

# THE BUILDING SHELL

A new home's building shell, in simple terms, is comprised of the structural elements that separate the inside from the outside: walls, roofs, windows, doors. The shell's function, however, is anything but simple. It has to protect its occupants from rain, wind and snow. It has to control the flow of energy and heat between indoors and outdoors. It has to control the flow of air and moisture. It has to provide light and a mechanism to enter and exit. It has to provide a means for pollutants and contaminants to flow out of the building. It has to create an environment that is comfortable indoors, when conditions outdoors are not. And, it significantly determines the affordability and energy consumption of a home. **Proper design and construction of the residential building shell is one of the most critical components to insure both the structural integrity of a home, as well as the health and safety of the people living in it.**

This half day training will educate residential building professionals on the design and construction techniques to assemble a building shell that successfully maintains structural integrity and occupant health. Topics being covered include:

- ◆ **The home as a system:** how the building shell acts as a series of individual systems, and interacts with the foundation and ventilation.
- ◆ **The most common sources of indoor air pollution** resulting from material options and construction of the building shell (framing, roof, insulation, durable exterior details, etc.) and their effect on occupant health.
- ◆ The **physical processes** and **building science concepts** in new and existing homes (air flow, pressure, moisture migration, outgassing, and others).
- ◆ **Practical strategies to construct or renovate** the building shell to minimize IAQ problems.
- ◆ **Examples of common or promising wall and roof types** in new construction and renovation including sample material types.
- ◆ How **product selection** and **installation** can affect the function of building shell components
- ◆ **Balancing energy efficiency and indoor air quality.**

## ABOUT THE TRAINERS

**Bill Turner** is the president of Turner Building Science, LLC, and has 20 years' experience in the development and implementation of indoor air quality standards, diagnostic testing and remediation, industrial hygiene instruments, survey administration, air monitoring data collection, quality assurance, data validation, and technical report preparation. Turner Building Science has assembled a training development team for this program that includes engineers, architects, energy consultants and home builders - all who have been working and building in Maine for over 25 years.

**David Johnston** is president of David Johnston & Co., and has been building healthy, energy efficient homes in Maine for more than 26 years. David has served as an adjunct instructor in Residential Design and Drafting and Graphic Design at the USM Department of Industrial Technology, and is currently on the Advisory Committee for a new Construction Management major at USM.

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