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NEW CONSTRUCTION

Casa Verdanta

CONTAINER HOUSE

Insulated shipping containers serve as building blocks for a modern green home

When the Hayward Fault runs across the bottom third of a small infill site, what's the best method for building a home? Jan Grygier and Patti Boucher and their design and construction team hit on the solution of reusing insulated shipping containers. "We played to the container's strength," Grygier said of what may be the first permitted residence in the United States built from reefers, or refrigerated shipping containers. "We choose containers for utility, not just for the sake of using them," he said.

Unlike regular shipping containers, insulated containers are hard to recycle, but they provide a strong, weatherproof, insulated shell for housing. Two 40-foot containers are stacked on one side of a two-story atrium living room. The third container is cut in half and stacked on the other side of the atrium. A stair and a bridge through the atrium connect the spaces.

Pioneering new building methods isn't for the faint of heart, Grygier admits. Reefers present particular challenges because of their composite nature: aluminum on the outside, foam insulation in the middle, and stainless steel inside. The construction team was kept on its toes figuring out effective ways of cutting openings, putting in windows and installing flashing.

The container house, which the couple developed as a rental property, sits on a site once occupied by a cottage that burned down in the early 1990s. On tour day, visitors can also take a peek at a yurt in front of the property, and at Grygier and Boucher's own green home with Rastra walls, cork floors and Vetrazzo countertops, which they built next door ten years ago.

"Building with shipping containers was a big accomplishment, and I'm a lifelong sailor, so having the marine influence is fun."

—Jan Grygier, homeowner

HOME STATISTICS

YEAR BUILT: 2007

SIZE: 1,350 SF

ARCHITECT: Leger Wanaselja Architecture

BUILDER: Wilson-Bailey Construction

GREEN at a GLANCE

ENERGY EFFICIENCY & RENEWABLE ENERGY

- Recycled-content blown-in cellulose roof insulation (Hamilton Mfg, McHale's installer)
- Spray foam insulation under containers (Icynene)
- Insulated hot water pipes
- 86% efficient gas fireplace (Regency u39)
- Double-pane, low-e, thermally broken aluminum windows (All Weather)
- Tankless water heater (Rinnai)
- Energy Star® ceiling fan (Casablanca)
- Energy Star® <6.5 gal/cycle dishwasher (Ikea)
- Energy Star® 20.7 cu ft refrigerator (LG)
- Black Oak shade tree planted on south side
- Tubular skylight (Solatube)
- Solar-powered LED walkway lights (Intermatic)

RESOURCE CONSERVATION

- 70% or more recycling of construction waste
- Flyash in concrete: slab 50%, walkways 30% (Right Away Redy Mix)
- Shipping container used for building envelope (Port of Oakland)
- Earthquake isolation slab installed
- Advanced framing: load-sized headers
- Engineered lumber for atrium framing (TimberStrand LSL and microlams)
- 24 inch overhangs and gutters
- Salvaged tile (from 1930s tile company that once operated next door)
- Reused container doors as retaining walls
- Reused concrete slab for parking area
- Bamboo flooring (Greenwood)
- Small home size: compact, efficient floor plan

WATER CONSERVATION

- WaterSense dual-flush toilets (Caroma)
- Water heater <15 ft from all fixtures
- Plumbed for future graywater system
- Planned rainwater collection system
- Native, drought-tolerant, turf-free landscape
- Water filter optimized for Chloramine

INDOOR AIR QUALITY

- Energy Star® bathroom fan with occupancy sensor vented to the outside (Panasonic)
- Kitchen range hood vented to the outside (Air King)
- Low-formaldehyde cabinets (Ikea Kalsebo)
- No-VOC interior paint (Pittsburgh Pure Performance)
- Low-VOC water-based wood finish (TimberPro Crystal Urethane)
- Low-VOC caulk and adhesives (PL)
- Wool carpeting (Dick's Carpet One)