

Resourceful Building Project

EMERYVILLE, CALIFORNIA



ROLE

Full Design Services
Research

SIZE

4,650 sf

COST

\$520,000

COMPLETED

1998

REFERENCE

Ignacio Dayrit
510.596.4356

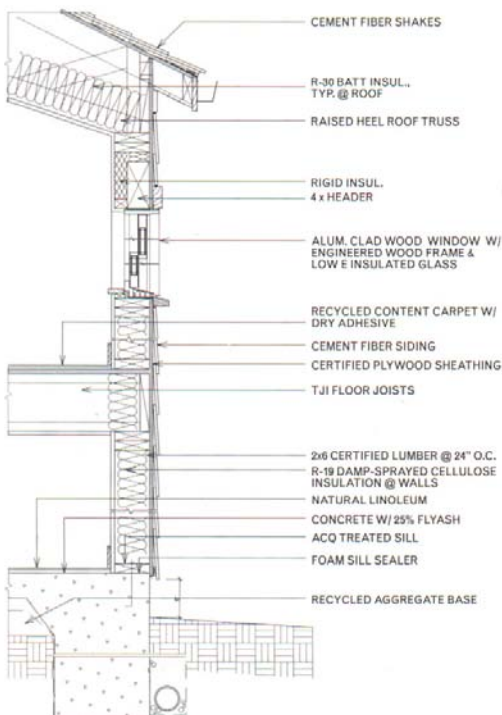
AWARDS

2000

Earth Day Top Ten, National
AIA Committee on the
Environment

1999

Progressive Architecture Award
for Architectural Research



Typical section

DESCRIPTION

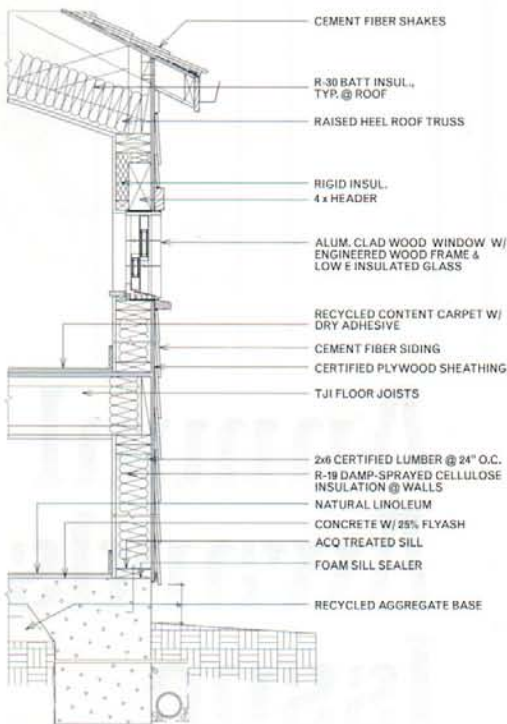
The Emeryville Resourceful Building Project combines environmental goals with the economic and social goals of providing decent, affordable housing. This three unit project is located on a small lot in a neighborhood of single family houses and small apartment buildings. The budget and design goals of this project are modest; the buildings endeavor to fit into and strengthen the existing neighborhood.

The project incorporates many environmentally considered strategies and materials, including: resource efficient construction methods; use of recycled, durable building materials; energy efficient design; and job-site recycling. Environmental life-cycle analysis was utilized to evaluate and compare the environmental performance of alternate building materials. This project provides affordable, environmentally sound housing for first time home buyers.

Siegel & Strain Architects

Emeryville Resourceful Building Project

award



Typical section



Perspective view

Researchers from Siegel & Strain Architects in Emeryville, California, proved that affordable housing and environmental sustainability are not mutually exclusive goals—even in homes for first-time buyers. Their three-year project, budgeted at \$547,000, focused on increasing energy efficiency, lowering operating costs, reducing resource consumption, creating healthy indoor environments in new homes, and encouraging builders to meet these criteria. The program resulted in a newly constructed three-unit house in Emeryville that proved the feasibility of such efforts.

Addressing disciplines that range from design to life-cycle assessment to energy analysis, and conducting research in the office as well as at the construction site, the team discovered that the cumulative effect of small environmental improvements combined with selected cost-saving measures can generate significant results. Findings include: Optimizing structural design reduced wood consumption by 19 percent; optimizing wall assemblies reduced fuels used in material production by 37 percent; cement-fiber siding lasts 30 years longer than standard wood-compost siding; and energy efficiency measures, such as shading windows to keep interiors cool, save homeowners \$200 per year in operating costs and reduce carbon dioxide emissions by 22 percent. The research relied on measurable and quantifiable data on environmental and cost impacts, and, the researchers argue, it proves that careful selection and installation of mainstream materials can result in cost-effective "green" buildings on all economic levels.

PRINCIPAL RESEARCHERS/AUTHORS:

Larry Strain, Henry Siegel (principals-in-charge), Nancy Malone (research architect), Jacqueline Lange (project architect); Davis Energy Group (energy analysis and mechanical engineering); Boustead Consulting and Associates (life-cycle assessment); Baker Pre-Construction (cost estimating); Juri Komendant (structural design)

CLIENT/FUNDING SOURCE:

Emeryville Redevelopment Agency, Alameda County Waste Management Authority

White: This project addresses affordable housing reaching for sustainability. It is courageously broad in integrating sustainability issues that normally are not addressed in affordable housing, which usually comes down to issues of budget and space.

Borkhile: I liked that they didn't accept the usual approach to affordable housing, which is, 'This is a tough problem, we have a limited budget, so drop all the environmental issues. We can't afford that stuff.'

They enlarged the definition of quality in affordable housing. They establish a methodology for evaluating the design of environmentally sound and affordable housing.

Erihs: The project addresses a difficult problem in a systematic and innovative way: Examining seemingly disparate factors produces a comprehensive and integrated set of findings that can have a positive impact on both people and the environment.