

SHINSEI GARDENS

Affordable Housing Developer Takes Green to the Next Level



Nonprofit housing developer Resources for Community Development

Resources for Community Development is no newcomer to building green homes. Even so, senior project manager Carolyn Bookhart is particularly proud of Shinsei Gardens, a new complex of four apartment buildings clustered around a spacious courtyard. Built on the former U.S. Navy Fleet Industrial Supply Center in Alameda, California, the 39 apartments serve low income households, with priority given to veterans.

“We took a really holistic perspective,” said Bookhart of RCD’s approach to developing Shinsei Gardens. “We looked at the whole thing and made good choices” in every facet of the project from waste reduction, energy efficiency and indoor air quality through water use and landscaping. She credits the extensive green experience of RCD’s design and construction teams as well as evolution in the green building industry with making it possible to meet increasingly ambitious green building and landscaping goals. “We’re all getting more sophisticated about green building,” she said. “We’re understanding it better and the whole industry is more integrated so it’s getting easier to be green.”

COST

\$17.1 million

LOCATION

401 Willie Stargell Avenue
Alameda, California

PARCEL SIZE

2.5 acres

BUILDING SIZE

40,105 sq. ft.

BUILDING TYPE

Apartments for low income households

COMPLETION DATE

October 2009

OWNER/DEVELOPER

Resources for Community
Development
Berkeley, California

ARCHITECT

Mikiten Architecture
Berkeley, California

GREEN BUILDING CONSULTANTS

GreenPoint Rater & LEED-Homes
Rep: KEMA Services, Oakland, CA
LEED-Homes Rater: E3 NorCal
Sacramento, California

LANDSCAPE ARCHITECT

Charles McCulloch
Berkeley, California

BAY-FRIENDLY LANDSCAPE RATER

Design, Community & Environment
Berkeley, California

GENERAL CONTRACTOR

Branagh, Inc.
Oakland, California

LANDSCAPE CONSTRUCTION

CONTRACTOR
Shooter & Butts, Inc.
Pleasanton, California

CONTACT FOR MORE INFO

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Mikiten Architecture designed the project to exceed California's energy code requirements by nearly 30 percent, and general contractor Branagh, Inc. succeeded in keeping 88 percent of construction waste out of the landfill. The landscaping features attractive, recycled-content site furnishings and a beautiful, diverse palette of plants that won't require excessive irrigation or create a lot of green waste.

RCD originally set their sights on meeting LEED Silver standards, but Shinsei Gardens actually achieved LEED Platinum certification. "This is such a great project, it wasn't that hard to get it to Platinum," Bookhart said. What's more, Shinsei Gardens has earned the status of a GreenPoint Rated building and a Bay-Friendly Rated landscape. Alameda County's StopWaste.Org provided a \$40,000 grant to fund a portion of the green building design and construction costs and a \$15,000 grant to support Bay-Friendly Landscape practices.



■ WHAT MAKES IT GREEN ■

CONSTRUCTION WASTE REDUCTION

Reduced Waste. Building Shinsei Gardens required about 657,000 board feet of lumber; the overall wood waste was only 8 percent, and "that was all recycled," said Alan Heikkinen of Branagh, Inc., the project's general contractor. A crucial strategy for preventing wasted materials and wasted money is careful ordering and scheduling of construction materials. Most of the lumber used to build Shinsei Gardens was ordered pre-cut to its final size to reduce the waste that occurs when wood is cut on site. "We did a lot of due diligence on pre-cut lumber," said Heikkinen.

GREEN at a GLANCE

PLANNING & DESIGN

- High density, urban infill development
- Walkable, bikable location with good access to public transit; bicycle storage provided
- Each unit has direct access to 40,000 sq. ft. courtyard
- Designed for safety: main entrances are prominent and visible from street; residence entries have views of callers
- Designed for accessibility
- Affordable rents with multi-bedroom apartments
- Amenities include multipurpose community room and after-school computer lab

SITE

- Bay-Friendly Landscape practices followed (see below)
- 88.4% diversion of construction and demolition debris
- Construction IAQ management plan written and followed
- 98% recycled aggregate used as base rock under hardscape

STRUCTURE

- 50% recycled flyash or slag in concrete
- 80% or more of lumber was delivered pre-cut from suppliers
- Infiltration testing conducted to verify that building envelope is well sealed

