GLOBAL GREEN USA
CASE STUDY

GREENING AFFORDABLE HOUSING INITIATIVE

Site Planning · Alternative Transportation · Energy Efficiency · Renewable Energy · Resource Conservation · Resident Health

FIRST COMMUNITY HOUSING

2 NORTH SECOND STREET
SAN JOSE, CALIFORNIA

www.FirstHousing.org

First Community Housing, a San Jose, California-based non-profit housing developer is demonstrating how an organization can better serve the housing needs of low-income families by making green building a core part of its overall mission. By designing all its buildings to be energy efficient and by specifying non-toxic building materials, First Community Housing ensures that its tenants benefit from lower utility bills and healthier living environments. Furthermore, First Community Housing encourages the use of alternative transportation by locating all its projects along mass transit routes and providing free monthly transit passes.

Since 1986, First Community Housing has built nearly 800 units of affordable housing, putting the long-term savings generated by energy efficient design and highly durable materials into new developments and into the maintenance of existing projects. By demonstrating that green building techniques can both lower a developer's costs over the long-term and increase overall affordability for tenants, First Community Housing has gained a stellar reputation among the two entities that typically can make or break an affordable housing project – financial institutions and local government officials.

RECENT MAJOR PROJECTS

Project	Units	Construction Cost
Craig Gardens Senior Apts *(2002)*	90 *(1 bedrooms units)*	$123/SF
Murphy Ranch - First Phase *(2003)*	62 *(2, 3, 4 bedroom townhomes)*	$134/SF
Betty Ann Gardens *(2003)*	76 *(1, 2, 3, and 4 bedroom units)*	$145/SF
Paseo Studios *(2003)*	98 *(Furnished SRO)*	$161/SF

Four older properties have had photovoltaic solar systems installed to cover all common area electrical needs. The swimming pool at the 246-unit Los Esteros family development was converted to solar heating, a retrofit that had a four-year payback and extended the swimming "season" by two months.

THE MAKING OF A GREEN DEVELOPER

Founded in 1986, First Community Housing's transformation into a green affordable housing developer began in 2000 when the FCH Board of Directors determined that FCH should refocus on being a development-driven firm whose sole mission was to build and manage high-quality affordable housing in the Silicon Valley area of California. During this transformation, staff resources were concentrated into areas most closely aligned with the development process – architectural design, construction management, development finance and asset management. With this expertise present within the organization, new Executive Director Jeff Oberdorfer, an architect with experience in both the private and public sectors, set about to develop green performance and program standards for all of First Community Housing's developments.

These Minimum Standards for Finishes, Systems and Appliances are grouped by construction specification codes and set minimum green requirements in areas such as site work, structural framing, mechanical systems, interior finishes, appliances and lighting. Performance targets are also set, including exceeding the California Title 24 Energy Code by 15%, recycling 75% of

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Betty Ann Gardens

76 ONE TO FOUR BEDROOM UNITS
SAN JOSE, CALIFORNIA

GREEN FEATURES

- Rehabilitation of adjacent transit stop: free mass transit passes for all residents
- Riparian restoration and protection
- Existing heritage trees incorporated into site plan
- Low-flow water fixtures
- Exceeds California Title 24 Energy Code by 25%
- Double-glazed windows and sliding doors
- All gas appliances
- Hydronic heating and cooling
- All fluorescent light fixtures
- Natural linoleum and recycled-content carpet floors
- Hardiboard fiber-cement siding
- Recycled-content interior trim and baseboard
- Engineered structural lumber
- "Eco-Star" recycled content roof on Community Building
- Sustainably harvested teak benches and lobby furniture
- Wheat composite office furniture
- 99% recyclable office chairs
- Formaldehyde-free counter substrates
- No VOC and formaldehyde-free cabinets with water-based varnish
- Formaldehyde-free batt insulation
- Low VOC Paint

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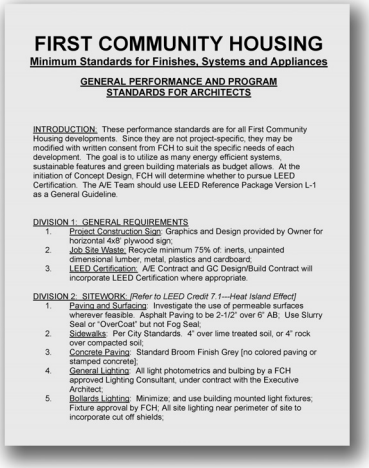
construction waste, and powering 100% common area lighting with renewable energy. Many of these requirements coincide with the green incentives in the California tax credit criteria that Global Green USA helped design. *(See summaries of Betty Ann Gardens, Murphy Ranch, and Paseo Studios for examples of how these standards have been applied in recent FCH projects.)*

To ensure that the green practices are implemented, First Community Housing develops all its projects using a Design/Build system with a pre-selected General Contractor. In this process, the General Contractor and all the major sub-contractors, are involved with FCH and the project architect from schematic design onward. This avoids a "low-bid" system that could potentially eliminate some green building features from a project. FCH has also established a reputation for holding fast to its green building materials specifications, which enables it to negotiate substantial discounts on materials from product representatives who know that the specified materials will actually be purchased.



