



SPECIAL WORKSHOP WEDNESDAY, OCTOBER 21, 2009

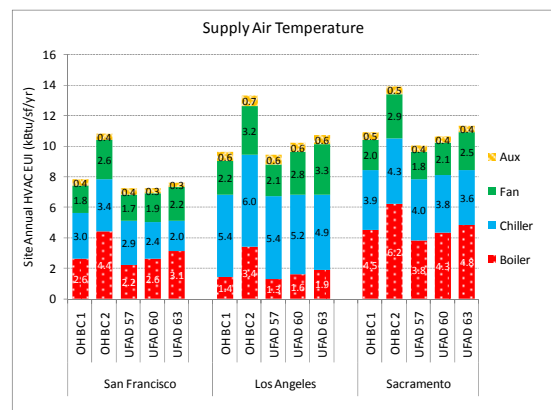
USING ENERGYPLUS TO SIMULATE AND COMPARE UNDERFLOOR AIR DISTRIBUTION (UFAD) SYSTEMS

WEDNESDAY, OCTOBER 21, 2009, 12:00 – 4:30 PM

TAMALPAIS ROOM, DAVID BROWER CENTER, 2150 ALLSTON WAY, BERKELEY CA

Until recently, design engineers and energy modelers have had to use approximate modeling approaches to simulate UFAD systems. EnergyPlus Version 3.1, released in April 2009, now provides the ability to accurately model UFAD system energy performance. This new capability is based on fundamental development work done by CBE, UCSD, and others. CBE has also developed a UFAD EnergyPlus Simulation Toolkit that will be especially valuable to users who may find the standard EnergyPlus interface cumbersome or difficult to use.

In this workshop, CBE's simulation research team will present the new UFAD Toolkit, which includes an Excel-based interface and EnergyPlus input files that allow users to easily simulate a prototype three-story office building with either a UFAD or for comparison, a conventional overhead variable-air-volume system. Users may change selected design and operation parameters that drive system performance, including internal loads, window area, climate, floor area, and orientation, as well as HVAC parameters for both systems. The interface allows users to view simulation results in a number of ways, including hourly zone-by-zone results, and monthly or annual energy use intensity for the building and HVAC end-use components. We will also discuss modeling buildings that combine both hydronic radiant slab and UFAD technologies. Participants are invited to bring laptop computers with EnergyPlus 3.1 installed.



EnergyPlus v3.1 allows UFAD systems to be modeled and compared to standard overhead systems. Here, the impact of AHU supply air temperature is presented for three climates.

WORKSHOP SCHEDULE

12:00 pm	LUNCH, NETWORKING, AND SETUP (LUNCH PROVIDED)
1:00 pm	CBE UFAD ENERGYPLUS SIMULATION TOOLKIT
2:45 pm	BREAK
3:00 pm	HANDS-ON DEMONSTRATION
4:00 pm	CLOSING DISCUSSION AND WRAP-UP
4:30 pm	ADJOURN