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## Energy and Environmental Integration Through a Green Municipality Designation

Florida Solar Energy Center

Eric Martin

*Florida Solar Energy Center*, [martin@fsec.ucf.edu](mailto:martin@fsec.ucf.edu)



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## Energy and Environmental Integration through a Green Municipality Designation

Eric Martin and Robin Vieira

Florida Solar Energy Center (FSEC)

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### I. INTRODUCTION

When I say that most of my work is in the general area of "green building", many of my friends and relatives cannot figure out why an engineer is so concerned with the color of a building, or why I went to college for so many years if I wanted to be a painter. At that point I go on to explain what a "green building" is from an engineer's perspective. Discussions ensue regarding material choices and properties, systems (both mechanical and natural) designed to conserve energy and water, and whole building design approaches designed to enhance the durability and indoor air quality of a structure. Sometimes discussions get abstract and delve into things accomplished even before any construction takes place on the "building" such as site preparation concerns for erosion control and preservation of native landscape. Occasionally the issues of where the building is located with respect to pedestrian friendliness, access, and transportation come up, but that is far too abstract, for what do they have to do with a "green building"?

Looking back on such discussions, I found that I often tried to provide a description of what a green building is, using the word "building" as a noun. In reality, green building is really an approach, rather than a building itself. A better technique may have been to explain the term green building by defining the word "building" as a verb. And that the action of "green building" can be employed across any medium, construction project (whether vertical or horizontal), organization, or agency.

Municipalities are one such organization that can employ green building, and use it to the benefit of their agency, as well as their citizens. This can be accomplished by setting an example to the community through the incorporation of green considerations in the construction and operation of public and government buildings. Green considerations can also be incorporated into the way individual departments function. Municipalities can create incentives and mandates to foster green building within the community. Most importantly, municipalities play a vital role in community education, and can single-handedly make green building become "business as usual" rather than a conscious choice made by few. When green building is embraced by our local municipalities, justifying and explaining my work will be indefinitely easier.

In general terms, green building can be described as energy and environmental integration. The utilization of energy plays a key role when considering pollution reduction and environmental health, and vice versa. While energy and environmental elements are tightly linked in natural and economic systems, federal, state, and local governments have traditionally approached these two issues by segmenting them into separate organizations in a way that obscures their connections. The state of Florida has a goal to bring together entities with common objectives and overlapping interests to develop integrated energy/environmental solutions to statewide as well as local issues. Such integrated energy/environmental strategies offer new opportunities for increased energy efficiency, multi-pollutant prevention, and environmental improvements as well as greater operational efficiency, increased customer service, and expanded public acceptance. To accomplish such goals, the state of Florida has looked towards the concept of green building. The State as well as involved stakeholders believe such goals will best be accomplished by incorporating the actions of green building into the framework of local governments.

Florida's green building program has set out to create a Florida Green Municipality Standard that will recognize and certify Florida cities and counties that incorporate green building principles. An innovative approach has been taken in the development of this standard which involves the use of select pilot municipalities with demonstrated green excellence to act as models. The development of the standard also accomplishes state of Florida goals by bringing together statewide

energy and environmental groups to provide input to the standard. This process effectively educates disparate groups on each other's current activities, as well as future plans, such that they can begin working together to achieve common goals.

## **2. BACKGROUND**

A number of organizations across the United States have created and disseminated guidelines that can be leveraged to aid with the creation of a Florida specific green municipality program, and act as an excellent starting point. At the national level, such organizations include the US Environmental Protection Agency ([www.epa.gov/greenkit/index.html](http://www.epa.gov/greenkit/index.html), Office of Compliance, 1999), US Department of Energy ([www.sustainable.doe.gov](http://www.sustainable.doe.gov), [www.ccities.doe.gov](http://www.ccities.doe.gov)), American Planning Association (APA, 2002), International City County Managers Association ([www.smartgrowth.org/pdf/gettosg.pdf](http://www.smartgrowth.org/pdf/gettosg.pdf)), Natural Lands Trust and American Society of Landscape Architects (Arendt, 1999), and the National Wildlife Federation ([www.nwf.org/backyardwildlifehabitat/certifyyourcommunity.cfm](http://www.nwf.org/backyardwildlifehabitat/certifyyourcommunity.cfm)). Many states such as California (California Energy Commission, 1993), and cities such as Austin, TX (Department of Public Works and Transportation, et al., 1996) have also created guidelines that can act as models and reference material for a Florida program.

