

NREL Launches Collaborative Resource for Field Test Best Practices

Highlights in
Research & Development

Dynamic portal documents and shares state-of-the-art residential field test tools and techniques.

Field testing is a science and an art—a tricky process that develops through a lot of trial and error. Researchers in the Advanced Residential Buildings group at the National Renewable Energy Laboratory (NREL) regularly conduct field experiments and long-term monitoring in occupied and unoccupied houses throughout the United States. The goal is to capture real-world performance of energy-efficient systems, in support of the U.S. Department of Energy's Building America program. In addition to the technical challenges of making accurate field measurements, NREL researchers realized another problem: the vast body of field test know-how based on years of collective experience is currently scattered throughout the building science community. To address this need, NREL developed the Field Test Best Practices website, a dynamic, collaborative resource that documents practical "lessons from the field" for building scientists nationwide.

From project design to sensor choices to data acquisition techniques, the tools used in the field often have more demanding requirements for cost, convenience, and robustness than those used in controlled laboratory environments. Inconsistent practices can result in ambiguous results, which can delay adoption of efficient technologies. Until now, no central repository existed to house and share the best practices knowledge that resides with national laboratory scientists, Building America research teams, and the greater residential building science community.

NREL's Field Test Best Practices website is a centralized resource where users can find detailed guidance on how to plan and execute a wide variety of field test experiments effectively and efficiently. Topics range from experiment design to sensor selection to data acquisition to analysis approaches. The site features a unique organizational structure that allows users to rapidly access content from multiple dimensions and dynamically create pages by assembling the desired content relevant to their particular applications. A key feature is users' ability to add new content or edit existing materials. User contributions undergo technical and editorial review before being published on the live site. The goal is to collaboratively expand and maintain up-to-date documentation of the vast knowledge base.

Since the site's initial launch in late 2011, there have been more than 20,000 page views. Development is underway for a new facilitated forum that will allow users to exchange ideas informally via the website. The NREL team invites building scientists nationwide to contribute their expertise.

Technical Contact: Lieko Earle, lieko.earle@nrel.gov

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Field Test Best Practices home page.

Key Research Results

Achievement

NREL developed and curates a unique Web-based tool for sharing and documenting best practices for field testing residential building systems.

Key Result

The Field Test Best Practices website is a collaboratively developed, continually growing repository of practical building science tools and techniques. Web-based content management enables users to benefit from the most up-to-date information. Quality control is assured through technical and editorial reviews.

Potential Impact

The Field Test Best Practices website accelerates adoption of energy-efficient technologies and building practices by facilitating effective demonstration of their benefits. Using best practices will reduce costs and improve the impact of measurement and verification, which is critical for establishing the efficacy of new energy-efficient technologies and for reducing market barriers by lowering the financial and health risks for builders, contractors, and homeowners.

NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

15013 Denver West Parkway
Golden, CO 80401
303-275-3000 | www.nrel.gov

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