

NEW CONSTRUCTION PROGRAMS: REAL WORLD CONSIDERATIONS FOR PERFORMING EVALUATIONS

Moderator: David Weitz, CLEAResult

PAPERS (in order of appearance):

Real Life Options for New Construction Evaluation

Carter Membrino, Warren Energy Engineering, LLC

Kevin Warren, Warren Energy Engineering, LLC

Optimizing the Post-Occupancy Evaluation Timeline for Commercial New Construction

Simulation Modeling

Jeff Cropp, Cadmus

Rasika Savkar, Cadmus

New Construction Multifamily Building Recruitment - A “Full Contact” Game!

Pam Rathbun, Tetra Tech

Carol Sabo, Tetra Tech

Amber Watkins, DNV GL Energy

Dorothy Conant, Independent Consultant

Zack Tyler, NMR

SESSION SUMMARY:

While all savings evaluations face the challenge of properly identifying pre-improvement energy usage, new construction evaluations have the additional problem of there being no initial consumption record because no building existed. Instead, projects must be compared to a virtual baseline developed using design intent, assumed operating conditions, and anticipated occupancies; only through the use of such models can "savings" be calculated in comparison to what would have existed in the absence of program influence. Constructing those models is not a simple matter for complex buildings with complicated systems and control strategies. Simulations that were used by designers to estimate performance are often incomplete, do not accurately reflect the eventual as-built conditions, or are simply missing. Even when all the necessary documentation is available, it can take time for large new buildings to reach full occupancy, complicating the comparison of metered energy consumption to modeled estimates that were based on full occupancy. In general, there is a wide array of uncertainties that are unique to evaluating newly constructed buildings.

This session will offer three perspectives on issues of obtaining and cost-effectively using data to perform evaluations on newly built commercial, institutional, and multifamily buildings, as well as what to do in cases where such data is unavailable. Carter Membrino will discuss options when it is impossible to comply with industry standard recommendations for whole-building simulation as defined by UMP or IPMVP, and present an alternative methodology that is more rigorous than just reverting to field verification of installed equipment. Jeff Cropp will address how the differences between design vs as-built conditions should be taken into account for elements including space type, equipment operation, and occupancy patterns, focusing on how the post-occupancy time period is critical for model calibration and offering a sensitivity analysis of calibrated models' accuracy over a range of time periods. Pam Rathbun will round out the panel with a presentation on techniques for identifying and recruiting the hard-to-reach market of multifamily building stakeholders into evaluations, covering both successful and unsuccessful strategies.