

SESSION 24

BUILDING CODES AND STANDARDS

Moderator: Lynn Hoefgen, NMR

PAPERS:

Building Energy Standards Can Fail to Deliver Expected Savings: The Importance of Code Compliance

Yvonne Boerakker, KEMA

John L. Stoops, KEMA

Planning and Evaluation Tools for Energy Efficiency Policy in the Housing Sector in Latvia

Andra Blumberga, Riga Technical University

Gatis Žogla, Riga Technical University

Ilze Laicāne, Riga Technical University

Coding Conservation: Does a Residential Energy Code Significantly Reduce Electricity and Natural Gas Use?

Ken Tiedemann, BC Hydro

SESSION SUMMARY:

This session will focus on the effectiveness of building codes and standards as policies for achieving energy savings, and proper methods for assessing compliance. With many governments having established aggressive energy savings goals, more stringent codes and standards may at first appear to provide an easy and straightforward way to ensure that those savings are achieved. But of course, the devil is in the details, as the three papers in this session make apparent.

Boerakker and Stoops focus on methods for measuring codes and standards compliance, reasoning that good measurement is the only way to know if compliance is being achieved, and that the use of similar methods across jurisdiction is necessary for valid comparison. They review codes and standards evaluations recently conducted in the Netherlands, the United Kingdom, and the United States, and summarize reasons for lack of certainty about results—ranging from technical issues with estimation techniques to problems with construction to low emphasis on compliance. They conclude with recommendations, applicable to all jurisdictions, for future building code compliance studies.

Blumberga, Žogla, and Laicāne compare two modeling approaches for quantifying achieved and forecasted energy savings associated with energy efficiency policies in Latvia, including codes and standards. The two approaches are “black-box” top-down modeling, and “white-box” system dynamics modeling. The authors show that the top-down approach, particularly in time of economic recession, can result in misleading conclusions, while the system dynamics approach provides more realistic results by incorporating features more akin to real-world conditions.

Tiedemann estimates the impact of code changes on energy use in residential buildings in British Columbia, Canada. He begins by reviewing BC government documents to identify key energy-related changes in the code, and relies on information from site audits, developer interviews, customer surveys, and finally whole-dwelling energy modeling to estimate the natural gas, electricity, and demand savings associated with the new code. The study finds substantial savings, and includes an assessment of study limitations and recommendations for future evaluations.