**Environmental Nature Center (ENC)**

**Award Category:** Sustainable project of the Year: Public and Private


**Candidate Information:**
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**Persons or teams involved:**
Luzuriaga Taylor, Inc. (LTI) - Civil Engineer
LPA, Inc. - Architect
Culp & Tanner - Structural Engineer
TKSC - Mechanical/Plumbing Engineer
Konsortum 1 - Electrical Engineer
Gentosi Builders - Contractor
Griffin Structures - Program Manager
CTG - Energy
Costea Photography, Inc. - Photographer

**Project Location:**
Environmental Nature Center
1601 16th Street
Newport Beach, CA 92663
Bo Glover, Executive Director
(949) 645-8489
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**Budget:** $4 million

**Description of Scope and Size:**
With a limited budget, but big dreams, a distinct, environmental and cost effective solution creates a new 9,000 square foot front door for an existing and respected botanical garden in Newport Beach.

Effective site placement and orientation, material selection, storm water management and water conservation techniques provide the most sustainable solution possible for the limited budget available.

The inclusion of a roof top photovoltaic array provides all of the on-site power requirements for the facility making this a net zero energy building.

Simple green strategies allow the buildings to be naturally conditioned eliminating heating and cooling systems.

Stormwater run-off is managed, treated, and infiltrated through the use of bio swales, retention ponds and dry wells.

The indigenous and drought tolerant landscaping conserves irrigation water while waterless urinals and low flow fixtures conserve water used within the building.

This facility received its LEED Platinum certification from the USGBC in November 2008, creating a building that exemplifies responsible environmental practices while also providing the community with a dynamic and yet organic architectural statement.

**Unique characteristics of the Site Design:**
The design strategy for the new facility created a minimal impact on the existing ecosystems established by the existing botanical gardens of the Environmental Nature Center. As the existing site is a showcase for indigenous California plants and ecosystems, the new landscape and site components were designed closely with the nature center staff to assure a cohesive approach to the entire site strategy. Since all of the landscape materials selected are natives and drought tolerant, this eliminated the need for automatic sprinkler systems entirely.

All storm water is treated, managed, and infiltrated on site and there is no connection to the city storm drain system. On site bio-swales provide low maintenance linear biofilters for storm run-off. The underlying sand layer of the existing soil was the optimal reason that made it possible for LTI to convince the City of Newport Beach to permit the use of a dry well system, which is not allowed by city code. The limited parking area includes paving systems with no traditional curb and gutter and bio-swales in the parking medians. The roof drains to a sculptural stormwater catchment "bowl" that serves as part of the architectural and site design as well as the stormwater treatment.

Site concrete is uncolored and broom-finished to provide high reflectivity and reduce the urban heat island effect.

**Unique characteristics of he Building Design:**
Sustainability was the inspiration for appropriate and affordable design solutions to meet the client's goal for a LEED Platinum facility. The design team focused on effective site placement/building orientation, material selection, storm water management and water conservation.

The East/ West plan and unique building shape provide optimum solar orientation as well as encouraging natural breezes to flow through the high volume spaces. The design team went one step further and eliminated HVAC systems from the project. The building form supports a 40 kW PV system when paired with the building's conversation measures (60% better than code) creates a "net zero" facility.

A 25' north facing glass wall allows light into the spaces incorporating automatic dimming systems saving energy. The sloping ceiling is exposed formaldehyde free plywood left natural eliminating stains/paints. The interiors follow a "do less" attitude where structure becomes finish ceiling, concrete slabs are exposed and drywall is left out to allow air and light into educational spaces.

The buildings incorporate a variety of water saving strategies such as low flow faucets, dual flush toilets, waterless urinals, and low flow showerheads.

The goal for the design of the facility was to create a flexible and adaptable series of spaces which could evolve with the adjacent nature center. The large classroom and museum spaces were kept open and simple in plan with movable walls defining the nature of the spaces. The museum itself was designed as a flexible open space that could be re-configured and "dressed" depending on the nature of future exhibits and systems.