SYSTEMS

- Low-flow showerheads (< 2.0 gallons per minute), kitchen faucets (< 2.0 gpm) and bathroom faucets (< 1.5 gpm)
- High efficiency dual-flush toilets
- Direct-vent or power-vent water heaters in each unit provide domestic hot water and hydronic radiant heating
- Air conditioning in common areas has non-HCFC refrigerant (R-410A); no air conditioning in units
- Ceiling fans in living rooms enhance comfort
- Kitchen range hoods vented to outside
- ENERGY STAR bathroom fans vented to outdoors with triple control system (continuous operation at low speed, humidistat and user-operated switch)

GREEN at a GLANCE

- 54 kW photovoltaic system sized to meet 10% of development's total electricity demand
- Exceeds Title 24 by 29% (33% in residential spaces and 18% in nonresidential spaces)

FINISHES & FURNISHINGS

- Low-VOC interior paints, wood coatings and construction adhesives used
- Environmentally preferable flooring includes linoleum, recycled-content carpet, exposed concrete and cork
- Reduced formaldehyde interior finish materials include interior trim, shelving and subfloor; edges of cabinet shells sealed to reduce emissions; fiberglass insulation contains no added formaldehyde
- ENERGY STAR-qualified refrigerators in all units; Energy Star dishwashers in larger apartments; Energy Star clothes washers in central laundry rooms
- Dishwashers in community spaces use 6.5 gallons or less per cycle
- All kitchen pantries have built-in recycling centers to encourage recycling
- Low-mercury linear and compact fluorescent lamps installed

OPERATIONS & MAINTENANCE

- Educational signage provided about project's green features
- Educational manuals on green operation and maintenance provided for tenants and maintenance staff



Recycled Resources. Eighty-eight percent of Shinsei Gardens' construction waste was diverted from the waste stream, said Heikkinen. Having well-organized sorting protocols on the jobsite and a well-established regional collection infrastructure makes a big difference, but "the last 10 percent came from being creative," he said. The jobsite had separate bins for sorting different types of construction scrap and packaging material, such as drywall, wood, cardboard and plastic. There was only one small container designated for nonrecyclable waste—a one cubic yard bin "that was rarely full at the end of the week," said Heikkinen.

ENERGY & CLIMATE CHANGE

Hydronic Radiant Heating. Each apartment has a high efficiency water heater that provides hot water to the kitchen and bathrooms, and also serves the hydronic radiant wall panel heaters. Given Alameda's mild coastal climate, air conditioning is not needed in the apartments; energy-efficient ceiling fans help keep the homes comfortable year round.

Efficient Appliances. To reduce energy and water use and help keep the apartments affordable, RCD specified ENERGY STAR-qualified refrigerators for each apartment, ENERGY STAR dishwashers for the three- and four-bedroom apartments, and ENERGY STAR clothes washers for the central laundry rooms.

Renewable Energy Generation. A 54-kilowatt photovoltaic system is expected to offset as much as 10 percent of the buildings' total electricity use.

QUALITY OF LIFE AND COMMUNITY BENEFITS

Affordability. The rents are set to ensure the apartments remain affordable to households with low incomes, and the project's energy and water efficiency features will help keep the residents' utility bills manageable over the long-term. The development's location also contributes to its affordability. It is well served by public transit, and schools, stores, businesses and parks are within short walking and bicycling distance, making it easier for residents to manage their transportation costs.

Accessibility. The buildings' elevator and accessible doors and hallways provide access for physically disabled residents and visitors. In the apartments, universal design features include lower countertops, blocking for grab bars in bathrooms, and roll-in showers in some units. Twelve units were designed specifically for households with a disabled member; the remaining units can be readily adapted for accessibility. Operation Dignity, a project sponsor and partner, provides a variety of social services onsite to the residents.

■ Bay-Friendly Landscaping Practices ■

Shinsei Gardens was designed to provide all tenants with a healthful and enjoyable environment indoors and outdoors. The residences' entry doors open onto a beautiful landscaped courtyard that occupies nearly one acre, with amenities including seating areas, a barbecuing and picnicking area, separate play areas for tots and older children, and plenty of open space. Each unit also has a patio or deck, ranging from 75 to 115 square feet with outdoor covered storage.



NURTURE THE SOIL

Bay-Friendly Landscaping requires that the soil's organic matter content be increased to at least 3.5 percent; this is usually achieved by adding compost. At Shinsei Gardens, the landscape team made the extra effort to produce organic matter on site by growing cover crops and tilling these "green manures" back into the soil. Shinsei Gardens was awarded an innovation credit on the Bay-Friendly scorecard for this unique approach to soil building in an urban development.