Over a long environmental history in Florida, elements of green building have been promoted through various state, local, regional, and university organizations that specialize in individual green building components. Scattered across the state are numerous "centers of excellence" that specialize in outreach, education, and implementation of generally one of the following issues: energy efficiency, water efficiency, indoor air quality, habitat preservation, waste management/ pollution prevention, etc. At the state level, the most promoted and regulated issue in Florida is energy efficiency, which is manifested in the form of an energy code for buildings, now in place for over twenty years. As an extension to this code, Florida also has a state mandated method for conducting energy ratings, and for training and regulation of energy rating professionals.

Such organizations have assembled in the past to combine efforts on various green demonstration projects in order to achieve common goals and provide education on various issues. After initial spurts of publicity and general public interest however, most projects have not succeeded in maintaining their goals over time. The key to linking such persons and organizations together to achieve goals in a sustained manner came about with the development of the Florida Green Building Coalition, Inc.

### **2.1 Florida Green Building Coalition, Inc.**

Early in 2000, a small group of individuals from various Florida universities got together with the intent of forming a statewide non-profit that would combine experts with a variety of backgrounds to create, promote, and maintain a green building program for the state of Florida. The main purpose of the effort was to create a single entity linked to each and every issue specific center of excellence that would facilitate networking among members, as well as act as a "one stop shop" of information for citizens interested in specific issues, as well as the whole green building picture. Promotion of green building was to take place through the development of Florida specific green building guidelines that would enable one to reap both environmental and economic benefits. The coalition attracted members from the construction industry, product suppliers, utilities, local governments, environmental advocates, and the general public. A set of guidelines for green residential construction was the first product of the coalition, and the guidelines also acted as a certification program to be used as a metric for both recognition, as well as the creation of future incentives. Since the July 2001 release of the Florida Green Home Designation Standard, the Florida Green Building Coalition, Inc. (FGBC) working committees have been developing similar guidelines for commercial buildings, land developments, and municipalities.

## **3.0 FLORIDA GREEN MUNICIPALITY STANDARD**

The proposed green municipality standard became the perfect device to achieve energy and environmental integration in Florida, leading to the increased efficiency of attaining and promoting environmental goals within the framework of local governments. Many notable efforts of municipalities to embrace and encourage green building throughout a city or county are hindered, or at least employed in an inefficient manner, due to the sometimes disparate jurisdictions and missions of a multitude of independent departments. Most of these departments have a goal of environmental protection, either as a primary function, or as a primary concern. For example, a natural resources management department is tasked with preserving and improving municipal resources that are crucial to maintaining the quality of life we are so accustomed to. Environmental protection is their primary function. Environmental protection is not the primary function of a public works department, but through a voluntary environmental commitment, the department may choose to incorporate green fleet management and environmentally preferable purchasing. Environmental protection is a primary concern. Municipal utilities are often seen as agencies that compromise our natural resources by using them up, and polluting air, land, and water in return. It is utilities however that are most active in providing conservation education and incentives to the community, in part due to their environmental commitments, but also because extra capacity gained through conservation is much more cost effective than that gained through the construction of new facilities. Here, environmental protection may be a good business strategy. In this example, all three agencies are working toward protecting the environment in some manner, and with some motive. If all three can be made aware of each other's manners and

motives, there may be opportunities to leverage individual department resources, and achieve the same goals in a more efficient manner, and to have a larger impact.

Creating a program, or exercise if you will, that forces a municipality to look across the board to see what general green building activities have been done in the past, as well as what green building activities are planned for the future, can effectively provide the link that will unite departmental efforts with common goals. Reviewing those past and future accomplishments in the context of a set of recommended guidelines, that sets a bar based on what other similar municipalities have done, also creates a driving force for a municipality to better themselves. In this case, the guidelines act as educational material complete with examples and case studies that are designed to display the benefits and importance of incorporating sustainability into their operations, and to encourage them to follow the examples set by the leaders in such efforts. Creating such a set of guidelines, setting a bar, and providing an implementation strategy is the heart of the Florida Green Municipality Standard effort.

