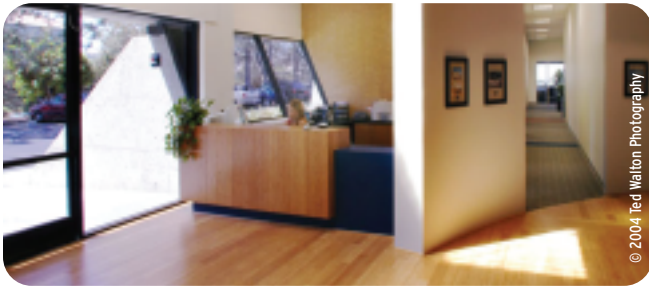


Sustainable Communities Program

TKG Consulting Engineers Inc. Office Building



*“We love this building.
We are very proud of it.”*

– Paul Gibson, TKG Principal

When TKG chose a rectangular 19,000 square foot, one-story pre-cast, concrete building to be its local office headquarters, they knew that they wanted to make it a green building. Occupied in April 2004, it has been completely remodeled and received a *Leadership in Energy and Environmental Design* (LEED™) Gold level certification from the US Green Building Council (USGBC) review, the first in San Diego, in October 2004.

Energy efficiency-related strategies are the hallmark of this project. By achieving an energy-efficient design 30% better than required by Title 24, the project qualified for the SDG&E Sustainable Communities Energy Efficiency Program (SCP). The SCP provides

cash incentives for the energy saved and offsets fees for LEED™ registration and certification. SDG&E also sited a 40 kW photovoltaic array on the building to provide renewable power for its distribution grid. In addition, a 5 kW fuel cell was installed as a technology demonstration. The waste heat from the fuel cell is used to provide hot water for the building.

TKG’s new office building is a model for other San Diego County projects. It demonstrates that energy efficiency, occupant comfort, and environmentally friendly design is cost effective, and can be achieved even with a tight construction schedule. Additionally, it validates the importance of energy-efficient design from inception when including generation energy systems. TKG looks forward to enjoying the benefits of their green building while SDG&E’s customers receive clean, locally generated power for many years to come.

Project Overview

Size: 19,000 square feet

Location: Sorrento Valley

Completion Date: April 2004

Building Type:
Commercial Office

Energy Efficiency:
30.6% below Title 24

LEED™ Credits:

- Sustainable Sites - 4 credits
- Water Efficiency - 5 credits
- Energy & Atmosphere - 15 credits
- Materials & Resources - 5 credits
- Indoor Environmental Quality - 6 credits
- Innovation & Design - 5 credits
- Total received - 40 points

Sustainable Features

SUSTAINABLE SITES: Bike racks and showers are provided. A shuttle bus ties the building to railway transit. A Cool Roof was added to reduce heat islands. Exterior lights were designed to reduce light trespass to neighbors.

WATER EFFICIENCY: All of the site’s irrigation water is supplied by reclaimed water from the City of

San Diego. Waterless urinals reduce indoor water use, and there is also a crosstie to use reclaimed water for toilets pending City approval.

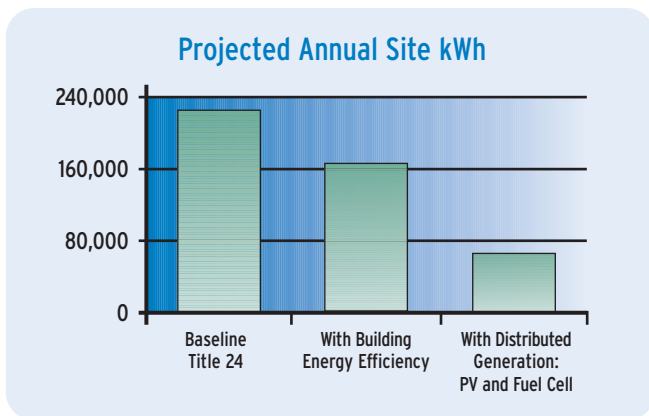
ENERGY & ATMOSPHERE: The envelope of the building was improved by adding insulation to the interior of the existing concrete walls, and a film was added to the existing single glazed windows. A variety of high-

efficiency lighting strategies were incorporated. The perimeter private offices include occupancy sensors. Air conditioning is provided by small, 16 SEER efficiency gaspak systems with economizers.

An interactive touch screen display of the Energy Management System is in the front lobby. Wind power provides the electricity needed from the grid through a Green Tags contract. SDG&E sited a photovoltaic array on the building. A third-party commissioning agent augmented the in-house team.

MATERIAL & RESOURCES: Refurbished office furniture was chosen for desks and built-ins with 40% of the materials used being manufactured locally. Recycling bins are located at every desk and in the lounge.

INDOOR ENVIRONMENTAL QUALITY: Permanent CO₂ monitoring maintains fresh indoor air, while psychometric charts ensure that comfort has not



been sacrificed to efficiency. Low VOC paints, carpets, adhesives and sealants were chosen, and the insulation is free of formaldehydes.

EMPLOYEE COMFORT: A workout room and outside patio area is provided. Most offices have views to the outside.

Lessons Learned

- **Audit your initial targeted points at project milestones.** The team kicked off the design process with a one-day sustainability charette. In the charette, options were discussed and the best strategies were chosen. Strategies were reviewed throughout the design and construction phases.
- **Keep documentation concise.** Start early with the



entire Team. Assign responsibilities. Track responsibilities through project milestones. Stay updated on project specific USGBC rulings. Make LEED™ documentation part of construction meetings.

- **Partner with industry contacts and resources.** The general contractor's experience in green building provided the guidance needed. SDG&E provided valuable energy-efficiency recommendations, green building information, and a renewable energy opportunity.
- **Carefully review Sustainable Sites credits.** Although it was an existing building, there was ample opportunity for achieving credits in this category.

Team

Building Owner: TKG Consulting Engineers
Architect: Delawie, Wilkes, Rodriques, Barker
MEP: TKG Consulting Engineers
General Contractor: DPR Construction, Inc.
Utility: SDG&E

Financial Summary

Construction Cost: \$88 per ft²
Cost Premium (less incentives): 3.5%
Total Incentives: \$20,225
Annual Savings: \$7,200

For more information about sustainable building, go to www.sdge.com/construction/sustainable.shtml

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