

# Case in Point...

## A GREEN AFFORDABLE HOUSING COALITION Case Study

[MF-004]



## Folsom/Dore Apartments

Folsom/Dore Apartments is an example of a transit-oriented urban infill affordable housing development that integrates sustainable materials and design features as well as creates a community that promotes the economic and social welfare of its special-needs residents through onsite services. The project received support from a variety of community organizations including Urban Ecology, Walk San Francisco, San Francisco Bicycle Coalition, Housing Action Coalition, City Carshare, and the San Francisco Aids Foundation.

### Project Summary

- **Location:** 75 Dore Street / 1346 Folsom Street, San Francisco, CA
- **Completion date:** February 2005
- **Owner/developer/general contractor:** Folsom/Dore Associates, a California Limited Partnership/ Citizens Housing Corporation
- **Architect:** David Baker & Partners; Associated Architect: Baker Vilar Architects
- **General contractor:** Cahill Contractors



*A digital rendering of the proposed design*

### Project Description

Citizens Housing Corporation is working with the City of San Francisco, the Arc San Francisco, and Episcopal Community Services (ECS) to build 98 units of affordable housing for low- and very low-income residents with a variety of special needs. The project is located in San Francisco's South of Market Neighborhood, which includes a diverse mix of residential, commercial, and light industrial uses. The site is in close proximity to a range of public transportation sources and residential amenities.

The development includes 3,200 square feet of community and service space that will house on-site supportive services provided by the Arc and ECS as well as approximately 3,500 square feet of open space. The project features a front entry courtyard, private balconies, and rear yard courtyard. It also includes 30 parking spaces in a single-level, partially submerged garage. Four of the parking spaces will be utilized for a City Carshare pod.

The project utilizes state housing funds through the Multifamily Housing Program (MHP), as well as 4% tax credits, tax-exempt bonds credit-enhanced by Citibank, a Federal Home Loan Bank Affordable Housing Program (AHP) grant and local gap financing provided by HOME funds from the Mayor's Office of Housing in San Francisco. The MHP funds provide the deeper levels of affordability necessary to make the units available to special-needs residents, including developmentally disabled adults and formerly homeless families.

## Planning, Design, and Development Process

The owner and architect team were the driving force behind the Green Building features implemented in this project. To achieve successful green design, the project architect provided the technical assistance. Working within budget constraints, the Green Building features were designed to be included as upgrade alternates as the project developed and as funds were determined to be available.

For the design and installation of the photovoltaic (PV) system, a PV consultant helped develop the specifications and the General Contractor solicited bids from design-build firms that were part of the City of San Francisco's Generation Solar Program. The Generation Solar Program is a residential and commercial solar program serving San Francisco residents and businesses. The cost of the PV system was significantly reduced with the help of a California State rebate, including an additional rebate for affordable housing.



*A digital rendering of the interior*

## By the Numbers

<b>Parcel size:</b>	25,292 ft <sup>2</sup> (0.58 acres)
<b>Total ft<sup>2</sup>:</b>	
Gross ft <sup>2</sup>	86,998 ft <sup>2</sup>
<b>Number units:</b>	98 (incl. 2 manager units)
<b>Site acquisition costs:</b>	\$5,700,000
<b>Development costs:</b>	
Acquisition Costs:	\$5,700,000
Hard Costs:	\$14,400,000
Soft Costs:	\$6,400,000
<b>Total Costs:</b>	<b>\$26,500,000</b>
<b>Funding sources:</b>	
<b>Permanent Sources:</b>	
1. City of San Francisco:	\$8,755,884
2. 4% Tax Credit Equity:	\$7,870,161
3. State of California MHP:	\$5,181,995
4. Tax Exempt Bonds:	\$4,300,000
5. Federal Home Loan Bank Affordable Housing Program Funds:	\$392,000
<b>Ave. cost / ft<sup>2</sup></b>	
Construction Costs:	\$165/ ft <sup>2</sup>
All Costs:	\$304/ ft <sup>2</sup>
<b>Ave. cost / unit</b>	
All Costs:	\$270,408
<b>Ave. monthly utilities</b>	Tenant utility allowance based on electric cooking and all other electric:  0BR: \$18/mo 1BR: \$19/mo 2BR: \$23/mo  Estimated building utility costs: \$6,600/month (includes water, trash, common area electric, gas for entire building)
<b>Affordability targets:</b>	50 units at 60% AMI 46 units at 40% SMI (approx. 25% AMI) 2 Manager Units

