

The Situation

Residential construction is a primary driver of Florida's economy. For most of the last 15 years, Florida has led the country in new single-family detached home permits, peaking at over 208,000 homes in 2005. Direct consequences of this growth include a steadily increasing demand for energy, water and land for urban uses.

Most of Florida's new residential developments are master planned communities. These community planning efforts require cross disciplinary collaboration between building professionals, local governments, water management districts, and other agencies. Established in 2004, the Program for Resource Efficient Communities (PREC) works with these collaborators to achieve their goals while minimizing the environmental consequences of growth.

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 new residential community developments. Our focus extends from lot 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,
 - Graduate student projects and internships, and
 - Partnering with "green" certification programs.
- We recognize that the Program's success depends on building and maintaining an inclusive, multi-disciplinary team focused on community needs to reduce energy and water use in all aspects of residential design and management.



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

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 efficiency and water 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:

- *Baldwin Park*, Orange County-phosphate nutrient loading control
- *Lake Jovita*, Pasco County-soil moisture sensors in landscape irrigation
- *Sorrento Village*, Lake County-urban forest, low impact landscape
- *Brytan*, Alachua County-LEED, for Neighborhood Development pilot
- *Harmony*, Osceola County- conservation and wildlife areas
- *Restoration*, Volusia County- enhanced stormwater basins, clustering, conservation easements
- *Avington Park*, Lake County-swales, pervious roads, exfiltration tanks, shallow and enhanced retention ponds
- *Indian Springs*, Lake County-water conservation, low impact landscaping for source control
- *Wildwood Springs*, Sumter County-springs protection, low impact landscaping for source control

Certification: We evaluate third-party certification programs from the perspective of best design and management practices as endorsed by University of Florida specialists, and we provide guidance on incorporating low impact development practices into community-wide standards. Certification agencies we work with include Audubon International, the Florida Green Building Coalition, the US Green Building Council and the St. Johns River Water Management District (SJRWMD)'s Florida Water StarSM program.

Local Government Training: PREC offers educational workshops on the implementation of LID and best design practices at the house, lot and community levels, with an emphasis on local governmental incentives that encourage adoption of the practices. LID workshops educate local policy makers, governmental staff, and building related professionals on surface water and groundwater issues associated with residential development. Workshops began in 2004 with SJRWMD funding to develop a curriculum (*A Practicum for Public Officials on Resource Efficient Communities*). Lake County participated in the first LID workshop and 18 programs involving 22 counties have since participated with 4 more counties on the agenda for 2009.

Continuing Education: PREC develops and delivers continuing education courses and associated certifications for professionals involved in the design, construction and operation of residential community developments, including "Build Green & Profit," and "Low Impact Development (LID) Practices for Florida: Stormwater." *Continuing Education Programs for Licensed Building Professionals:* Since 1996, the group has held 600 classes reaching 15,000 participants at Extension offices statewide. Courses are continually updated and reviewed to present the latest in land development and construction technologies and introduce the latest building codes.

Rebuilding Florida's Homes: Training on Best Durability and Energy Efficiency Practices: U.S. Department of Energy funded the development of a case-study style continuing education module on commercially viable strengthened residential construction systems.

My Safe Florida Home: Under funding from the Florida Department of Financial Services, PREC delivered training and testing to wind mitigation inspectors for the My Safe Florida Home grant program.

Build Green and Profit: Green Advantage: PREC pioneered the development of Green Advantage and is responsible for its initial launch in Florida. PREC offers on and off campus workshops throughout Florida that deliver continuing education credit to licensed building professionals in Florida and are used in preparation for the Green Advantage certification exams.

Research: We identify and prioritize applied research topics related to the resource efficient design, construction and operation of residential communities. The Program actively seeks applied research grants covering high priority issues in residential development and works with development projects to identify opportunities to document performance of effective practices and develop case studies.

Teaching: PREC supports 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. The program also promotes student internships with developers, certification groups, government agencies and others that offer real-world, interdisciplinary experience related to PREC's mission.

Other Demonstration and Outreach Activities

Madera (2004): Faculty collaborating with PREC 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. More specifically, 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, and wooded buffers for wildlife habitat.

GreenTrends (2006): Gainesville, FL. PREC co-hosted and organized the Florida Green Building Coalition's annual conference and tradeshow.

Florida Water StarSM Developer Education Program (2007): SJRWMD provided funding to develop a field guide for development professionals on soil moisture sensors.

Florida Department of Environmental Protection, Florida Energy Office (2008): PREC in conjunction with county and state faculty members,

developed 20 publications under the Energy Efficient Homes series that are available and printable from the web at:

http://edis.ifas.ufl.edu/TOPI_C_SERIES_Energy_Efficient_Homes

PREC conducted a carbon trading outreach event as part of our efforts to develop a public awareness campaign to promote the effective use of energy in the state and discourage energy waste.

St. Johns River Water Management District, Tampa Bay Water, Toho Water Authority, Florida Irrigation Society and others (2008-2009): PREC developed the "Landscape Irrigation Workshop: New Technologies and Certification Programs," offered in conjunction with county faculty to assist in reducing irrigation water demand by using existing and new technologies and appropriate water management techniques.

Oak Ridge National Laboratories/U.S. Department of Energy project (2008-2009): PREC and UF Faculty developed eighteen publications and five PowerPoint presentations that were written/expanded upon/updated and peer reviewed by housing specialists in the hot, humid or mixed, humid climate of the southeast. PREC hosted a workshop for the specialists (from 1890 and 1862 institutions) with the help of local county faculty in the Orlando/Kissimmee area to discuss the materials and visit a master planned residential community.

Florida Energy Systems Consortium Outreach (2009-2011): PREC is collaborating with FESC faculty through the State University System for content and development of 40 fact sheets for the public and policymakers that comprehensively cover energy topics. In addition, PREC plans to develop and conduct annual energy education in-service trainings for County Extension Faculty, work collaboratively with utilities regarding demand side management programs, work with county governments on community block grant programs, act as technical consultants for an energy efficiency demonstration house being built by the Pinellas County government, and work with the Solar Charging Station project in Orange County to provide educational programs.

Stormwater Ecological Enhancement Project: A 3-acre enhanced stormwater basin on the UF campus developed by PREC specialist, Dr. Mark Clark, demonstrates water quality and community amenity potential of such enhancements, allowing engineers, developers and policy makers to tour and see in practice the multifunctional benefits at a scale appropriate for a residential development.

PREC Faculty and Staff

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