



## Improving the Building Envelope: Achieving High Performance

May 27, 2010

**8:50 am – 9:00 am**

### **KEYNOTE: Building Enclosures: Problems and Promises**

#### **Andrew Shapiro – Energy Balance**

The Conference Keynote by Andy Shapiro will include definitions of terms, some shortfalls he sees in current practices and approaches to these problems, and typical high-performance metrics he uses. Andy will also participate in the “Lessons From The Field” presentations, as part of the design teams on those projects.



Andy has provided energy and other green building design consulting services for 30 years to a wide variety of clients, including owners, architects, engineers and builders, as well as housing developers, universities, businesses and electric utilities. Services range from sustainable building design to research and monitoring projects. He is the Scientist-in-the-Classroom for the Vermont Energy Education Program, training teachers and students. Recent projects include NRG Systems manufacturing and office facilities (close to 100% renewably powered -- LEED Gold) in Hinesburg, VT; Putney Field House (Putney School, Putney VT, “net zero,” LEED Platinum); Waterfront Housing, affordable housing project in Burlington, VT; and several micro-load/“net zero” houses in Vermont.

**9:00 am – 10:00 am**

### **Avoiding Pitfalls With Air Barriers**

**Program #52710A 1.0 AIA HSW SD CEU**

#### **Len Anastasi – EXO-TECH Consulting Inc.**



With the proliferation of the use of air barriers in building enclosure systems the potential for problems exists in the industry. This workshop will review the proper planning, product selection, specifications, details and field quality assurance needed for a successful air barrier installation. The program starts with a list of steps to be taken during each phase of design and construction. Proper exterior wall design based on type of construction and proper material selection based on type of construction will then be reviewed. Details for specific wall construction type and product selection will be then be offered and reviewed. Poor detail examples will also be exhibited and discussed. Finally, quality assurance guidelines will be offered including pre-construction meetings, mock-up review and field inspection recommendations. Examples of problem installations will also be offered with explanations of the problems.

Len Anastasi owns EXO-TEC Manufacturing, Inc. which manufactures specialty construction products, EXO-TEC Solutions, Inc. which performs marketing work for various quality and innovative manufacturers of construction products and EXO-TEC Consulting, Inc. which performs consulting services on building enclosure issues for building owners, managers, design professionals and lawyers.

In his construction and consulting work, he has performed inspections and / or repairs on over 300 buildings as well as provided expert testimony and reviews on dozens of legal cases. He is a member of ASTM's E 06 Committee on Building Performance where he has both authored and reviewed ASTM standards. He is a member of the Boston Society of Architects' Building Enclosure Council where he has presented on several different topics and has been sponsored to speak at the Build Boston Exposition, AIA National Convention and CSI National Convention. He is the current President of the Air Barrier Association of America. He is also a director for a grant program from the U. S. Department of Energy that is studying the effects of heat, air and moisture transfer through various building enclosure assemblies and has authored numerous papers and articles on building enclosure system issues. He is also a guest lecturer at the Boston Architectural Center.



10:30 am – 12 Noon

## Lessons From The Field

Program #52710B 1.5 AIA HSW SD CEU's

### Part 1:

#### Tyler Scott, AIA – Scott + Partners, Architects



The focus of the discussion for this seminar is two projects that look at the design of the building envelope. One is the State of Vermont Forensics Lab, a newly constructed facility employing exterior applied spray foam insulation. The other project is the renovation of the adjacent Department of Public Safety Building, a three story solid masonry building built in the 1940's. We will review the options looked at for each envelope and the chosen solutions.

Tyler Scott is a registered architect and is the founding partner of Scott + Partners, Inc. in Essex Junction. Previous to that Tyler worked for Colin Lindberg in Burlington, and architects in Montana and Washington State.

Scott + Partners is a (7) person firm focusing primarily on health care, multi-family housing, institutional and commercial work in Vermont. Current projects include the new Forensics Lab Addition and the renovation of the existing Department of Public Safety building in Waterbury, the design of the new Dealer.com facility in Burlington, and various projects for Fletcher Allen Health Care.

### Part 2:

#### Bill Maclay, AIA, LEED-AP – Maclay Architects

Bill will discuss the challenges of detailing air and moisture barriers in high performing super-insulated building envelopes. Three different projects with different wall assemblies, building success, design strategies, detail and specification measures and bidding and construction practices will be covered to explain how to achieve low air infiltration, high insulation and proper moisture drainage in durable cost effective building envelopes for new and renovated projects. We will discuss current and finished projects including the Bennington Downtown Courthouse and State Office Building, the Net-Zero Putney Field House and the renovation of the George D. Aiken Center on the UVM campus. These projects will allow for the opportunity to discuss wall construction in a new wood framed wall, a new section and renovated section of a brick and concrete wall and a renovation of a brick and steel wall. We will discuss the challenges and provide solutions for detailing high performing walls while dealing with structural movement.



Bill Maclay is the Principal of William Maclay Architects & Planners, a firm specializing in the design of buildings incorporating energy and resource conservation, optimal indoor air quality, healthy building design technologies and environmentally responsive land use planning. Since its inception, the mission at WMAP has been design focused on connecting people to nature and other people through innovation and excellence in green, sustainable, and healthy building technologies. Over the last three decades, WMAP has been at the leading edge of innovative and sustainable design. The firm has been recognized, both nationally and locally, for its work on projects such as the NRG Systems near net-zero, Gold LEED rated 65,000 square foot office and manufacturing facilities in Hinesburg, VT; the net-zero Putney School Field House; and the Seventh Generation Corporate Headquarters in Burlington, VT. He is a former president of the Vermont AIA and Board member of Vermont Businesses for Social Responsibility and Yestermorrow Design School.



**1:00 pm – 2:00 pm**

## **Roof Systems for the 21st Century**

**Program #52710C 1.0 AIA HSW SD CEU**

### **Robert Dye, FCSI, LEED-AP**



Bob will discuss the elements of good roof design as a component in a high performance envelope, as well as how roofs intersect with “green” design. He will cover aspects of energy management (high-R-value systems, cool roofs, air barriers), material management (recycled and re-used materials, and low-VOC needs), water management, life cycles, and durability (wind resistance, moisture, maintenance, monitoring of installation & material quality).

Bob Dye contributes over thirty years construction experience to his clients’ projects. His certification as one of approximately 345 Registered Roofing Consultants in the country demonstrates his qualifications in the field of roof consulting. He was the project manager on a nationwide roof asset management program recently completed for a multi-billion dollar property owner. He has worked on a large diversity of projects, as large in size and scope as the Superdome in New Orleans (following the damage of Hurricane Katrina) and the West Virginia University Coliseum re-roof project.

**2:30 pm – 3:30 pm**

## **Polyurethane Foam Insulation**

**Program #52710D 1.0 AIA HSW SD CEU**

### **Vincent Majewski**

The presentation on polyurethane foam insulation will cover: understanding air, moisture and vapor flow within a structure; the difference between open-cell and closed-cell foam; identifying problems that affect occupant comfort; how to recognize the benefits of spray polyurethane foam (SPF); key factors to consider when specifying SPF; industry considerations: LEED qualifications and environmentally friendly practices; and building safety and fire code considerations.



Vince Majewski graduated from the University of Massachusetts with an Engineering degree. He has worked for VEM Solar Solutions, with energy efficient glass coatings; founded Spray Foam Enterprises of Massachusetts, specializing in closed cell spray foam insulation; and is a representative for the AirTight Spray Foam program of Lapolla Industries. Vince is a BPI-certified field technician.