



**CASE STUDY: Awards of Excellence for Affordable Housing Built Responsibly**



# Claretian Associates' New Homes for South Chicago



## Project at a Glance

**Location:** Chicago, IL  
**Project Type:** New Construction  
**Ownership/Rental:** Ownership  
**Size:**  
 5 units (2,332 sq. ft. each)  
 11,660 total sq. ft.  
 .14 acres per unit; .7 acres total  
**Project Completion Date:**  
 December 25, 2004  
**Affordability:**  
 Four units with occupants earning 60% or less of the area median income (AMI); one house with occupants earning 80% of AMI.  
**Project Team:**  
 Developer: *Claretian Associates*  
 Architect: *Sam Marts Architects and Planners*  
 Contractor: *South Chicago Workforce*  
**Development Cost:**

Land cost:	Donated
Construction costs:	\$743,270
Soft costs:	\$104,230
Total:	\$847,500

**Cost/Savings of Greening:**  
 Documented increased Cost of Greening: \$245,599  
 Rebates and Grants: \$113,545  
 Net Cost of Greening: \$132,054  
**Standards Used:** Energy Star Homes  
**Key Green Features:**

- Photovoltaic panels that generate about one-third of electricity consumed.
- Shell of homes is made of structurally insulated panels to maximize heating/cooling efficiency.
- Minimization of wood use in building process. Careful selection of environmentally friendly and healthy products and materials.
- On-site reuse of excavated material.
- Reclamation of ten vacant lots.
- Up to eighteen environmentally-friendly components in each house.
- Exceeded the City's building code for moisture management.

## New Homes for South Chicago

Claretian Associates has been working for fifteen years to stabilize and improve neighborhoods in the culturally diverse and economically declining area of South Chicago. It has developed 125 units of affordable housing since its inception, and has initiated several partnerships with local housing and finance organizations. New Homes for South Chicago is one of the most energy efficient and "greenest" affordable housing developments in Illinois, and perhaps in all of the Midwest. The project is part of a larger initiative to revitalize the community, and the first five units helped stabilize the housing and economic situations of five low-income families. The goals include providing affordable housing to low and moderate income-families, achieving greater energy efficiency, and stabilizing a historically underserved community. A total of 34 new homes will be built and sixty percent of the general contractor's employees are local residents.

### Greening Goals:

New Homes made significant achievements in energy efficiency, surpassing Energy Star standards by 30%. The houses make use of solar panels, efficient appliances and lighting, highly-efficient mechanical systems, and structurally insulated panels for the shell of the homes to contribute to efficient energy use. The project team emphasized creating the healthiest possible indoor environment

### Integrated Design Process:

The project employed an integrated design process from the early stages, whereby the development team—the architect, general contractor and developer—met numerous times to systematically plan the various aspects of the project. In addition, in the years preceding the inception of the project, Claretian Associates held community meetings with residents and other stakeholder to obtain a sense of the community's needs and desires for new housing.



## CASE STUDY: Awards of Excellence for Affordable Housing Built Responsibly

# Green Features

### Site Design/Landscape Planning:

The five homes were developed on vacant land with few trees—the land used to be Lake Michigan before the lake was filled in at the end of the nineteenth century. As such, the lots are “sunken” and require vaulted sidewalks. Claretian Associates worked to minimize environmental damage, and New Homes received an Environmental Compliance Certification from the City in 2002, with a “no significant environmental impact status.”

The homes face east/west so that the solar panels can face south and optimize energy collection. Each home was developed on a double-lot. As such, occupants enjoy yards and run-off is not a major concern, as the ground cover ratio is low and significant pervious surface areas remain.

### Location and Linkages:

The houses have many transit options and services close by. They are well-positioned on a Chicago Transit Authority bus route and are one block from a Metra commuter rail station that runs every hour to downtown Chicago. Walking and biking are safe and easy options due to new sidewalks that were constructed at New Homes. In addition, the houses are located near schools and churches, a YMCA, the public library, a park, a child development center, a bank and a large commercial shopping district.

### Building Design Greening:

**Energy:** Each photovoltaic (PV) system provides about 1200 watts, or about one-third of the electricity needs. Structurally Insulated Panels (SIPs) minimize the number of joints, thereby limiting air infiltration on each house and increasing insulation. Insulation also extends through the roof panels to avoid “cold spots,” thus improving energy efficiency and lowering operating costs. “Blower door tests” were performed to measure air leakage. The results demonstrated that the homes are up to ten times more air tight than a typical South Chicago home and roughly one-third more air tight than a typical energy-efficient home. The HVAC systems were selected for their energy efficiency and effectiveness of ventilation (based on a heat loss calculation for each house). Three different ventilation systems were used among the houses to compare results and inform future projects.

