

# Building & Renovating an Energy Efficient, Healthy Home

## ABOUT THESE TRAININGS

In March and April of 2017, the Maine Indoor Air Quality Council is presenting its popular residential construction training series. These programs teach construction practices that optimize energy efficiency measures and minimize the risk of moisture and indoor air quality problems in new and existing homes. The trainings further emphasize this critical concept: high performance homes are not hard to construct, and the extra efficiency measures have a very reasonable payback — both for the builder and the homeowner.

The workshops include illustrations of current Building and Energy Codes (2009; 2012 and 2015); Energy Star Guidelines; Zero Energy Ready Guidelines; and Passive-Haus Guidelines. They further provide an introduction to basic building science and IAQ principles, and incorporate humor to convey the core concepts. The program trainers William A. Turner and David Johnston, provide a perfect blend of building science technique with practical, pound-the-nails guidance.

## A FOUR PROGRAM TRAINING SERIES

MARCH-APRIL 2017

CURTIS MEMORIAL LIBRARY - BRUNSWICK, ME

### Each workshop session provides information on:

- Proven cost-effective and energy efficient building construction techniques
- The physical processes that require attention: how air, moisture, and heat move in and out of a home
- Practical strategies to effectively and economically address both energy efficiency and indoor air quality
- Case studies from actual projects (*participants are encouraged to bring issues to the sessions*)
- Specific references and resources, such as DOE's Building America Solutions Center, EPA's Energy Star Sites, building codes, and private publications

### Continuing Education Credits and Level 1 MCBA Certification:

These programs are pre-approved for: AIA Members, Codes Officials, BPI certified professionals, Engineers, Realtors, and Registered Radon Professionals. Individuals who attend all four sessions are eligible for a Level 1 Building Certification offered through the Maine Contractors & Builders Alliance.

**Cost:** Thanks to funding support from local, regional, and national sponsors, these programs are being made available to area building professionals for just \$99 per session for Council members, or \$139 per session for nonmembers. Register for all 4 sessions and get a 15% discount AND a \$25 coupon for the Northeast IAQ & Energy Conference on May 1-3 in Portland.

**Go to [www.maineindoorair.org](http://www.maineindoorair.org) or call 626-8115 to register.**

### About the Trainers:

**David Johnston** has been building custom energy efficient, healthy homes in Maine for more than 35 years. David currently teaches building construction trade classes at Central Maine Community College and has served as an adjunct instructor in Residential Design and Drafting and Graphic Design at USM. David is currently on Advisory Committees for Southern Maine Community College, Central Maine Community College, and Westbrook Region Technology Center.

**Bill Turner** has 30+ years' experience in dealing with fundamental Building Science, Energy Efficiency and Indoor Air Quality forensic principles. Bill has two renovated homes participating in the 1000 Home Challenge program, with a focus on energy efficiency and indoor air quality. He provides training both locally and nationally for a broad range of building and IAQ organizations.

Details & Registration at  
[www.maineindoorair.org](http://www.maineindoorair.org)



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## Foundations

**8:00 a.m. – 12:00 Noon; Tuesday, March 7, 2017**  
**Curtis Memorial Library, Brunswick, ME**

Proper site work and foundation construction are as critical to the overall quality and healthfulness of a home as the building shell that is constructed above grade. As a result, a builder's job begins before the very first shovel of dirt comes out of the ground, not after the foundation is completed. This program highlights the physical processes at work below grade—processes related to temperature, water, moisture, and air—and how they can cause a variety of problems that not only may affect occupant health, but may also drastically compromise energy efficiency and the building structure. The session offers practical how-to guidance on ways to avoid mistakes in site drainage and foundation construction: mistakes that are costly and difficult to fix after the home is completed.

## The Building Shell

**8:00 a.m. – 3:30 p.m.; Tuesday, March 14, 2017**  
**Curtis Memorial Library, Brunswick, ME**

Simply put, a new home's building shell is comprised of the structural elements that separate the inside from the outside: walls, roof, windows, doors, including things that govern long-term performance: air barrier, wind barrier, vapor diffusion layer, insulation, drainage plane, and exterior cladding. The shell's function 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 means to enter and exit, and allow pollutants and contaminants to flow out of the building. The shell 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. This program presents practical techniques building professionals can use to achieve all of these goals and still provide healthy IAQ.

## Heating & Ventilation

**8:00 a.m. – 12:00 Noon; Tuesday, March 28, 2017**  
**Curtis Memorial Library, Brunswick, ME**

Building and renovating homes in Maine's climate is a challenge. While most customers demand that their homes be constructed and renovated to minimize heat loss – most customers don't make similar demands for adequate ventilation and moisture management. Yet ventilation of a Maine home, particularly an energy efficient home, is one of the most critical construction issues Maine builders need to address in order to prevent call backs and problems down the road. Properly ventilated homes minimize the risk of exposure to indoor environmental pollutants (radon, carbon monoxide, carbon dioxide, combustion pollutants, chemicals) and minimize the risk of moisture damage in the building envelope and subsequent biological contamination. This program stresses why controlling ventilation in a home is necessary to protect occupant health. It will discuss the most common sources of indoor air pollution in homes and how they get there, and what physical processes are present (air flow, pressure, moisture) that affect indoor air quality. The program provides practical strategies to achieve energy efficient heating, moisture control, and core ventilation goals.

## Renovations

**8:00 a.m. – 3:30 p.m.; Tuesday, April 4, 2017**  
**Curtis Memorial Library, Brunswick, ME**

This full day session focuses on practical short and long-term strategies to both maximize current and future energy efficiency and minimize IAQ problems when undertaking common residential renovations. The program covers identification of potential IAQ hazards in an existing home, understanding how specific renovation projects can impact indoor air quality, and strategies to both renovate a home for improved energy efficiency and AND reduce health risks for home occupants. Covers: weatherization, basement improvements, roofs, windows/doors, bathrooms, kitchens, additions, and ventilation. Case studies of actual projects will be used to illustrate training concepts.



Details & Registration at [www.maineindoorair.org](http://www.maineindoorair.org)