## Sustainability Goals

### ➤ Energy and Atmosphere:

- Exceed Title 24 by 20%
- Decrease occupants' energy consumption
- Decrease energy costs for residents and the building
- Reduce off-gassing of building materials into the environment

### ➤ Materials and Resources:

- Integrate recycled-content building materials
- Incorporate durable and sustainable materials to decrease long-term maintenance

### ➤ Water:

- Reduce water use for landscaping with drought-tolerant plants

### ➤ Health and Safety:

- Promote healthy indoor air quality by specifying low-VOC materials and finishes

### ➤ Site and Community:

- Take advantage of the urban infill and transit-oriented location
- Reduce reliance on automobiles
- Create a durable and sustainable development that fits the specific needs of our special needs residents
- Create a vibrant residential community with onsite supportive services to improve the economic and social welfare of the residents

## Green Building Features at a Glance

Green Building Feature	Base Case	Benefits
<b>Planning, Design, and Development Process</b>		
<ul style="list-style-type: none"> <li>▪ Selected an architect who was aware and conscious of sustainable design and energy efficient features</li> <li>▪ Selected a contractor who was open and willing to explore sustainable alternatives</li> <li>▪ Worked with HUD's PATH program</li> <li>▪ Obtained grant from PG&amp;E's Multifamily Incentive Program</li> </ul>	<ul style="list-style-type: none"> <li>▪ Choosing to work with an architect or contractor regardless of Green Building experience or concerns</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Green Building project can develop through a team effort, disagreements can be avoided, and goals can be reached more easily.</li> </ul>
<b>Site and Community</b>		
<ul style="list-style-type: none"> <li>▪ Urban Infill</li> <li>▪ On-site construction waste management</li> <li>▪ Multiple Public Transit Options within ¼ mile of the site</li> <li>▪ On-site City Carshare Pod</li> <li>▪ 70% parking reduction</li> <li>▪ Bike storage for 15% of the units</li> <li>▪ High Density development (98 units on 0.58 acres=168 units/acre)</li> <li>▪ Provision for storage and collection of on-site recyclables</li> <li>▪ Provision of on-site service space, including computer training center</li> </ul>	<ul style="list-style-type: none"> <li>▪ Demolition of existing building</li> <li>▪ No recycling at job site</li> <li>▪ Public transit is inaccessible</li> <li>▪ Car-oriented development with parking spaces for each household</li> <li>▪ No on-site amenities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Infill development reuses property that is being underutilized or abandoned and can help to catalyze revitalization in an urban neighborhood.</li> <li>▪ Construction waste accounts for a significant amount of landfill waste, which can be reduced and reused if managed correctly.</li> <li>▪ Close proximity to public transit will encourage alternatives to the automobile thus reducing traffic, parking problems and smog</li> <li>▪ City Carshare will help reduce space and cost needed for parking and will discourage over-dependence on automobiles, thus improving air quality and promoting an ecologically sustainable city.</li> <li>▪ On-site services promote economic independence and encourages community support</li> </ul>
<b>Foundation</b>		
<ul style="list-style-type: none"> <li>▪ 50% flyash content concrete mix in mat slab foundation</li> </ul>	<p>100% Portland cement (+ sand and aggregate)</p>	<ul style="list-style-type: none"> <li>▪ The manufacture of cement is energy intensive and produces a significant amount of carbon dioxide emissions. Using flyash is an inexpensive substitute and reduces the amount of cement needed while increasing the strength and durability of the concrete.</li> </ul>