### **3.1 Working with Pilot Municipalities**

The development of the Florida Green Municipality Standard is utilizing a unique method in terms of green building standards. Three Florida municipalities were selected to act as pilots for the standard development based on demonstrated green excellence. It is envisioned that the standard's guidelines and criteria will be based on their past accomplishments, as well as their future plans. Each pilot is located in different geographic locations of the state, and although there are some similarities, each have distinctly differing areas of green excellence. This diversity is key to the development of a statewide standard in a state as geographically diverse as Florida. Florida has three distinct climate zones where response to environmental issues related to buildings and land takes different shape. Also, due to the diverse nature of government, no two municipalities look alike in terms of size, scope, breadth, or structure. The diversity of the pilots will help the coalition develop a performance standard that features flexible paths to qualification, realizing that different municipalities will inevitably be forced to approach the same goals in different ways. This flexible form of qualification will most likely take the shape of a long list of potential criteria, all with assigned "points" that are assigned on the basis of the environmental benefit of the criteria. In order to qualify for the designation, a municipality must achieve a minimum number of these points. The point system will be structured to ensure a municipality displays a well-rounded effort, rather than a narrow focus.

Utilizing the pilots as models provides the direct practical and exemplary input necessary to the success of such a standard being implemented in other local governments. Resistance to change is often justified with statements such as "what works on paper does not work in real life", whereby successful examples can facilitate acceptance. The fact that the examples set by pilots are examples from within Florida is also important for there is a prevalent mindset of "what works in that other state will not work in Florida."

As a result of acting as models for the standard development, the pilot municipalities will most likely exit from the process as Certified Florida Green Municipalities. That is not to say that certification will be "automatic" for the pilots, for FGBC is also seeking input from various state government stakeholders as well as statewide organizations involved with energy, water, the environment, and land use. Future policy of such groups will be extracted and incorporated into the standard to encourage municipalities seeking certification to be on the forefront of the issues. Along with looking at future statewide policy in the context of current local policy, the pilots will also need to undertake the all-important standard process that is pivotal to the main goal of energy and environmental integration. The process developed by each pilot to assess their past accomplishments and future goals will eventually become a direct aspect of the program.

### **3.2 Standard Organization and the Implementation Process**

In order to begin the relationship between FGBC and the pilot municipalities, meetings were organized in each municipality and various local government stakeholders were invited. The purpose of the initial meetings were to introduce the concept of "green building as a verb" and green standards in general, and to gain cooperation from each pilot. It was then determined that in order to maintain the working relationship, a single person or entity would need to be chosen to act as the Green Municipality Coordinator, and to champion the effort. In one of the pilots, Sarasota County, the local Rebuild America<sup>1</sup> affiliate came forward as willing to help. The members of the group came from various governmental departments, and the leaders were housed in the Facilities Maintenance Department. Soon after the process began, the county created an Office of Sustainability, as part of an overarching sustainability resolution for the county, which soon took over the coordinator role. Subsequent meetings with the coordinator were designed to create a process to extract past green accomplishments of the county, and target future green directions (see example, Figure 1). Such efforts taking place within the pilots, along with the future green policy of statewide agencies and organizations, would then be detailed as the official criteria of the standard making up the flexible, performance based method of qualification.