The full capital cost of the roof-top PV systems—about \$16,700 per home—was paid by grants, so there was no additional cost to the residents. The PV systems each have 1,200 watts of direct current capacity, for a total of 6,000 watts of DC power which converts to 4,875 watts of AC power. The residents are paid for any electricity generated by the panels that is fed into the grid. In addition, Energy Star appliances and some energy efficient fluorescent lighting



was used in all of the houses. The extremely energy efficient houses exceeded the local utility’s Home Efficiency for You Rebate Program, allowing each of the homebuyers to qualify for a \$500 rebate.

**Indoor Environmental Air Quality:** The homes are extremely air tight and have highly effective, energy efficient HVAC systems that exceed the City’s building code for moisture management and optimize a healthy, indoor environment. All homes have either an AirCycler or a 40W fan to ensure effective ventilation of the houses.

**Resource Conservation/Material:** Structurally Insulated Panels (SIPs) were attached to the foundation, floors, and roof panels. SIPs, as well as open web floor joists, strand board flooring, and the use of standard size wood helped to minimize the amount of wood consumed and significantly reduced the amount of waste generated. The selection of wood products for the project was done with a careful eye towards conservation. In addition, the contractor used a large sifter to facilitate reuse of on-site soil for landscaping.

**Water Conservation:** Pressure-assisted toilets were implemented in the houses to reduce water consumption. In addition, the houses, situated on double-lots, enjoy native plants and grasses; yet, these are planted strategically so they can be watered by rain gutters.

## Measurable Benefits

### Energy Efficiency:

- Rated 30% better than the Energy Star standard.
- Seven-ten times more air tight than a typical Chicago home.
- Utilize 50% less heating/cooling than a typical Chicago home.
- Exceed requirements of local utility’s home efficiency rebate program.
- Grant-funded PV panels produce one-third of electricity.

### Green Materials for Homebuyers:

- Occupants receive \$4,000 worth of green household products.



## CASE STUDY: Awards of Excellence for Affordable Housing Built Responsibly

# Green Features

**Commissioning:** Claretian Associates partnered with Steven Winter Associates, Inc. (SWA) through HUD's PATH program (Partnership for Advanced Technology in Housing). SWA measured the effectiveness of many of the home systems. SWA monitored the homes for one year (completed in spring 2005), and performed a complete assessment of the HVAC systems.

**Operations and Maintenance:** A manual was developed and distributed to homeowners that describes each system in the homes, operating instructions, warranty information and energy efficiency details.

**Resident Education:** In addition to receiving operations manuals, upon purchasing a house each owner met with Claretian Associates and the general contractor for a detailed walk-through and training on the house and its systems.



**Project Financing:** The City of Chicago donated the land on which the houses were built, and the City Department of Housing provided subsidies of \$10,000 to \$40,000 to buyers based on family size and income. Claretian Associates provided counseling to homebuyers before and after a sale, and helped them secure other subsidies from the Illinois Housing Development Authority, which provided either nine percent of the home cost or \$40,000, based on family size and income. Claretian Associates also secured \$5,000 in down payment assistance for each buyer from the Federal Home Loan Bank's Affordable Housing Program.



### Cost of Greening:

The cost of the PV systems totaled approximately \$102,300 including installation costs. Claretian Associates found that some of the green materials and systems had higher initial costs, but that these prices have decreased over time as education about the long-term payback from reduced operating costs has increased demand for these products.

### Sources of Funding/Rebates:

The PV panels were paid for by the Illinois Department of Commerce and Community Affairs, Chicago Department of Environment, ComEd Production and Incentive Program, and Illinois Clean Energy Community Foundation.

### Life-Cycle Cost Analysis:

Claretian Associates did not perform a Life-Cycle Assessment. Instead, they based product choices on decisions that were made for two previous affordable housing projects, with an eye to minimizing costs and maintenance requirements and ensuring a healthy indoor environment. For decisions relating to energy consumption and cost-effectiveness, they used LCA data from a previous project, and relied on input from the project's energy consultant.