Green Building Feature	Base Case	Benefits
<b>Structural frame</b>		
<ul style="list-style-type: none"> <li>▪ 15% fly-ash content shotcrete for a majority of the structural walls</li> </ul>	<ul style="list-style-type: none"> <li>▪ Formed, poured or pre-cast concrete</li> </ul>	<ul style="list-style-type: none"> <li>▪ With shotcrete, less material is needed to adequately cover irregular surfaces and the application can take half the time of traditional methods, reducing time and energy for labor. Shotcrete requires a much lower water-cementitious material ratio which increases its compressive strength, reduces shrinkage and lowers its permeability.</li> </ul>
<b>Exterior finish</b>		
<ul style="list-style-type: none"> <li>▪ Fiber Cement siding</li> <li>▪ Re-use of existing brick building facade</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wood siding</li> <li>▪ Virgin materials</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fiber-cement siding reduces the demand for redwood or cedar siding, improves durability and fire resistance</li> <li>▪ Re-using materials reduces the project's need for virgin materials and prevents (or delays) diverted and reclaimed materials from going to the landfill.</li> </ul>
<b>Electrical</b>		
<ul style="list-style-type: none"> <li>▪ 75% of the lighting is compact florescent</li> <li>▪ Cat-5 wiring to all units</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fluorescents in kitchen and baths only; incandescent in other rooms</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fluorescent fixtures reduce energy consumption by 50–75%, saving homeowners money on their energy bills. They also last up to 7 times longer than incandescent lamps, thus reducing maintenance and replacement costs. Fluorescents generate less heat than incandescents.</li> </ul>
<b>Appliances</b>		
<ul style="list-style-type: none"> <li>▪ ENERGY STAR® appliances throughout—including 3<sup>rd</sup> party laundry service</li> <li>▪ Designed building for natural ventilation, so that air conditioning was not required within the units</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conventional appliances</li> </ul>	<ul style="list-style-type: none"> <li>▪ ENERGY STAR® appliances reduce energy consumption and save occupants money on their energy bills</li> </ul>
<b>HVAC</b>		
<ul style="list-style-type: none"> <li>▪ Baseboard hydronic heating (combo - water/space heater</li> <li>▪ Kitchen range hoods and bath fans vent to the outside</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conventional water and space heating systems</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduced energy consumption and operating costs</li> <li>▪ Venting range hoods and bath fans to the outside helps to improve indoor air quality, prevent overheating and excess moisture buildup</li> </ul>