FIRST COMMUNITY HOUSING
Minimum Standards for Finishes, Systems and Appliances

GENERAL PERFORMANCE AND PROGRAM STANDARDS FOR ARCHITECTS

INTRODUCTION: These performance standards are for all First Community Housing developments. Since they are not project-specific, they may be modified with written consent from FCH to suit the specific needs of each development. The goal is to utilize as many energy efficient systems, sustainable features and green building materials as budget allows. At the initiation of Concept Design, FCH will determine whether to pursue LEED Certification. The A/E Team should use LEED Reference Package Version L-1 as a General Guideline.

DIVISION 1: GENERAL REQUIREMENTS
1. Project Construction Sign: Graphics and Design provided by Owner for horizontal 4x8' plywood sign;
2. Job Site Waste: Recycle minimum 75% of: inerts, unpainted dimensional lumber, metal, plastics and cardboard.
3. LEED Certification: A/E Contract and GC Design/Build Contract will incorporate LEED Certification where appropriate.

DIVISION 2: SITEWORK *[Refer to LEED Credit 7.1—Heat Island Effect]*
1. Paving and Surfacing: Investigate the use of permeable surfaces wherever feasible. Asphalt Paving to be 2-1/2" over 6" AB; Use Slurry Seal or "OverCoat" but not Fog Seal;
2. Sidewalks: Per City Standards. 4" over lime treated soil, or 4" rock over compacted soil;
3. Concrete Paving: Standard Broom Finish Grey [no colored paving or stamped concrete];
4. General Lighting: All light photometrics and bulbing by a FCH approved Lighting Consultant, under contract with the Executive Architect;
5. Bollards Lighting: Minimize; and use building mounted light fixtures; Fixture approval by FCH; All site lighting near perimeter of site to incorporate cut off shields;

The overall goal of FCH's design standards is "to utilize as many energy efficient systems, sustainable features and green building materials as budget allows."

Even with these discounts, however, some of the green materials and systems used in First Community's projects have higher first costs compared to standard construction practice. From a life-cycle perspective, though, these options add long-term value to the projects. Because First Community is required to own its properties for 40 years or more, items with a long-term payback are justified. Another budgeting strategy is to use contingency funds that remain as a project nears completion for an established "wish list" of green upgrades on finish materials.

First Community Housing's reputation as an award-winning developer and green builder has helped negate the myth that affordable housing will create a negative impact on its "host" neighborhood and gives it a competitive edge when negotiating with local governments over potential future projects. As lenders start to evaluate the durability and long-term savings provided by green building materials such as linoleum, formaldehyde-free cabinets and photovoltaic panels, FCH will be well placed to take advantage of lower interest costs and lower replacement reserve requirements.

FAQ: How To Become A Green Affordable Housing Developer

Q: What is the first step towards becoming a green affordable housing developer?

A: ***Create organizational green design standards.*** *Many green strategies and specifications can be common to different types of developments. Standardization works particularly well with interior and exterior finishes, roofing and insulation materials, flooring, appliances, and furnishings. Standardizing building materials also allows for the negotiation of volume discounts from suppliers.*

Q: But every project is different. Are green design standards flexible enough?

A: ***Standardizing frees up time to focus on the individual challenges of each project.*** *By standardizing certain elements, design costs can be concentrated on evaluating options for items that vary by project, including site preparation, building orientation, mechanical systems, and the type and scope of renewable energy systems.*

Q: I am working on a limited budget and people always say that green building costs more. How can I get the right advice on cost-effective designs and materials?

A: ***Work with architects and contractors experienced in green building.*** *Green building expertise is uneven across the design and building industry and for some professionals new to green techniques and strategies, the learning curve can be steep. By working with individuals and firms with prior green building experience – or at a minimum with those firms eager to do research and learn – developers can share the burden of paying attention to the right details while avoiding unnecessary and potentially costly experimentation.*

Q: I've got some basic green design standards. How can I ensure that they are being met?