### Occupant Satisfaction:

"[We] are proud of our purchase and have been able to showcase the house to our relatives....We are able to afford this purchase because it is energy efficient...This saving... provides us a better quality of life."

-New Homes for South Chicago Owner

## Green Highlights

- Exceeds Energy Star for New Homes standards
- 1.2 kW PV solar systems
- Efficient HVAC systems, including an Energy Recovery Ventilator, Air-Cycler, and a 92.5% efficient sealed combustion/direct vent furnace
- Energy Star appliances
- Fluorescent light fixtures
- Structurally Insulated Panels with expanded polystyrene insulation
- Insulated wall panels with an R-value of 24.7 and roof panels with R-value of 42.5
- Insulated glass (dual panes), low-emissivity, vinyl frame windows (U-value of .30)
- Pressure-assisted, low-flow toilets
- Recycled-content: ceramic tile, carpet, porch decking, furniture, insulation, and finger-jointed baseboard and trim
- Underlayment made from reused gypsum, a byproduct of an air pollution control system
- Cork and marmoleum tiles made from renewable resources and/or natural products
- Low VOC primer and paints
- Non-toxic carpet padding
- Materials for window sills, shelves, lumber treatment and carpet minimize pollutants and potentially harmful chemicals



## CASE STUDY: Awards of Excellence for Affordable Housing Built Responsibly

# Looking Ahead

### Challenges:

Claretian Associates faced a number of challenges throughout the course of the project. During the predevelopment stage, they had to obtain additional approvals from the Standards & Tests Committee of the City's Department of Construction and Permits to use SIPS for the frames of the homes. In addition, six months after the construction started, the local construction lender was bought by a national bank and all related financing had to be renegotiated. At the same time, a local carpenters' union took issue with the development so that the City would make the program meet the prevailing wage. Claretian Associates remained committed to its decisions to use the South Chicago Workforce—a local contractor that hired over 60% of its construction workers from the community. Furthermore, during construction, many of the homes were broken into, vandalized, and had materials stolen. The safety issue was a challenge not only during construction, but also in marketing the homes.

### Partnerships:

Claretian Associates developed and maintains vital partnerships in its development efforts. They partnered with the federal PATH (Partnership for Advancing Technology in Housing) program, the South Chicago Workforce—a nonprofit builder, and the City of Chicago Department of Housing. These relationships continue to strengthen over time as the partners collaborate on New Homes for South Chicago IV, the next phase of the development project.

### Policy/Practice Implications:

New Homes for South Chicago is strongly implicated in the betterment of the overall community, in addition to providing new, comfortable, affordable housing. The project team is committed to improve the community through leadership strategies, community participation in local planning efforts, and employment of residents in the South Chicago Workforce. This project has served as a model for other nonprofit community development corporations. Claretian Associates shares its green product and system information to enhance both the affordability and greening of future projects.

*"Claretian Associates has demonstrated tremendous innovation and persistence in a very challenging neighborhood. The attention to detail in carrying out its commitment to energy efficiency, environmentally friendly materials, and indoor air quality is laudable. The resulting homes are healthy for the residents and have low operating costs, enhancing quality of life and long-term affordability."*

-Member, Awards Advisory Committee

## Contacts



Claretian Associates

### Claretian Associates, Inc.

773-734-9181

[www.claretianassociates.org](http://www.claretianassociates.org)

Angela Hurlock, Executive Director  
[angelah@claretianassociates.org](mailto:angelah@claretianassociates.org)

### City of Chicago Department of Housing

312-724-0631

[www.cityofchicago.org/Housing](http://www.cityofchicago.org/Housing)

Clare Leary, DOH Project Manager  
[cleary@cityofchicago.org](mailto:cleary@cityofchicago.org)

### Sam Marts Architects and Planners

773-862-0123

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

Sam Marts, Principal  
[info@timbersmart.com](mailto:info@timbersmart.com)

### Steven Winter Associates, Inc.

203-857-0200

<http://swinter.com>

Robb Aldrich, Associate  
[raldrich@swinter.com](mailto:raldrich@swinter.com)

### Domus Plus

708-386-0345

Paul Knight, AIA, Energy Consultant  
[domusplus@aol.com](mailto:domusplus@aol.com)

### South Chicago Workforce

(773) 978-1969

Dave Sullivan, Principal  
[d.sullivan@mindspring.com](mailto:d.sullivan@mindspring.com)