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STRAUGHN TROUT ARCHITECTS DESIGNS FIRST NET ZERO ENERGY BUILDING IN FLORIDA

[Sustainable Credit Union Branch Aims for LEED GOLD Certification.](#)

Lakeland, Florida – January 20, 2009 - Community First Credit Union is building a new state-of-the-art, full service branch located in Lakeland, FL. The new 4,151 square foot branch is designed to wrap around an existing Bruster’s ice cream shoppe, increasing the area’s development density while minimizing changes to infrastructure and local traffic patterns. Preserving the existing building can not only be seen as diverting 100% of its materials from disposal in landfills through building reuse, but more importantly maintaining current jobs for its employees and a service to local residents. The cohesive design also passively reduces energy required for both structures’ cooling loads by reducing the total amount of exterior walls that are subject to the central Florida climate; therefore each building will be more efficient than if they were designed to be stand alone structures.

Over two years ago, the credit union hired Straughn Trout Architects, LLC (STA), to design a new flagship branch aligned with their goals of financial education and environmental awareness. STA has designed two other branches for Community First, but this one sets a new sustainable standard for small commercial design. The project will be the first in Polk County to achieve a **LEED (Leadership in Energy and Environmental Design)** GOLD level of certification by achieving points in every LEED category including site characteristics, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and design innovations.

“We are excited to be a part of this groundbreaking project,” said Jerry Trout, Partner of STA. *“It has been a focus of our firm to incorporate sustainability into every project, and this building exemplifies where the construction industry is headed over the next 10 to 20 years. The goal to reach ‘net zero’ posed some challenges, but the Florida climate makes solar energy a sensible and viable option.”*

The most notable sustainable design feature of this project is the roof-mounted photovoltaic (PV) system that provides on-site renewable energy. The 58 kW PV system is designed to generate 85,717-kWH of electricity per year, more electricity than the credit union is expected to use. The PV system also passively contributes to energy savings by creating a double roof condition deferring direct heat gain on the building through natural convection.

“With unstable energy prices and the move for a greener environment, we wanted to be the first in this area as well as the State of Florida to build an environmental friendly branch,” said John Santarpiia, President/CEO of the credit union.

In addition to solar energy, rainwater reuse is also a key design component affecting both the building and the site. Using the roof as a collector, a cistern system will support both water closets and drip irrigation. With harvested rain water and low flow fixtures, calculations show the building will use 80% less potable water than a conventional design.

The branch interior is designed to be sustainable as well. Many finishes, including tile, carpet and counter tops, have been selected due to their recycled material content. The lighting system includes digital controls and photo sensors that automatically dim the interior lighting when natural daylight sufficiently illuminates a space. Additional occupancy sensors automatically turn lights off in unoccupied offices.

[Straughn Trout Architects](#), LLC, is a multi-disciplined firm located in Lakeland, Florida established in 1956, and has been in continual practice since its founding.

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Additional Information

Zero Energy Building

The new Community First Credit Union branch will be a carbon-neutral, net zero energy building (ZEB). Increased wall and roof insulation, state-of-the-art insulated glass, large overhangs and sun shades, roofing material with a high solar reflectance, double-roof design for passive cooling, high efficiency HVAC system design and equipment, and automatically dimming fluorescent and compact fluorescent lighting reduce the building's energy demand 40% below average requirements of similar commercial structures. The branch's 58 kW roof-mounted photovoltaic (PV) array will be the largest non-residential system in Lakeland Electric's service area. The system is designed to produce 85,717 kWh per year, roughly 16% more than the building's estimated energy requirements, qualifying this Community First Credit Union branch as both a Source ZEB and Emissions (carbon) ZEB, as defined by the U.S. Department of Energy. According to the [DoE's database](#) that only lists seven in the country, this will be the first ZEB in the state of Florida.

Site Characteristics

Instead of purchasing raw land, the credit union made its first sustainable decision by selecting a previously developed site. A traffic study proved that each business's peak hours of operation were antonymic to the other. The credit union is open until 6:00 pm during the weekdays and Saturday mornings, and the ice cream shop thrives in the evenings and on weekends.

Alternate Transportation Incentives

In efforts to reduce carbon emissions produced during construction, many materials for the new building will be harvested and manufactured from within a 500 mile radius of the site. This same mission will be continued during the branch's operations by providing preferred parking spaces for low-emitting and fuel efficient vehicles for members, visitors, and employees commuting to the new facility. The existing number of parking spaces will also be reduced to encourage carpooling, and bicycle racks and shower and changing facilities will be provided for those who prefer to leave their cars at home.

Water Efficiency

Rainwater reuse is also a key integrated component affecting both the building and the site. Using the roof as a collector, a cistern system will support both water closets and drip irrigation. Low flow fixtures alone will reduce the facility's water use by 45%, and using the harvested rain water will increase potable water savings to 80%. The landscape design utilizes "Florida-friendly" plants that require minimal irrigation. Three 3,500 gallon cisterns will supply the site's high-efficiency drip irrigation system with harvested rain water, therefore, reducing potable water use by 100%.

Recycled Materials

The benefits of recycling from start to finish will be exemplified by the new Community First Credit Union branch. Waste from the construction process will be sorted in separate dumpsters and recycled as much as possible. Collection bins in three locations within the branch will make recycling convenient for all occupants. In addition to this, many of the interior finish materials have been selected due to their recycled content, such as porcelain floor tile, carpet, decorative aluminum panels and laminates. Rubber flooring with shredded and cleaned tire rubber, various counter top materials utilizing recycled paper, glass, and aluminum, and cork tack walls from recycled wine corks will visually portray many possible reuses for recycled materials.

Indoor Environmental Quality

On average, Americans spend 90% of their time indoors where pollutant levels may be two to five (or more) times higher than outdoor levels. Improved construction practices, specific HVAC filters and additional fresh air intake, increased natural light, and healthier materials in the new Community First Credit Union branch will reduce indoor environmental quality issues, increase occupant's productivity levels, and raise the market value of the facility. Smoking is not to be permitted within the building and designated smoking areas will be located outside at least 25 feet away from entries, outdoor air intakes, and operable windows. Materials and mechanical ducts will be protected during construction so that they do not absorb pollutants that may be off gassed later during occupancy. The HVAC system will be continuously operated for two weeks after painting and carpets are installed and prior to occupancy with maximized use of outdoor air to "flush out" any airborne contaminants. Adhesives, sealants, paints, and carpets have all been selected to reduce the off gassing of volatile organic compounds (VOCs) that are harmful to occupants. A permanent entryway system will be installed to capture dirt and particulates from entering the building, and cleaning chemicals will be stored in a sealed closet with a full-time exhaust fan.