Before construction formally began, the soil was laboratory-tested and the landscape team developed a detailed program to improve its quality. They amended the soil with worm compost, oyster shells, feather meal and soft rock phosphate, and sowed a mixed cover crop that included peas, beans, vetch and other legumes, various clovers and buckwheat.

BAY-FRIENDLY at a GLANCE

SITE PLANNING

- Located on urban infill site that is not environmentally sensitive
- Easily accessible area provided for storage of recyclable materials
- Boulders and large native shrubs and trees provide wildlife shelter

EARTHWORK AND SOIL HEALTH

- Laboratory soil analysis provided recommendations for organic soil amendments and fertilizers
- Topsoil removed, temporarily stored and re-spread
- Soils aerated to depth of 8 inches
- Fertilizers prohibited by Organic Materials Research Institute were not used
- All soil protected with 3-inch mulch layer
- STA-certified compost incorporated to bring soil's organic matter to 5%
- Synthetic pre-emergent herbicides were not used

MATERIALS

- Recycled-content materials include plastic decking, plastic play surfacing, metal play structures, and plastic headers
- 98% recycled aggregate used under all pavement surfaces
- Concrete contains 50% recycled flyash or slag
- 88% diversion of construction and demolition debris
- All exterior light fixtures are Dark-Sky certified and do not cast direct illumination onto adjacent properties
- Organic Pest Management practiced during construction maintenance period

PLANTING

- Plant species installed will not require shearing and will grow to mature size within space allotted
- No invasive species planted
- More than 80% of all non-turf plants are California native, Mediterranean or other climate adapted plants that require little or no summer water
- No turf planted in areas less than 8 feet wide or in medians
- Less than 10% of total irrigated area is lawn; half of lawn area is planted with a no-mow Festuca species to reduce green waste and labor associated with mowing

BAY-FRIENDLY at a GLANCE

- Deciduous trees shade west-facing walls
- Large stature tree species planted to keep site cool, improve stormwater retention and clean the air
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IRRIGATION

- High efficiency irrigation system includes weather-based irrigation controllers
- Sprinkler and spray heads not used in areas less than 8 feet wide
- Irrigation system operates at 70% of reference evapotranspiration (ET)
- Dedicated meter installed for irrigation water

MAINTENANCE

- Mowed turf is grasscycled; weed-free vegetative debris incorporated into mulch layer
- Green waste kept separate from other refuse and collected by compost/mulch producer
- Soil not worked when wet
- Turf topdressed with finely screened, quality compost
- Compost, compost tea or other non-synthetic fertilizers used for plant and soil amendments
- No fertilizers or pesticides used that are prohibited by Organic Materials Research Institute
- Organic mulch regularly reapplied to a minimum depth of 3 inches
- Landscape water meter regularly read and water use reported
- Integrated Pest Management (IPM) practices are followed
- All vehicle or equipment oil leaks immediately repaired away from landscape site

INNOVATION

- Landscape maintenance contract includes detailed Bay-Friendly maintenance specification
- Site planted with cover crops to improve soil health

When construction began, topsoil from construction areas was removed and stored nearby, while cover cropping continued on other areas. After the stockpiled soil was re-spread on the site, it was laboratory-tested and aerated to 8 inches. To bring the soil's organic matter content to 5 percent, it was amended with non-synthetic fertilizers and compost certified by the U.S. Compost Council's STA program. Ongoing Bay-Friendly maintenance practices will continue to nurture the soil, including maintaining at least 3 inches of recycled mulch in the planted areas and incorporating fallen leaves and other seed-free vegetative debris into the mulched areas.

LESS TO THE LANDFILL

A remarkable 88 percent of the project's construction and demolition debris was kept out of landfills (see What Makes It Green, above), but the waste reduction efforts didn't stop there. Shinsei Gardens' outdoor areas include many recycled-content materials, including recycled plastic headers, decking and play surfacing, steel and aluminum play structures with 27 percent post-consumer recycled content, 98 percent recycled aggregate under all pavement surfaces, and 50 percent recycled flyash or slag in the concrete.

To reduce green waste in the future, the landscaping team paid attention to choosing appropriate plants and giving them adequate space so they have room to grow to mature size without being sheared. Ongoing maintenance will include grasscycling (grass clippings left on the lawn after mowing) and incorporating plant debris back into the mulch layer of landscaped areas. Any plant debris destined to leave the site will be separated from other refuse for collection by a facility that produces compost or mulch.