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UPDATE

Sensible Solutions for Energy Efficiency

CEE's Rebuild America Project Stimulates Recommissioning Market in Minnesota

The Center for Energy and Environment (CEE) is wrapping up a Rebuild America grant from the U.S. Department of Energy that has focused heavily on bringing recommissioning services to Minnesota. Recommissioning is the process of improving the operation and maintenance of building systems to meet the owner's operational needs, while using only as much energy as necessary.

Recommissioning is needed in the existing building stock for several reasons: many buildings need to meet a higher level of performance today than when first built; gas prices are significantly higher and the possibility of higher electricity prices creates a need for more fully optimized operation and control; in schools there is a marked increase in attention to indoor air quality and the delivery of new, higher amounts of ventilation air to all spaces; the cost-cutting emphasis in construction has made it difficult to deliver quality systems and performance; and the limited number and, sometimes, capabilities of maintenance staff lead to deferral of maintenance and sub-optimal operation of systems.

Problems uncovered through recommissioning can often be attributed to flaws in the original design, flaws in construction, low-ball remodeling work, changes in the owner's requirements or use of the space, deferred maintenance, turnover of operators and "folk knowledge" of how systems operate, system-level adjustments made to deal with zone-level problems, equipment oversizing and sub-optimal control strategies.

Through its Rebuild America grant, CEE has conducted major recommissioning case studies with Fairview University Medical Center (FUMC) and Eden Prairie Schools (EPS). The emphasis of recommissioning at FUMC has been on reducing operating costs while maintaining or improving delivery of building services. CEE brought in recommissioning experts from the Energy Systems Laboratory at Texas A&M University to direct the project. FUMC's 600,000 square foot acute care hospital on the University of Minnesota campus has achieved measured energy cost savings of \$221,000/year for an investment of about \$208,000, including internal labor.

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CEE Brings New Multifamily Program to Minnesota

CEE is currently providing a multifamily program for Reliant Energy Minnegasco customers. Called the Multifamily Facility Assessment Program (MFAP), its design is based upon CEE's highly successful Multifamily Facility Management Services provided through the Wisconsin FOCUS on Energy Program. In Northeast Wisconsin, CEE has served 292 buildings in a 23 county area and has identified savings potentials of 802,600 kWh, 11,195,520 gallons of water, and 232,457 therms of gas. Participating building owners have reported adopting 43% of CEE's recommendations.

Like the Wisconsin FOCUS program, MFAP is a comprehensive service designed to meet the needs of multifamily management companies and owners. The service works

with buildings, equipment, and staff as an integrated system of assets. This "systems approach" cuts long term operating costs and provides significant benefits in terms of rental housing affordability, comfort, and indoor air quality.

An initial facility assessment is conducted which includes an on-site, no obligation inspection, maintenance staff interviews, analysis of utility costs, and a complete list of findings and recommendations with estimated paybacks. All short and long term recommendations are provided in a final, summary report that is in an actionable and user-friendly format. However, the program moves well beyond a simple utility energy audit and addresses operations and maintenance issues, tenant complaints, and health and safety concerns. This approach is effective because energy efficiency,

by itself, is typically not a strong selling point. However, when combined with services that building owners do value, participation levels increase and large potential energy savings are identified.

MFAP is a pilot program for 2001 with a participation goal of 50 buildings. The facility assessment has a cost of \$1200. Reliant Energy Minnegasco is co-funding half of the service with the participant paying the other half. Even at a customer cost of \$600, CEE has generated a tremendous amount of interest in the program. Upon successful completion, CEE hopes to have the program extended beyond 2001 with larger participation goals. **EU**

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Multifamily SIP Pilot Program Up and Running

The Metropolitan Airports Commission (MAC) has chosen six multifamily properties in south Minneapolis to participate in a Part 150 Sound Insulation Program (SIP) pilot project. The goal is to determine which sound insulation modifications would work best in buildings larger than those the program currently serves (1 and 2 unit properties). MAC hired nine consultants to work on this project, including architects, engineers, acoustical technicians, and environmental technicians. CEE's responsibilities include indoor air quality

testing, owner communication/scheduling, construction management, and administrative duties.

