

Ken Williams AC Installs World's 1st All-DC Solar/wind/renewable Energy Powered Residential AC Units at FSGE Project Home



Installing the Zero-Loss Duct™ manufactured by CDC Industries



A section of the Zero-Loss Duct™



Nonnie Chrystal & Mark Baker next to the V-200 Energy Ball® wind generator



Scott Kuschel of Miami Tech/Grille Tech & Ken Williams of Ken Williams AC with some custom GTI fittings

from the grid. When not drawing power themselves, the units can be configured to run other appliances in the home, charge batteries or even feed electricity to the grid.

The solar/wind/renewable-powered heat pump of the DC Chill unit will be available first quarter of next year. All DC Chill units are already manufactured with retrofit capabilities to install this modular heat pump component. To supplement these upcoming features, FSGE has already installed two of the industry's best performing fireplaces in efficiency, emissions, BTU output and positive pressure from Fireplace Xtordinaire™, which are hallmarked for extreme quality and safety touting the appearance of a fireplace with the heat of a furnace.

FSGE™ is being built by Mark Baker and Nonnie Chrystal, as a result of his mother's home being destroyed by Hurricanes Frances and Jeanne in 2004. Built to keep giving shelter and water under the most extreme conditions that nature can offer, while using less energy and requiring less maintenance, the home incorporates the "best of the best" green building and green living technologies resulting in a "Near Zero-Loss Home™", "Near Zero-Energy Home", "Near Zero-Runoff Home™", and "Near Zero-Maintenance Home™". These technologies include a leading edge building envelope, disaster recovery, solar, wind and stormwater management, a "greenroof", indoor air quality, consideration of the occupants' health, and other green innovations, collectively providing hurricane, tornado, flood, fire, mold, termite, impact, sound, and even earthquake resistance.

Four DC Chill™ units, each with 10,200 to 18,000 btuh capacity, provide the cooling for the 3,292 square feet FSGE™ home. The high efficiency systems draw less than 1,000 watts at start-up and 400 watts when running each. Utilizing R134a refrigerant, the units measure 48"H X 33"W X 33"L with the mechanical components housed above a compartment for the batteries.

Ken Williams, owner of Ken Williams AC, has over 21 years of experience in the HVAC/R trade and has installed over 30,000 conventional systems in Brevard County. He has consistently stayed at the forefront of technology and is an expert at dealing with indoor air quality and comfort issues. Along with the Florida Solar Energy Center, Ken assisted in FSGE's design of the first zero-leakage ducting of its kind in the world.

"Designing the ductwork was one of the most challenging aspects of this project," Ken stated. "Due to the high insulation values and tight construction, this home doesn't fit into any of the existing duct



Ken Williams, Robert Nelson & Chris Abraham of Ken Williams AC



Mark Baker, Nonnie Chrystal & Ken Williams with the interior green living wall

sizing parameters. Some of the supplies only call for 3 cfm of air entering the space. Scott Kuschel of Miami Tech/Grille Tech was instrumental in providing custom-made fittings and grilles that met the stringent IAQ and airflow demands of the job."

Another challenge was balancing and controlling the humidity control, cooling and IAQ requirements of the home. A "plumbing-free" dehumidification/fresh air exchange system is coordinated with the DC Chill™ units operation to maintain humidity below 50% and positive pressure inside the home. A unique AirWaves™ whole-home air purifying system manufactured by ClearWater Tech, LLC eliminates household odors and airborne microbes utilizing two of nature's strongest purifiers - ozone and ultraviolet light. A 60 square feet interior green living wall from Green Living Technologies™ (GLT) supplements the AirWaves™ system in treating the air. According to Nonnie Chrystal, it is GLT's first interior wall in the nation to be irrigated with gray water. "The wall produces enough oxygen for 15 people/day and each 4 square feet removes 100% of the harmful VOCs from indoor air in an average 15'x15' room", she stated.

The FSGE™ DC Chill™ units will be powered initially by the V-100 and V-200 Energy Ball® wind generators from Home Energy Americas in which FSGE was the first recipient of the Energy Ball in the world outside of Europe. The patented, "bird friendly" Energy Ball® is the only wind generator UL approved for U.S. residential/commercial use, and starts collecting wind energy at only 3.5mph.

FSGE has been featured in USA TODAY and touted on FOX News as "The Greenest House in the world". The first-of-its-kind, "Affordable & Rewardable™" true green home and live residential touring facility, after completion FSGE will be open to the public at no charge for one year of scheduled walkthroughs. The purpose is to demonstrate the best building and living choices and practices available today.

"It has been an incredible journey and we are very excited to be nearing the completion of this project," Mark Baker stated. "The support and assistance we've received from countless manufacturers, suppliers and contractors is amazing and we can't wait to share our experiences and lessons with everyone that is interested in green building and green living technologies."

For more information on Florida's Showcase Green Envirohome™, visit their website at www.FSGE.net. Ken Williams can be reached through his website at www.KenWilliamsAir.com or emailing kwilliamsac@cfl.rr.com. ■