings, 10th edition, © 2005, Stein, Reynolds, Grondzik, Kwok; publisher John Wiley and Sons.