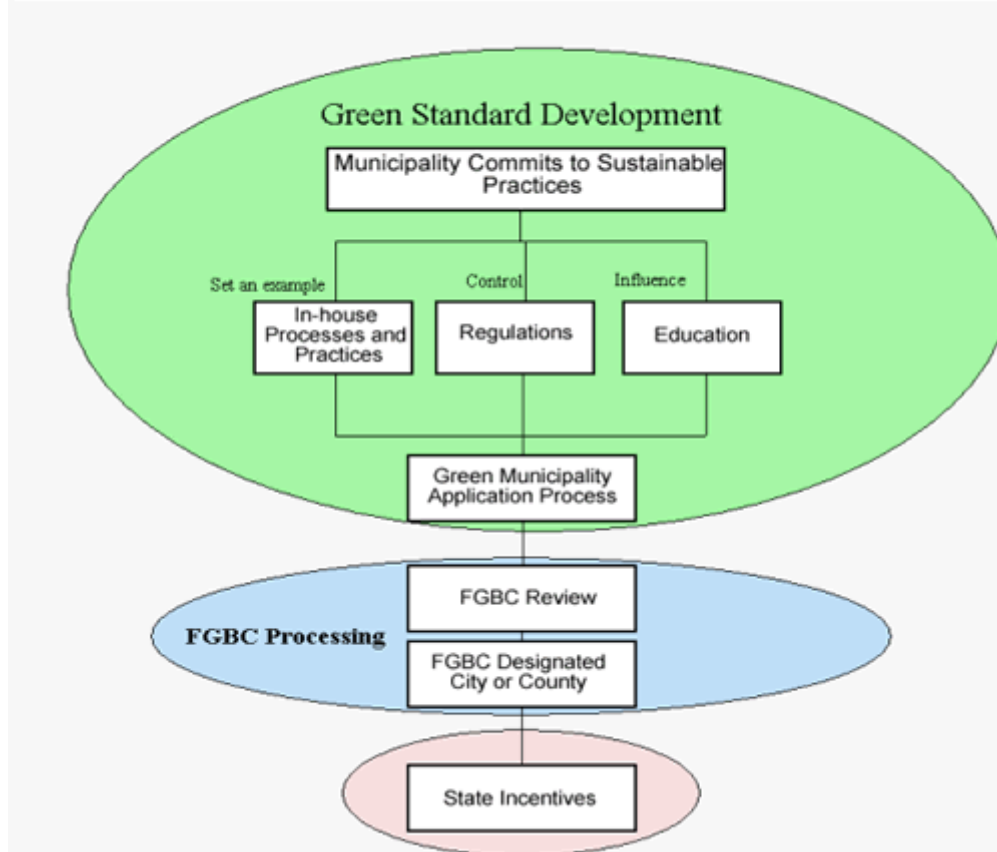


**Figure 1:** The Planet Janitor™ game was used as a fun, interactive method of soliciting feedback from the coordinator group in Sarasota County.

A flowchart (Figure 2) was created that outlined the standard development process, and three general categories were identified with which to group feedback:

- What has the municipality done in-house, or what would the municipality like to do, to set an example to the community? This category involves things such as the greening of departmental activities, as well as the greening of public buildings and lands in order to set an example for the local community to follow. This also shows the municipalities commitment to the issues.
- What incentives, ordinances, regulations, or resolutions has the municipality implemented in the past, or plans to implement, that will foster green building within the community? Focus here would be on positive things such as incentives, but mandatory items such as landscaping ordinances also fall under this category.
- What has the municipality done, or what would the municipality do to educate its staff and the community on green building issues? Examples include outreach efforts of local extension services as well as in-house training of staff and administrators.

## Flowchart of the Proposed Green Municipality Standard Development Process



**Figure 2:** Flowchart of the proposed green municipality standard development process.

Although the group of people acting as coordinator were very knowledgeable in terms of sustainability issues and actions within the county, this type of process proved to be very daunting and nearly impossible without multi-department cooperation. It was determined that instead of trying to identify all of this information themselves, a better approach would be to poll all county departments in order to identify all efforts and actions, which could then be collected and assembled by the coordinator.

