

# Getting to Net-Zero: Understanding the Energy Load Shift in High Performance Buildings

*Michelle Tinner & Robert Grindrod, Senior Technical Support Analysts, CLEARResult*

## **ABSTRACT**

As we increase the energy efficiency of our buildings, the ratio of energy used between space conditioning, domestic hot water production, ventilation, as well as lighting and appliances changes significantly. The space conditioning load, traditionally the largest in our northern climate, is diminished greatly and therefore the building's load becomes dominated by water heating, ventilation as well as lighting and appliances. Understanding this dynamic and evaluating proposed measures accordingly is critical to achieving net-zero performance cost effectively. In this session we will explore the nuances of the energy load profile, examining it's evolution over the past 10 years in the context of the International Energy Conservation Code and ENERGY STAR. We will cover proven net-zero design principles, overcoming diminishing returns for shell improvements, and climate specific strategies.

## **BIOGRAPHY**

**Bob Grindrod** is a Senior Technical Analyst with CLEARResult, working to provide technical support to Partners in the NYSERDA Low-rise Residential New Construction program. Bob started insulating homes in the mid 70's and over the years became involved with many aspects of building energy use, health and safety including radon, and moisture mitigation. Bob joined CLEARResult in 2006 as a Technical Field Rep in the NYSERDA Home Performance with Energy Star Program and helped lead CLEARResult's work in NYSERDA's Multifamily Building Performance Program (MPP).

**Michelle Tinner** is a Senior Technical Analyst with CLEARResult, providing support to Partners in the NYSERDA Low-rise Residential New Construction program. Prior to CLEARResult, Michelle founded the BPI accredited company MBT Design in 2009, embracing a building science whole systems approach toward work as a home performance contractor and HERS Rater. She is currently completing her M.S. in Sustainable Construction Management at SUNY-ESF, where she also led a design team which recently won the U.S. Department of Energy's Challenge Home Student Design Competition.