The pilot consists of two 4-unit buildings, one 7-unit property, two 12-unit buildings, and one 21-unit building. To date, all of the owners and tenants have signed on to complete the entire analysis and all the pre-tests and building design survey visits have been conducted: indoor air quality pre-tests, evaluations of mechanical systems and building envelopes, acoustical pre-tests, and architectural and environmental

surveys. In June CEE staff will be meeting with the building owners to present to each of them an acoustical design that will best fit the needs of their building.

MAC hopes to begin construction on the properties in the fall and have all work completed no later than January 2002. Ultimately, MAC hopes to learn enough from this pilot project to offer a full program to multifamily owners in late 2002 or early 2003. **EU**

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SIP Celebrates 6000th House

As the primary consultant for the Metropolitan Airports Commission's (MAC) Part 150 Sound Insulation Program (SIP), CEE recently completed the sound insulation of its 6000th home. To commemorate this achievement, MAC conducted a small awards ceremony on May 10, 2001 at which a plaque was presented to the homeowners.

The Part 150 Program initiated construction on 139 homes in 1992 as part of a pilot program, with a budget of \$4.4M. Since then, the program construction and budget have steadily increased to a high of 1002 homes in 1997 and a budget of \$36.5M in 2000. The average construction cost has also increased

from approximately \$21,000 in 1997 to approximately \$42,000 this year. This was dictated by the size of the homes on the west side of Lake Nokomis and around Diamond Lake in Minneapolis where work is being performed.

MAC has spent approximately \$177M on treatment of the 6000 homes. With about 1,200 homes remaining, construction within the 65 noise contours should be concluded by 2003. Upon the completion of the 1996 Part 150 profile, MAC will have spent roughly \$207M.

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CEE's Wisconsin FOCUS Program Expanded Statewide

After successfully delivering Multifamily Facility Management Services to 292 buildings in a pilot area of 23 counties in Northeast Wisconsin, CEE will play a key role in the expansion of the program to the entire state of Wisconsin. CEE is part of a team of nationally recognized organizations that the State of Wisconsin has selected to establish a new standard for full service Multifamily Energy Efficiency Programs in the 21st century. Over the next 3-6 years, CEE will continue to provide full-service facility assessments that go beyond the old

standard for energy audits to a wider service territory. CEE is also developing a tiered energy audit approach with an equitable overall delivery cost that will better serve the varied needs of individual properties. CEE's support of other team members is kicking off in the Milwaukee area with an in-depth training of staff that will introduce CEE's model of energy audit services.

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ABOUT CEE AND RA ...

The Center for Energy and Environment has provided energy efficiency services to utilities and public agencies

for over fifteen years.

CEE services include technical research and demonstration projects, as well as program design and delivery.

CEE has 60 staff members, including engineers, statisticians, programmers, and architects, as well as a

full complement of certified energy auditors and other energy service professionals.

CEE staff have strong analytical and technical capabilities and have published extensively.

Resource Alternatives (RA) is a wholly-owned subsidiary of CEE that performs projects outside the scope of CEE's mission as a nonprofit.

Recommissioning from page 1

EPS wants to meet the relatively new standard set by the Minnesota Department of Children, Families and Learning (CFL) of providing outside air equal to the requirements of ASHRAE Standard 62-89. This often means a substantial increase in ventilation over the original design numbers. Like most school districts, EPS also has a large amount of deferred maintenance. Initially CEE brought in recommissioning experts from Portland Energy Conservation, Inc. to help scope and plan three projects for EPS. Central Middle School (CMS) is a 220,000 square foot building that has gone through

numerous remodels since its construction in 1959. At CMS, CEE identified 422 deficiencies, such as inadequate pneumatic control air to 30 classrooms and extremely poor water quality in the heating loop. The building is being balanced to new design flows meeting ASHRAE 62-89.

CEE's recommissioning case studies have led to significant changes in the market in Minnesota. In its policy letter for the 2001 fiscal year, CFL will make recommissioning eligible for Health and Safety funding, a mechanism that allows districts to levy costs without passing a referendum. This change is based largely on observation of the projects in the EPS

district. Xcel Energy, the largest electric utility in the state, has started a standardized rebate program for recommissioning, offering rebates of up to \$15,000 per project. This new program is based mainly on efforts by CEE to encourage a recommissioning program through the resource planning process and on successful case studies conducted by CEE that received rebates under Xcel's custom rebate program. **EU**

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