

Program for Resource Efficient Communities

Promoting Sustainable Use of Florida's Lands and Resources

The Situation

Historically, residential construction has been a primary driver of Florida's economy. The current inventory of nearly 9 million existing housing units creates steadily increasing demand for energy, water and land. Adding to this demand is Florida's new residential construction, most of which is in master planned community developments.

Increasingly, local governments are evaluating and adopting strategies to minimize energy and water consumption, reduce greenhouse gas emissions, enhance biodiversity, and improve local water quality. Resource efficiency strategies for both new and existing communities require cross disciplinary collaboration among land developers, building professionals, local governments, water management districts, and other agencies and organizations. The Program for Resource Efficient Communities (PREC) works statewide with these groups to achieve their goals while minimizing the environmental consequences of the built environment.

Our Mission

The Program for Resource Efficient Communities promotes the adoption of best design, construction and management practices that measurably reduce energy and water consumption and environmental degradation in residential communities. Our focus extends from lot and home level through site development to surrounding lands and ecological systems. We support the implementation of resource-efficient community development practices through:

- Direct training, education and consulting activities,
- Applied research projects/case studies,
- Student projects and internships, and
- Partnering with "green" certification programs.

We recognize that PREC's success depends on building and maintaining an inclusive, multi-disciplinary team focused on community needs to conserve natural resources and reduce environmental impacts in residential design and management.



The Madera Model Center is an example of a resource-efficient PREC designed home and landscape.

What We Do

Builder/Developer Collaboration: PREC services include model landscape designs, ordinance compliance assistance, Low Impact Development (LID) principles and practices support, review of CCRs and related documents for resource-efficient standards, residential plan reviews for energy and water efficiency and biodiversity conservation, and diagnostic testing for home energy performance. PREC's approach of working in the field with real development projects on key practices is exemplified by:

- *Harmony*, Osceola County– conservation and wildlife areas
- *Restoration*, Volusia County– enhanced stormwater basins, clustering, conservation easements, mixed-used, transit oriented development, resource-efficient landscaping, home energy efficiency
- *Northpoint*, Alachua County–FGBC, resource-efficient landscaping
- *Plum Creek*, Alachua County – agro-urbanism
- *Gilchrist Club*, Gilchrist County- optimizing conservation and wildlife areas design.

Certification: We evaluate certification programs from the perspective of design, performance and management practices. For example; using an Annual Community Baseline (ACB®) methodology, we can estimate the impact of residential energy-efficiency rebate and incentive demand-side management (DSM) programs. Certification agencies we've worked with include Audubon International, the Florida Green Building Coalition, the US Green Building Council and the St. Johns River Water Management District's Florida Water StarSM program.

Local Government Training: PREC offers educational workshops on the implementation of resource efficiency strategies and best design practices at the house, lot and community levels, with an emphasis on local governmental incentives that encourage adoption of the practices. For example, LID workshops educate local policy makers, governmental staff, and building related professionals on surface water and groundwater issues associated with residential development. Other workshop topics include Clean Energy Financing, the Community Planning Act and Adaptive Planning for Sea-Level Rise.

Continuing Education Programs for Licensed Building

Professionals: PREC develops and delivers over 35 continuing education courses and associated certifications for professionals in Florida involved in the design, construction and operation of residential community developments. Some of the courses that have been offered include: Build Green & Profit series, Green Advantage, Energy Efficient Building Construction in Florida, Wind Load Calculations and Conserving and Restoring Biodiversity. Since 1996, the group has held over 800 classes reaching in excess of 22,000 participants in cooperation with Extension offices statewide. Courses are updated and reviewed to present the latest in land development and construction technologies and introduce the latest building codes.

Research: We identify and prioritize applied research topics related to the resource efficient design, construction and operation of residential communities. PREC actively seeks applied research grants covering high priority issues related to energy, water, and biodiversity to identify opportunities to document performance of effective practices and develop case studies.

Teaching: PREC supports undergraduate and graduate students whose applied research addresses critical resource-efficiency issues; provides case studies related to impacts of specific practices; and develops training materials for use in professional continuing education courses and classes for the general public.

PREC works with state and county extension faculty to address key resource-efficiency issues across the state. The related applied research and demonstration activities provide background for our Extension publications and training efforts.

Example Research, Demonstration & Training Projects

Sustainable FloridiansSM: A new non-formal sustainable living education program that combines the knowledge base of university experts with a discussion and action format designed to help individuals take steps toward sustainability. The program guides and motivates participants in creating Florida-appropriate sustainability action plans. Participants discover how to reduce resource consumption, save money, and become part of a transition to a more environmentally, socially, and economically sustainable future. The program emphasizes the role that individuals and households play in using water resources and fossil fuels and how reductions at home benefit both households and communities, especially in Florida.