Green Building Feature	Base Case	Benefits
<b>Windows</b>		
<ul style="list-style-type: none"> <li>▪ Commercial grade windows, which include high STC-ratings, low U-values, high water and air infiltration ratings, and high Condensation resistant factors</li> <li>▪ Operable windows to allow natural ventilation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conventional single-paned windows</li> </ul>	<ul style="list-style-type: none"> <li>▪ Windows reduce occupant energy consumption by minimizing solar heat gain and conductive heat gains and losses. Living spaces are more comfortable and quieter. Windows also contribute to durability by reducing fading of interior finishes and fabrics due to UV radiation</li> <li>▪ Operable windows give occupants more control over interior temperature and ventilation</li> </ul>
<b>Flooring</b>		
<ul style="list-style-type: none"> <li>▪ Recycled-content Carpet Pad</li> <li>▪ Finished concrete/foundation floor in the community and service space</li> <li>▪ Vinyl flooring in bathrooms that contains 40% recycled material</li> </ul>	<ul style="list-style-type: none"> <li>▪ Conventional carpets padding</li> <li>▪ New materials for flooring over exposed concrete</li> <li>▪ Conventional vinyl flooring</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recycled carpet pads save resources and divert waste from landfills. Using a carpet pad extends the life of the carpet, adds resiliency and makes it easier to clean</li> <li>▪ Finishing the foundation floor eliminates the need for new materials. It is durable and easy to clean.</li> <li>▪ Recycled content replaces vinyl material, thereby reducing the environmental impacts associated with producing and disposing of vinyl</li> </ul>
<b>Interior Finish</b>		
<ul style="list-style-type: none"> <li>▪ Urea formaldehyde-free cabinets</li> <li>▪ Low VOC paints and sealants</li> </ul>	<ul style="list-style-type: none"> <li>▪ Particleboard, plywood, or MDF containing urea formaldehyde</li> <li>▪ Conventional paints with a high VOC content (&gt;150)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Urea formaldehyde is a suspected human carcinogen, typically used as an adhesive in cabinet materials. Use a substitute whenever possible to reduce health risks.</li> <li>▪ Low VOC paints, sealants, and adhesives can substantially reduce the indoor air pollution that causes irritations of the eyes, lungs, and skin and respiratory and internal organ problems.</li> </ul>
<b>Renewable Energy</b>		
<ul style="list-style-type: none"> <li>▪ 13 kW of photovoltaics (PV) to generate energy for all common load areas. Slopes of roofs were designed to be South-facing to accommodate future solar panels</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reliance on conventional power plants to generate energy</li> </ul>	<ul style="list-style-type: none"> <li>▪ The photovoltaic system produces electricity from sunlight. This saves money on the electricity bill and reduces reliance on the local power plant, which contributes to air pollution.</li> </ul>

## Lessons Learned

This project demonstrates Citizens Housing Corporation's continued interest in Green Building. Success with this project and others will lead to more incorporation of Green Building features into future CHC projects. In working on this project, the owner and design team have learned some lessons that they hope to incorporate into future projects:

- *Establish Goals:* Establishing sustainability and Green Building goals at the beginning of a project, *even if they are very general*, helps the entire design and construction team to understand the interest of the owner and design team to integrate Green Building practices.
- *Carry Alternates:* As affordable housing developers, we are often faced with budget constraints. Therefore, it may not be possible to incorporate all sustainable and green features in the total project budget from day one. However, if the architect includes sustainable alternates in the specification set and the owner has the contractor price the alternates throughout the pricing phases, the team will have accurate up to date pricing on the "Green" alternates. This information can be helpful to evaluate the feasibility of incorporating particular alternates as the project financing structure progresses.
- *Evaluate Green Building Measures:* Because it may not always be possible to integrate all Green Building measures in all projects, it is important to evaluate on a per project and per organization basis what makes the most sense to put resources towards. Furthermore, all Green Building measures may not make sense for all projects. However, a good rule of thumb is to evaluate sustainable and Green Building features on their ability to maximize the durability and longevity of the project. This strategy often helps to justify the higher upfront capital costs and helps keep the building a nice place to live for a lot longer.



*A digital rendering of the full exterior elevation*

## For more information

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[www.dbarchitect.com](http://www.dbarchitect.com)

[www.cahill-sf.com](http://www.cahill-sf.com)

## About the Green Affordable Housing Coalition

We are a coalition of San Francisco Bay Area public-sector and private-sector professionals committed to incorporating green building practices into the construction, operation, and maintenance of affordable housing. Through education and outreach, we promote the use of construction materials and practices that conserve energy and water; minimize construction waste; use resource-efficient materials; promote good health for both the construction workers and the occupants; are durable and easily maintained; are integrated to the site and region; and enhance housing affordability. Success in this endeavor will produce economic and quality-of-life benefits for tenants, improve the financial bottom line for property owners, and generate economic and environmental benefits for the local, regional, and world community.

For more information about the Coalition, call Bruce Mast at 510-271-4785 or visit our website at [www.GreenAffordableHousing.org](http://www.GreenAffordableHousing.org).

## Disclaimer

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