

# Utah ASHRAE May 4<sup>th</sup> Sustainability Meeting – Tech Sessions/Lunch

**Date:** Friday, May 4<sup>th</sup>, 2012

**Presenters:** R. Christopher Mathis, MC2 Mathis Consulting Company, Asheville, NC

ASHRAE Distinguished Lecturer

Daniel N. Donahoe, 1000 kilometers, North Salt Lake, UT

## Technical Session 1

**WHY BUILDINGS MATTER** - R. Christopher Mathis

This hour long workshop will remind us of the critical importance of our buildings. It will also help to re-shape our understanding of our buildings, especially as to their role in our state's and nations overall energy, power and water demand. Using photographs from around the world attendees will be taken on a journey that will provide clear context for the challenges on road to sustainability. What are the systemic impediments to accomplishing these goals? What are the challenges that exist to meaningful market transformation? What truly defines "high performance buildings"? Where do we go from here?

## Technical Session 2

**Engineering Solutions using Excel with Visual Basic for Applications (VBA)** - Daniel N. Donahoe

Several distinguished speakers at our ASHRAE presentations have spoken about building models. That got me thinking about how to check results of these "black box" programs such as DOE-2 and Energy Plus. Of course, engineers can perform checks using closed form solutions in textbooks, but these formulas are usually too idealized. Today, there are a variety of programming languages suitable for engineers. Some costs thousands of dollars; others are available for free but are somewhat complex with many versions and compatibility issues. Since most engineers have Microsoft Office on their personal computers, why not focus on using Excel with Visual Basic for Applications (VBA). Using Excel with VBA for simple modeling purposes will be demonstrated.

## **Lunch & Presentation**

### **Building Science Lessons from the Honey Bee - R. Christopher Mathis**

This informative and entertaining presentation is based on an ASHRAE published paper addressing lessons we might learn from the 90 million years of evolution and building science embodied in the work and structures of the honey bee. From temperature management, thermal storage, indoor air quality, active and passive ventilation techniques and energy efficiency, the honey bee has developed a highly efficient construction system to support its biological needs. Attendees will be challenged to consider how we might employ these time-tested building science lessons into today's architecture and engineering practice, as well as challenging our current definitions of "sustainability".