DAVIS ENERGY GROUP INCORPORATED

OutLook

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HyPAK high efficiency RTU development near completion

Using computational fluid dynamics software, DEG recently completed the 2nd generation HyPak heat exchanger design. After more than 500 hours of CPU time, the design was forwarded to Irwin Research & Development, a leading thermoforming equipment and tooling fabricator located in Yakima, WA. When Irwin completes the tooling this summer, it will move across town to Pride Polymers, the HyPak team member responsible for thermoforming and assembling the HyPak heat exchanger, also located in Yakima. Pride will use their massive inline thermoforming machine to produce a 29 x 50 plate-pair in each cycle. Downstream equipment will automate the sealing and packaging steps, resulting in a robust and low cost indirect evaporative air-to-air heat exchanger with excellent performance.

HyPAK prototype testing underway At Des Champs/Munters Laboratory

Des Champs Technologies, also a HyPak team member and now a division of Munters, will produce two pre-production HyPak prototypes in late 2008 using the 2nd generation heat exchanger modules. One unit will be installed at the DEG shop to assess performance and durability, and make any final refinements before production starts in 2010. The second unit is available for field testing, so if you know of a new commercial building that needs a 20 ton RTU in 2009, please email Eric Lee at elee@davisenergy.com! HyPak is funded by the DOE through the National Energy Technology Lab.

Inside…

View from the East Tower…

Our business activity always seems inversely proportional to the economy. *Not that we prefer failing banks, falling stocks, and expensive gas, but people do seem to become more reality conscious when such things happen. While we are feeling the effects of the housing market crash, we are also seeing many builder-developers positioning themselves to build more efficient, sustainable homes and buildings when the market recovers. Encouraging!*

It has long been our passion to conceive products that will enable buildings to be built and operated more efficiently. In this issue we review several products we have nurtured that are nearly ready for prime time. More challenging than development has been the effort needed to push these products into the market. There is a wide chasm to cross between government R&D programs and successful commercialization. V.C.'s don't get too excited about energy efficiency and the larger manufacturers are still resistant to products designed to fit regional versus national or global markets.

We hope the new administration will bring a longer policy view that includes using efficient technologies that are cost-effective now, and investing in industry that develops promising new sustainable technologies that will provide permanent energy security and new jobs. ***-- Dave Springer, 2008***

SunCache market introduction set for 2008

In January, the Air Resources Board awarded DEG $235,000 for an 80-unit SunCache demonstration project. Sempra Utilities (SDG&E, SCG) are contributing $100,000 and will monitor selected installations through their Emerging Technologies program. Priority will be given to sites in SDG&E territory to take advantage of the solar water heating pilot program of the California Solar Initiative, but SCG sites will also qualify. About 20 units will go into low-income housing, with the rest available to the public. Recipients will pay actual installation costs, which will qualify for the federal solar tax credit. For more information, email Eric Lee at elee@davisenergy.com.

A Sacramento area glazed SunCache test collector shown above

SunCache is now completing its final NREL development phase with minor refinements and accessories underway. The glazing will now be produced by SunOptics, a major manufacturer of commercial skylights located in Sacramento. SunCache recently received OG-300 certification from SRCC, a prerequisite of most incentive programs. SunCache will be available to the public in the second half of 2008. In the last two years, DEG has built and installed 50 SunCache systems in the Sacramento area, and all are performing as expected.

Formsulate slab-edge insulation

In June 2005 Davis Energy Group started R&D activities on a National Energy Technology Laboratory funded project focused on the development of a stay-in-place slab insulation form system. The "Formsulate" system substitutes PVC-sheathed Styrofoam Blueguard™ for the standard 2x10 or 2x12 form boards that are used (and ultimately wasted) in conventional slab forming practice. The addition of R-10 slab insulation also significantly reduces slab edge heat loss, one of the key thermal deficiencies in energy efficient new homes. The project is currently completing design and fabrication of corner and coupler components that will allow for field demonstration in the next six months. Product availability is expected in mid 2009.

Humid climate integrated cooling & dehumidification system in the pipeline

With support from DOE's Small Business Innovation Research (SBIR) program, DEG recently completed a two-phase project to develop an integrated system that combines heating, ventilation cooling, and dehumidification. This "I-HVCD" system consists of a unique indoor coil package that replaces the conventional evaporator coil and controls. Tests demonstrate the system is capable of maintaining indoor temperature and relative humidity through a wide range of outdoor temperatures and humidity, at lower equipment costs than high efficiency air conditioners and dehumidifiers used together. More tests are upcoming at the National Renewable Energy Laboratory in Golden, Colorado.

US Patent No. 7,398,821 for the NightBreeze "Integrated Ventilation Cooling System" issued July 15, 2008.

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123 C Street, Davis, CA 95616
530-753-1100
www.davisenergy.com