A: ***Do construction management in-house.*** *In-house construction management allows the developer to both set the green standards and ensure that they are implemented. A developer who has strong construction management expertise in-house is at a distinct advantage when trying to green its projects. Without active design document and construction oversight, many building professionals, particularly subcontractors, revert to traditional (and wasteful) techniques and specifications.*

Q: What can I do to realize the full benefits of being a green affordable housing developer?

A: ***Track and measure performance.*** *Green building brings a number of benefits to developers and residents, including lower operating and maintenance costs, improved resident health, and less environmental impact on the surrounding community. But, as of yet, these benefits are difficult to fully capture in terms of lower financing costs or increased political support for affordable housing. Measuring performance and demonstrating actual improvements or savings in a clear and concise manner will help build credibility among financiers and government officials and ensure support for future green proejcts.*

Murphy Ranch

62 FAMILY TOWNHOMES, MORGAN HILL, CALIFORNIA

GREEN FEATURES

- Free mass transit passes for all residents
- Low-flow water fixtures
- Exceeds California Title 24 Energy Code by 27%
- Solar electricity generation for all common areas
- Solar-heated swimming pool
- Hydronic heating and cooling
- Blown-in cellulose insulation
- Double-glazed windows and sliding doors
- All gas appliances
- All fluorescent light fixtures
- Recycled-content carpet floors
- Hardiboard fiber-cement siding
- Recycled-content interior trim and baseboard
- Engineered structural lumber
- Sustainably harvested teak pool and recreation area furniture

- Wheat composite office furniture
- 99% recyclable office chairs
- Formaldehyde-free batt insulation
- Low-VOC Paint

Paseo Studios

98 SRO UNITS
SAN JOSE, CALIFORNIA

CHALLENGES

Via its Minimum Standards for Finishes, Systems and Appliances, First Community Housing now has a base set of green criteria that is incorporated into the planning and design of each of its projects. But this document is constantly evolving. Looking forward, FCH hopes to address a number of other environmental challenges.

- ❑ **Renewable Energy:** First Community Housing has so far used solar generated electricity to power site lighting and common areas and solar hot water to heat swimming pools and pool shower facilities. The developer would like to expand the use of solar electricity to meet at least part of the demand load of the units. FCH is considering using spaces like carports as generating facilities, with the long-term goal of selling electricity back to the local utility.

- ❑ **Sustainable Sites:** Most affordable housing developments are dense urban infill projects. Constrained site conditions make certain sustainable strategies such as stormwater management, permeable paving and natural greywater treatment challenging to implement. FCH sees this as a major area for innovation, perhaps by linking several projects in close proximity or combining future projects with larger community land preservation and smart growth strategies.

- ❑ **Carpet Recycling:** In affordable housing developments, carpeting is typically changed every 5 to 7 years. This frequent rate of replacement generates tons of landfill waste annually. FCH uses carpet tiles that have a high level of recycled content. While the carpet manufacturer guarantees that used carpet will not end up in landfill – by recycling, upcycling, or downcycling – the cost of shipping the used carpet is a potential barrier.

- ❑ **Indoor Air Quality:** Ensuring high quality air circulation and the proper number of air changes without oversizing the mechanical system or installing noisy components is a major challenge. This is particularly the case in kitchens and bathrooms, where moisture and other contaminents are present in high concentrations. FCH has been able to overcome these challenges on a project-by-project basis but would like to find ways to standardize this building element.

GREEN FEATURES

- Adjacent to transit and shopping: free mass transit passes for all residents
- Low-flow water fixtures
- Double-glazed windows and sliding doors
- "Cool Roof" *(white finish topping on built up roof)*
- All fluorescent light fixtures
- Natural linoleum and recycled content carpet
- Recycled-content interior trim and baseboard
- Engineered structural lumber
- Recycled-content metal siding and balcony slats
- Sustainably harvested maple beds
- Sustainably harvested teak courtyard furniture
- Wheat composite office furniture
- 99% recyclable office chairs
- No VOC and formaldehyde-free cabinets with water-based varnish
- Formaldehyde-free counter substrates
- Formaldehyde-free batt insulation
- Low VOC Paint

CONTACTS

- **First Community Housing,** *Developer*
  Executive Director: Jeff Oberdorfer, AIA, 408-291-8650, *JeffO@FirstHousing.org*
- **Global Green USA,** *Green Building Technical Assistance*
  Program Director: Walker Wells, 310-581-2700, *wwells@globalgreen.org*

Prepared by Global Green USA, with funding from the David and Lucille Packard Foundation.
December 2003 *www.globalgreen.org* *Printed on Recycled Paper*