

# AFFORDABLE GREEN

*East Bay Habitat for Humanity's first green development proves that green building makes sense for low-cost housing*



East Bay Habitat for Humanity (EBH), an independent affiliate of Habitat for Humanity International, has a thirteen-year history of creating affordable homeownership opportunities for families with limited incomes. The homes are built using mostly volunteer labor, including "sweat equity" contributed by the homebuyers.

In 2003, EBH built four single-family homes in Oakland's Fruitvale District. The two-story town homes have a living room, kitchen and laundry downstairs, three bedrooms with one and a half baths or four bedrooms with two baths upstairs, and small private yards. Two families will be opening their doors to Green Home Tour participants.

This was East Bay Habitat for Humanity's first green development. With support from the City of Oakland, EBH received grants from Green Building in Alameda County for architectural services and materials. In addition, Green Building in Alameda County provided the architects and EBH's staff with access to professional green building consultants who provided practical, technical assistance on green construction practices. Thanks to the success of this project, EBH is incorporating green building techniques and materials in subsequent developments, including a 22-home project in Livermore that is also on the 2005 Green Home Tour.

*"Design sessions with construction and energy experts provided by Green Building in Alameda County allowed us to evaluate green building systems and materials we had not time or experience to look at before."*

—East Bay Habitat for Humanity, Post-Construction Report, December 2003

## ADVANCED FRAMING

**Modular framing.** The project was built with advanced framing techniques, including 2x6 studs at 24" on center (OC) rather than the standard 16" OC. Vertical "stacking" — aligning the roof trusses with the wall and floor framing — was also used. These techniques substantially reduced the quantity of lumber needed without compromising structural integrity. This significant savings offset the purchase of FSC-certified lumber, which cost approximately 10% more than non-certified lumber.

## GREEN at a GLANCE

### ENERGY & SYSTEMS

- 2.25-kW photovoltaic system on each home (Sharp panels; Sky Power Systems)
- Solar panels for household hot water
- Cellulose insulation in walls and ceiling of two homes (Cocoon)
- Raised heel roof trusses
- Vinyl windows with low-e<sup>2</sup> coating (Summit)
- Energy Star® refrigerator (Whirlpool)
- Fluorescent fixtures/light bulbs

### MATERIALS & PRODUCTS

- 30% flyash in concrete (RMC Pacific)
- Advanced framing: 24" on center 2x6 walls
- Wood I-joists for floors and ceilings (Trus Joist TJI, Timberstrand, Rimboard)
- OSB subfloors and wall sheathing
- FSC-certified framing lumber (Hayward Lumber)
- Treated wood for decking and sill plates does not contain CCA (Wolman Natural Select)
- Fiber-cement exterior siding (Hardiplank and Hardiboard)
- Natural linoleum flooring (Forbo Marmoleum)

### OTHER GREEN FEATURES

- Winner of US EPA's 2004 Phoenix Award for cleanup and redevelopment of contaminated brownfields property
- Located near public transit
- 80% recycling of construction waste
- Unused gypsum board recycled by manufacturer (Pathco)
- Recycled content exterior paint (E-Coat)
- Low-VOC interior paint (Kelly Moore Enviro-Cote)
- Laminar-flow faucets reduce water use
- Low-flow showerheads (Venturi Air-Induction)
- Drought-tolerant landscaping

## ENERGY EFFICIENCY

**Raised heel trusses.** The homes have raised heel roof trusses, which accommodate increased insulation at the perimeter of the building (conventional trusses compress insulation at the intersection of the wall and roof framing, reducing the effectiveness of the insulation).

**Passive solar design.** The homes were designed so that most of the windows in living spaces face south, allowing for passive solar heating in the winter. Shading of these windows provides cooling in the summer. These features make the homes comfortable while reducing utility bills.

**Ventilating skylight.** A ventilating skylight allows the homeowner to cool the house during hot weather, reducing the need for air conditioning.

## SALVAGED WOOD

**Urban salvage.** The living room floors are eucalyptus from felled city trees. Decking was milled from cypress trees removed from San Francisco's Harding Park. The 6x6 and 6x8 posts and beams for all four porches were milled from roof trusses taken out of a dismantled Oakland Army base warehouse.

**BUILT:** 2003

**NO. OF UNITS:** 4

**SIZE:**

1,170 to 1,360 square feet

**DEVELOPER:**

EAST BAY HABITAT FOR HUMANITY

**ARCHITECT:**

GRAY ARCHITECTURE and GHA/  
GEOFFREY HOLTON AND ASSOCIATES

**GENERAL CONTRACTOR:**

EAST BAY HABITAT FOR HUMANITY

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