Feedback from this exercise, and the need for multi-department cooperation influenced the overall organization of the standard, and the process of implementing it in other non-pilot municipalities once the standard is released. Rather than have the three major categories listed above, with efforts of individual departments underneath each as sub-categories, the logic was inverted. Instead, the major categories would take the form of individual departments, and the three items listed above would appear as subcategories underneath. A brief example of this type of standard organization is shown in Table 1. In the interest of space, only a few departments and criteria are listed. Implementation in a non-pilot community could then proceed as follows:

1. As a result of some motive, the municipality commits to undertaking the standard.
2. An office, department, or individual is designated as project coordinator.
3. Coordinator performs an exercise to determine what criteria will apply to the municipality. For example, if there is no municipal electric utility, such criteria will not apply.
4. Coordinator is then tasked with getting departmental specific criteria in the hands of someone within each department. This ensures that departments will not get bogged down with criteria that does not apply to them, and that they may not understand. In some cases, the generic departmental breakdown may not exactly match that of the applying municipality. In that case, the coordinator needs to "tailor" the criteria according to which department within the applying municipality actually has responsibility.
5. Individual departments review the criteria and indicate what has been done or is planned for implementation, and also indicates what is likely to be considered in the interest of achieving the standard, and for the benefit of the municipality.
6. The coordinator collects all departmental information, and determines where the municipality currently falls in reference to the suggested level of compliance. The coordinator then prepares a summary report that is sent to all cooperating departments. This summary report marks the beginning of inter-departmental education, identifying potential areas of cooperation.
7. The coordinator then assembles a meeting of departmental representatives to discuss the municipality status in reference to the standard. An interactive process then begins whereby areas of cooperation are explored, potential

sustainable and green improvements are explored, and a path is outlined with the intent of brining the municipality towards minimal compliance with the standard.

8. At which time the municipality believes they have met the minimum requirements of the standard, a package is provided to FGBC with necessary documentation such that the efforts of the municipality can be reviewed, and the designation can be awarded.

FGBC and its pilot municipalities envision that the certification will be time limited, and will require eventual renewal, possibly every two years, in light of changes to state law and policy, changes in local government policy, and municipal staff turnover.

**Table 1:** Example standard organization highlighting individual departments

<b>MUNICIPAL DEPARTMENT</b>	<b>SAMPLE CRITERIA</b>
<b>Building &amp; Development</b>	
Community / Staff Education	Offer classes to builders that explain enforcement of green codes.
Incentives / Ordinances	Reduced permitting, impact, and inspection fees for green projects.
Set an Example to Community	Maintain electronic database of energy ratings / green ratings.
<b>Public Works &amp; Engineering (roads and storm water)</b>	
Community / Staff Education	Storm water info disseminated / informative signs posted.
Incentives / Ordinances	Expedited plan review for green projects.
Set an Example to Community	Greening of public buildings and landscapes.
<b>Natural Resources Management / Environmental Protection</b>	
Community / Staff Education	Air Quality Index info disseminated.
Incentives / Ordinances	Alternative fuel incentives.
Set an Example to Community	Take part in Waterfronts Florida.
<b>Administration (management services, purchasing, contracts)</b>	
Community / Staff Education	Teach environmentally preferable purchasing to local businesses.
Incentives / Ordinances	Incentives to businesses who utilize EPP.
Set an Example to Community	Become partner in EPA waste wise program.
<b>Water &amp; Wastewater</b>	
Community / Staff Education	Disseminate info detailing sources, water quality, etc.
Incentives / Ordinances	Offer low flow fixture rebates.
Set an Example to Community	Seek FLDEP Plant Operations excellence award.
<b>Electric and Gas Utility</b>	
Community / Staff Education	Utilize informative billing.
Set an Example to Community	Offer green power.
<b>Human Resources</b>	
Community / Staff Education	Employee orientation includes muni commitment to environment.
Incentives / Ordinances	Offer alternative commuting incentives.
Set an Example to Community	Utilize environmentally preferable purchasing.

## 4.0 CONCLUSION

The Florida Green Municipality Standard is intended to encourage and facilitate energy and environmental integration within Florida by introducing green building concepts into the framework of local governments. Along with the inherent environmental benefits of fulfilling the requirements of such a standard, certified municipalities are expected to benefit from statewide and national publicity that result from this innovative element of a green building program. It is hoped that the state government will recognize the green municipalities through mutually beneficial incentives, and the designation may also give preference to certified municipalities when applying and competing for environmentally related grants. Readers are invited to make comments and suggestions on any aspect of this effort. Feedback can be sent to either author, or to [info@floridagreenbuilding.org](mailto:info@floridagreenbuilding.org).

## 5.0 ACKNOWLEDGEMENT



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