

WINTERGREEN

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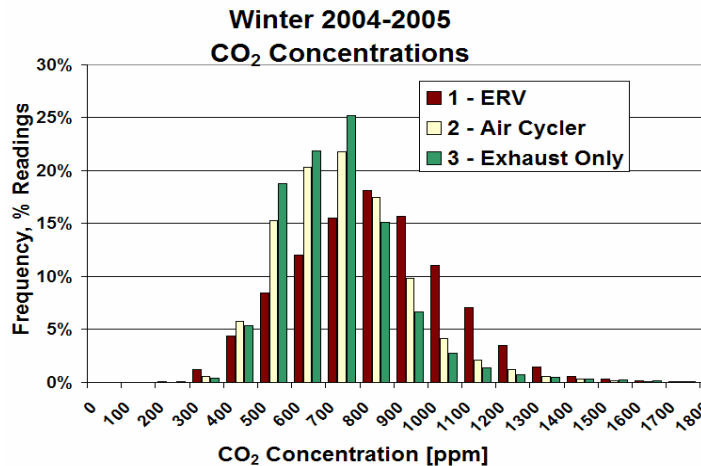
A monthly update on Steven Winter Associates, Inc.'s work in the realm of Energy Efficient, Sustainable, and High-Performance Buildings

Fresh Air in the Windy City



Claretian Associates (a non-profit community development organization) and **South Chicago Workforce** (a non-profit builder and contractor) are dedicated to building efficient, affordable homes in South Chicago. Their latest homes use structural insulated panels and air-sealing techniques to achieve superior air tightness, and good ventilation is a key concern. Through funding from the **Department of Energy's (DOE's) Building America** program and from the **Department of Housing and Urban Development's PATH (Partnership for Advancing Technology in Housing)** program, Steven Winter Associates, Inc. (SWA) conducted a study to identify the most effective ventilation strategy for these particular homes, both in terms of indoor air quality and energy consumption. This month we focus on air quality and distribution.

Three ventilation systems were studied: (1) a **RenewAire™** Energy Recovery Ventilation (ERV) system tied to the home's central air distribution system; (2) an **AirCycler™** supply ventilation system, where a 6-inch duct brings air to the furnace return plenum and a timer controls the furnace fan and opens a motorized damper in the outside air duct (*photo at left*); and (3) an exhaust-only strategy in which high-quality **Broan** bath fans operate on timers (**Tamarack Airetrack™** controllers) to exhaust air, with natural infiltration of fresh air restoring the balance. Each system was installed and fully commissioned in a new home in October 2004. Beginning in November, SWA used a Campbell Scientific datalogger system to collect data every 10 seconds over a six-month period. The system monitored temperature, humidity, airflow rates, and CO₂ levels at



different locations inside and outside the home to evaluate air quality and distribution. The histogram at left shows how frequently a given concentration of CO₂ (a useful indicator of air quality) was recorded in each home. A tight, low CO₂ concentration distribution indicates better fresh air circulation. Based on these data, the Air Cycler™ house had the best distribution, followed by the

bath-fan exhaust system. All three systems were acceptable, however, and many differences may have been caused by different occupant habits. By studying the varying CO₂ levels at different points throughout the home, SWA discovered that the exhaust-only strategy achieved surprisingly good air distribution. Distribution appeared slightly better during winter months when the furnace operated more frequently. The simple, low-cost strategy is particularly suited to Claretian's small affordable homes, where a high-quality bath fan in a central location on each floor satisfies ventilation needs. Next month, WinterGREEN will present an analysis of each system's energy consumption and cost.

Utilities Promote 'Integrated Building Design'

The United Illuminating Company (UI), a regional distribution utility providing electricity and energy-related services in southern Connecticut, is teaming up with **Connecticut Light & Power (CL&P)** to sponsor a training seminar on "integrated building design." What is that? Well, instructors from SWA will detail the ways in which integrated design differs from traditional design, emphasizing the energy savings achieved when building envelope, mechanical, and lighting systems are strategically integrated. Participants will examine the integrated building approach throughout the project cycle--from pre-design through energy modeling to final building systems commissioning. SWA's green building experts will address resources beyond energy, touching on water efficiency, environmentally preferable building materials, and sustainable sites. The Integrated Building Design seminar supports the objectives of UI's "Energy Blueprint Program" and CL&P's "Energy Conscious Construction Program." Since 1990, the utility companies have been offering financial incentives to their commercial, industrial, and institutional customers who incorporate select energy efficiency measures in new buildings and major renovations or equipment upgrades. [Click here](#) for more information on the seminar being held September 30, 2005 at the Northeast Utilities Auditorium in Berlin, Connecticut.



SWA's New Sustainable Digs



The New York office of SWA has moved to a new, sustainable space in Manhattan. The space was designed by **Weisz and Yoes Architects** for **The Cloud Institute for Sustainability Education**, which rents space to SWA. Recycled materials, such as wood-framed windows, are found throughout the office, along with such sustainable appointments as floors made from sustainably harvested Canadian maple shorts (usually ground into sawdust or simply discarded). The walls and desks are made from recycled wood taken from deconstructed factories in Brooklyn. Most of the materials come from heavy wood beams, which have been recycled for new uses. The cabinets and bookshelves are made from wheat board--a durable, non-toxic, affordable agricultural material. Non-toxic paint and sealers are used throughout the space. The office illumination is provided by compact fluorescent lamps with upward reflectors to maximize illumination while conserving energy. SWA/NY's new coordinates: 307 Seventh Avenue, Suite #1201, New York, NY 10001; phone: 212-564-5800. Drop in and see the new office when you're in the neighborhood.



For more information
visit the SWA Website:
swinter.com

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