Madera: Faculty collaborated with PREC and participated in the design and development of *Madera*, an 88-home for-profit community developed by GreenTrust, LLC on a wooded 44-acre site adjacent to the University of Florida campus in Gainesville, FL. PREC collaborators designed and financed construction of the *Madera* sales/model center, a high-performance green home with a Florida-friendly landscape. *Madera* showcases Low Impact Development through features such as clustered housing, preservation of low-lying areas for natural stormwater management, narrow curvy roads, elimination of roadway curb and gutter, environmental education program for residents, and wooded areas for wildlife habitat.

Florida Energy Systems Consortium (FESC) Outreach (2009-2014):

Through FESC, PREC works with utilities on demand side management programs and with county governments on energy efficiency programs. PREC also collaborated with FESC faculty through the State University System for content and development of fact sheets for the public and policymakers that comprehensively cover energy topics. <http://www.floridaenergy.ufl.edu/>

Weatherization Assistance Program (WAP) Evaluation and Training:

PREC, working with the Florida Department of Economic Opportunity to evaluate the change in home energy performance as a result of WAP implementation in Florida. With support from the U.S. Department of Energy (DOE), and collaboration with the Banner Center for Construction at Santa Fe College and others PREC will be training contractors statewide on weatherization techniques.

Gainesville Regional Utilities and St. Johns River Water Management District

Soil Moisture Sensor Project: PREC and Alachua County Extension provided guidance on the design, implementation and evaluation of a project to install soil moisture sensors in residential landscapes to reduce landscape water use. A key component of this is contractor and homeowner training. <http://buildgreen.ufl.edu/SMS/HomeownerEdu.html>

Practicum in Sustainability and the Built Environment UF/DCP 4941 and

Plum Creek: Through a format of scientific readings, facilitated discussions and field trips, UF students studied, researched, and observed programs that address major agricultural/environmental issues in the built environment

(developments) in Florida. Knowledge gained was applied to a proposed new community of approximately 20,000 residents in eastern Alachua County and how the development project could most effectively and equitably integrate local food production and distribution into place based community design. This course is offered every fall term with a different central theme. The fall class of 2013 resulted in the development of the *Action Plan for Promoting Sustainability in Extension Offices* document.

Stormwater Ecological Enhancement Project: A 3-acre enhanced stormwater basin on the UF campus developed by PREC affiliate Dr. Mark Clark demonstrates water quality and community amenity potential of such enhancements. The demonstration site allows engineers, developers and policy makers to tour and see in practice the multifunctional benefits for residential developments. <http://natl.ifas.ufl.edu/seep.php>

Florida Energy Efficiency Loan : FEEL is a multi-partner household empowerment program. PREC's mission is to provide homeowners with the tools for improving the household's energy and financial management. Through tailored treatments, the FEEL program will help homeowners build confidence for creating constructive change in their own life story. PREC fulfills the mission through public engagement, knowledge sharing, and financial lending focused on an improvement path for a unique home energy lifestyle. The FEEL program financial products and services are administered by FAIRWINDS Credit Union. Loans are from \$500 (minimum) to \$15,000 (maximum) with no up-front borrower down payment and no prepayment penalty. For info: <http://www.floridaenergyefficiencyloan.com/>

Energy Efficient Building Construction in Florida: PREC, the Shimberg Center and the M.E. Rinker School of Building Construction authored this publication which is used in the Florida contractors licensing exam. The handbook is designed to provide up to date information for building energy efficient homes in Florida's hot humid climate. <http://buildgreen.ufl.edu>

Regional Food Systems Education: Chef David Bearl provides: seminars for FDACS "Florida Farm to School" Partnership <http://farmtoschool.ifas.ufl.edu/> as the Statewide Coordinator for Culinary Education; "Farm to Table" food preparation programs (consumption of locally-grown food or food that travels the shortest distance from the farm to the table) <http://hastings.ifas.ufl.edu/>; culinary arts training for residents of SMA Behavioral Healthcare "Reality House" and "Warm at Vince Carter Sanctuary"; and culinary arts training for the U.S. Navy. Chef Bearl also conducts value added product development for the UF Institute of Food and Agricultural Sciences.

UF/PREC affiliated websites:

Florida Energy Efficiency Loan
<http://www.floridaenergyefficiencyloan.com/>
My Florida Home Energy
<http://www.myfloridahomeenergy.com/>
My Florida Energy Projects
<http://myfloridaenergyprojects.com/>
Gainesville Green
<http://gainesville-green.com/>
Tools for Tenants
<http://www.toolsfortenants.com/>
OEI Compare and Conserve
<http://oei.compareandconserve.com/>
IFAS Extension
<http://solutionsforyourlife.ufl.edu/>

Affiliated Faculty and Students (* Founding Affiliates)

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Mark Hostetler*, Ph.D. • Wildlife Habitat / Community Education
Tom Ankersen, J.D. • Conservation Law
Randall Cantrell, Ph.D. • Housing and Community Development
Johanna Engstrom • Student / GIS / Land Development
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