

Approaches to Sustainability for Valley Avenue Mixed-use Project

The following is a summary of the design decisions made that directly contribute to the energy efficiency of the project, as well as contribute to minimizing the building's overall life cycle costs. Products were chosen based on their inherent sustainable characteristics and their costs

Passive Solar Design:

Solar Gain- South facing windows and patio sliding doors are coupled with roof overhangs.

Natural Cooling- In the commercial spaces, operable *upper* windows are employed to provide natural ventilation, while avoiding direct breeze on desk areas. Ceiling fans installed in the two story commercial reception space to push down accumulated warm air in winter, and facilitate air circulation thru upper east facing windows in summer. Natural cross ventilation in the residences is provided for through the use of operable windows located at varying heights and orientations, sliding patio doors and operable skylights. There is no mechanical air conditioning provided in the residential units.

Maximize Natural Day-lighting- A generous amount and proper orientation of exterior glazing illuminate both the commercial and the residential spaces. The residences utilize interior glazing to "borrow light" and maximize the accumulated day-lighting achieved through the exterior windows and the skylights. Skylights are also located in interior baths.

Choice of Building Materials:

SIPs- (Structurally Integrated Panel) In this project, SIPs were used only for construction of the roof. This product minimizes the amount of supplemental structure, in addition to reducing the amount of other material components used in traditional wood frame construction.

"Green" Expo Stucco- Locally produced, uses post consumer recycled content. No toxic or environmentally harmful byproduct in manufacturing process.

RCP Concrete Block- Locally produced, all aggregates are harvested within a 200 mile radius of the manufacturing plant. In addition, much of the waste in the manufacturing process is captured and recycled back into the block.

Permeable Concrete Pavers- To achieve the proper filtering of water on site (before it reaches the sewer system), permeable pavers are employed in combination with channeling the runoff through planters. This scheme was devised as an alternate to utilizing a storage/ filtration system that would necessitate a pump. This product was preferred over permeable concrete due to its long term durability.

Aluminum Windows- Although this product does not contain any recycled content, at least it does not contain any petroleum products.

Efforts to Extend the Life of Structure and Building Components

Details pertaining to waterproofing, termite control.

Use of durable materials was emphasized.

The client has generated maintenance schedule relating the the upkeep of materials as well as mechanical systems.

Existing Building Reuse- The construction shed is modified to serve as additional permanent storage for the project.

Products

Interior Paint- Low VOC's

Plumbing Fixtures: Double- flush toilets, low-flow fixtures, tankless water heaters all contribute to lower water and energy use.

Residential Carpet- LEED certified

Residential Floor Tile- At the time of purchase, the tile specified for the residences was the only floor tile designated as LEED *and* manufactured in the US

All products from refrigerator to mechanical systems are classified as energy efficient.

Systems

Use of Vegetation- Limited, but strategic. To the largest extent possible, all vegetation is functional as well as aesthetic: producing shade, acting as filter for runoff storm water, creating a fence or visual barrier (a preferable alternative to a built component as it is continually absorbing Co2 gases and producing oxygen), and providing support for parking lighting instead of metal pole. In addition, all low-water vegetation will be planted.

Electricity- Solar Panels will be utilized to supply power to the residences, house lights and the outlets located in the parking lot used to charge electrical cars. The owners have also contracted with SDG&E to require a renewable energy source to supply the remainder of the energy consumed in this building.

Lighting- Only "Dark Sky" lighting fixtures are used . Trees will provide the support for clusters of light fixtures in the rear parking lot. This lighting scheme was devised in response to the residential component present in the neighborhood and the desire for more effective control of the placement and amount of security lighting, rather than providing a more intense flood of light in the parking area as typically accomplished through pole or wall mounted fixtures.

Compost Pile- Composting of appropriate waste will be available for use by the residents as well as the commercial tenants.

Note: there were admittedly several opportunities for creating a more energy efficient building missed (or intentionally not implemented due to cost or time considerations) in the design and construction of this project. Please refer to the notes of Wardell Builders relating to this issue for more information.