Panel 10 Introduction

Building Industry Trends

For the most part, our nation's response to the energy crises of the 1970's was limited to cutting back and doing without—energy conservation. Why? Because we didn't have much of a choice, since few energy-efficient technologies existed at that time. Since then, we developed a new response to increased energy use, price, and environmental pollution—energy efficiency. During the past two decades, our nation's private sector, often supported by public sector investment in R&D, invented a wide array of energy-efficient technologies and systems. These have spawned a whole new and growing sector of the economy—the energy-efficient building industry—made up of thousands of firms and hundreds of thousands of workers that produce and market energy-efficient products, systems, and services to energy consumers.

''Building Industry Trends'' is an effort by the ACEEE Summer Study to recognize the energy efficiency industry, its contribution to our national energy and environmental goals, and the important role it plays in moving R&D out of the laboratory and into the marketplace. Historically, the Summer Study has been a forum for the presentation of the latest and best building research, organized by research topics, such as evaluation, multifamily buildings, etc., rather than by industry or technology sectors. This panel takes a new direction, specifically looking at energy efficiency from an industry and technology focus. It highlights five key industries: insulation, building controls, manufactured housing, energy service companies, and windows.

The panel provides a forum to hear from industry representatives and learn about their unique perspective. This is important because these are the people who face the energy efficiency buying consumer every day. Many panel participants are responsible for identifying the new technologies that will actually sell in the marketplace. They are also the ones building the plants and creating the new job opportunities in energy efficiency. This new panel is a way for the energy efficiency community to build deeper relationships with industry and work more closely together to promote energy efficiency to consumers and policymakers, both at home and abroad.

In putting together this panel, we have modified the ''rules of the game'' for the conference. Normally researchers submit papers that undergo a critical peer review process. Realizing that this might inhibit industry participation, presenters were selected on a more liberal basis. In a number of cases, panel leaders recruited knowledgeable industry colleagues. While some presenters took part in the normal peer review process, others were exempted and permitted to make nonreviewed presentations. The critical issue was to enable panel leaders the opportunity to put together panels that they thought would give the most well-rounded view of the industry.

Each of the five days of the Summer Study highlights a different industry. Mark Hopkins, of the Alliance to Save Energy, coordinated the week of panel activities, but each daily panel was organized and is chaired by a leader from that industry. In the following descriptions, panel chairs provide a brief overview of their panels and presentations.

Insulation Industry
Panel Leader—Merle McBride, Owens Corning

Insulation products save U.S. consumers nearly $84 billion a year, or about $780 per household and $2,100 per commercial building. The industry sells over $3 billion in products a year and employs over 19,000 people, making it a major component of the energy efficiency industry. This panel highlights industry issues through technical papers, informal discussion sessions, and displays. Three papers describe new materials and their properties such as compact superinsulated panels, bi-component fiberglass, and phase change materials in wallboard. Another four papers document the installed performance of insulation in various wall constructions, steel framing, structural stability, and temperature dependency. These papers are complemented by five informal discussion sessions that explore cost-effectiveness, field performance, rating systems, environmental benefits, and new standards. Finally, four displays supplement the technical papers and discussions.

Windows Industry
Panel Leader—Brian Crooks, Cardinal IG

Some fascinating changes are currently taking place in the fenestration industry and are revolutionizing the energy efficiency of both residential and commercial buildings. In addition to the multitude of new energy efficiency window technologies that have been developed, recent advancements have also been made in characterizing the performance of these products. This panel reveals that fenestration systems are no longer the weak energy performance link of the building envelope. Some cost-effective new window technologies are presented and the role of the National Fenestration Rating Council (NFRC) is described. Current progress and future strategies for bringing energy-efficient products to market are illustrated. The market transformation forces discussed are both the ''pull'' of consumer awareness through rating systems and the ''push'' of code and regulatory activities concluding with a lively interactive discussion of the ''push'' market force.

Energy Service Company Industry
Panel Leader—Steve Morgan, EAU Citizens Conservation Services

The two panels and freewheeling, informal luncheon discussion on Wednesday focus on the role energy service companies (ESCOs) will play in the competitive electric utility environment looming ahead. Refereed papers in the morning sessions range from three which directly address the ESCO/utility relationships from different perspectives (Shippee, Goldman and Dayton, Matasek) to a comparison of U.S. and Canadian ESCOs (Fraser) to PG&E's recent experience with ESCOs in their demand-side bidding contracts (Gumerlock Lee), and a residential ESCO's experiences with demand-side programs. The market niches, special skills, product offerings, and utility relationships in the deregulated utility environment gain special attention.

Building Automation Systems
Panel Leader—Kristin Heinemeier, Honeywell

The controls industry is one of the most dynamic sections of the building industry. Controls can optimize operation of the building and minimize energy use. However, controls can be misapplied or subverted, and out-of-control buildings are common. This panel highlights an exciting and key industry. Petze identifies the factors in implementation of building control projects that can lead to successful projects. Connor discusses commissioning of control systems—it turns out that controls are one of the most important building systems to commission, and they can also be useful tools in the commissioning of other systems. DeNamur and Schwedler discuss how BACnet provides interoperability among parallel building systems. Mayhew and Shavit both discuss how the advent of digital control systems can provide the opportunity for much more efficiently controlled buildings. However, both admit that the industry has not fully taken advantage of these opportunities and is continuing to use digital controls as if they were pneumatic controls. Taken all together, these papers identify the trends in the industry, their impact on buildings, and what changes we might expect to see in the future.

Manufactured Building Industry
Panel Leader—John Holton, Burt Hill Kosar Rittelman Associates

This panel offers presentations on a number of the leading edge construction technologies and processes now coming into use. All of the basic materials are represented in the systems: wood, metal, masonry, and plastics. The focus is on the technical aspects of the systems, how they are employed in typical residential construction, and their energy efficiency benefits. One of the presentations will be on efficiency and flexibility in the manufacturing process.

Mark Hopkins
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