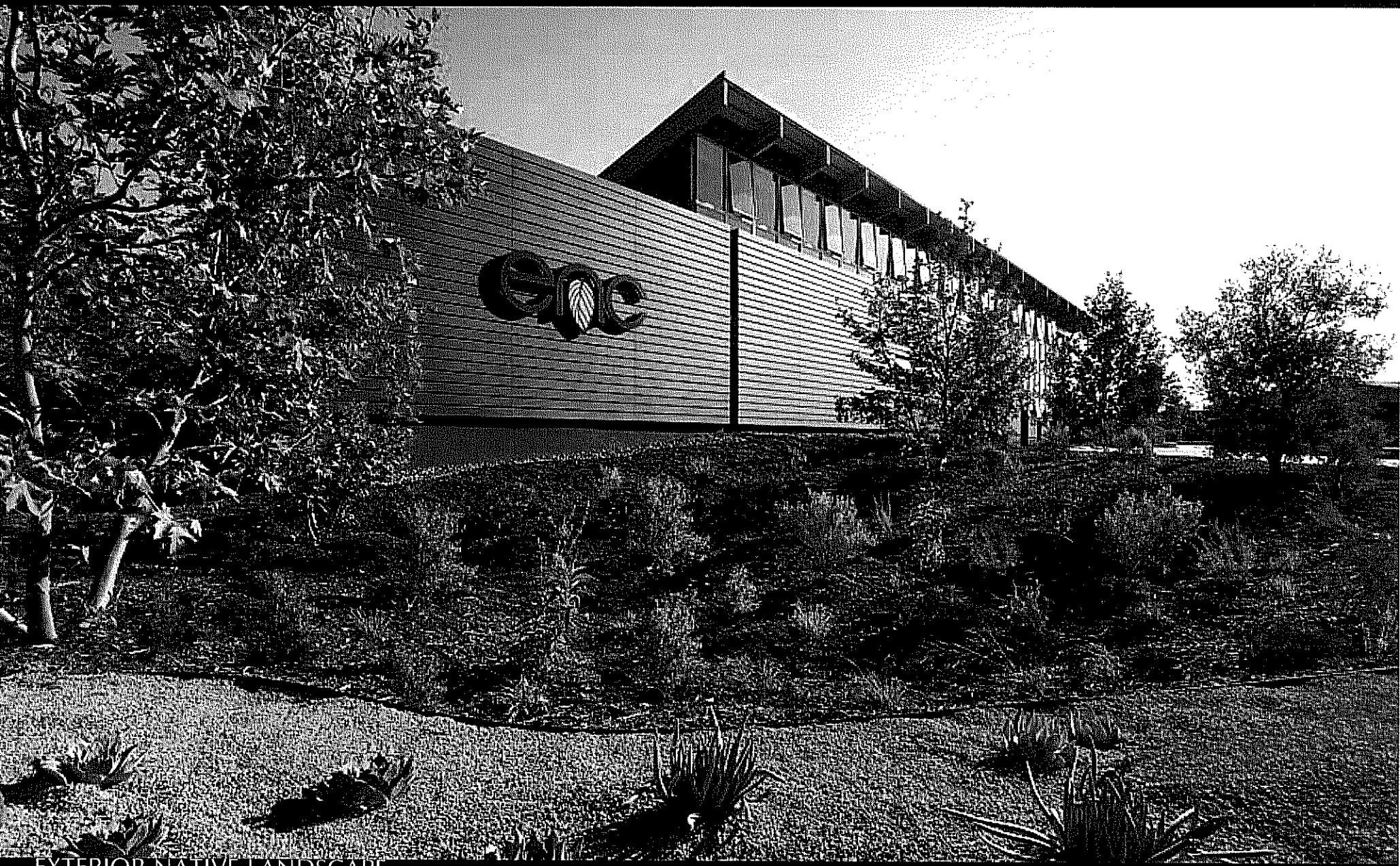
**Materials and Construction**
Exterior and interior materials were chosen in an effort to reduce the use of natural resources, limit transportation, increase indoor air quality and long term durability. These materials include exterior siding made from residual sawdust and resins, insulation made from rapidly renewable agricultural resources and recycled materials such as blue jeans, natural linoleum counter tops, recycled toilet partitions, biofiber wheatboard millwork, 100% recycled carpet with a lease agreement from the manufacturer, recycled ceramic tiles, sealed natural concrete floors and exposed structural roof framing which eliminated the need for additional ceiling materials and finishes. Over 81% of the construction waste from the project was also diverted from landfills.

**Community Impact**
The ENC has become the leader in the Orange County, CA community for providing the educational resources needed to promote the preservation and protection of the environment through sustainable practices. The opening of the ENC's new building combined with our society's increased interest in "green" living has created an explosion of community interest in the ENC's green practices and building methods. The science behind sustainable development has been incorporated into every school, scout and public program offered at the ENC and each program promotes the sustainable development of environmentally responsible places to live and work.

The facility received LEED Platinum certification from the USGBC in December 2008, making it the first in Orange County California. The building exemplifies responsible affordable environmental practices while providing a dynamic architectural statement.

NORTH EXTERIOR


SITE PLAN



EXTERIOR NATIVE LANDSCAPE

FIREPIT

EXHIBIT SPACE


NATURE MUSEUM
WELCOME TO THE enc
PROVIDING QUALITY EDUCATION THROUGH HANDS-ON EXPERIENCE WITH NATURE

RECEPTION

CLASSROOM

AERIAL / PV PANELS