2011 ASLA Design Awards

NREL RSF
Honor Award
RNL Design

Design over $500,000 Construction Budget
Project Name: National Renewable Energy Laboratory (NREL)–Research Support Facility (RSF)
Project Location: Golden, Colorado
Total Construction Budget (including building, landscape and utility infrastructure): $19,186,129

Project Summary:
As the country’s leader in renewable energy research and development, the National Renewable Energy Laboratory in Golden, it’s only fitting that its recently completed Research Support Facility represents a new paradigm in landscape architecture. Inspired by the unique mesa environment and the building’s zero energy LEED Platinum certification, its landscape provides an engaging outdoor environment to experience the sustainable and new technologies developed there. The unique landscape will serve as the model for future site design throughout the 325-acre South Table Mountain campus.

Purpose of Project:
Requirements
The Research Support Facility unifies two NREL components—laboratories and operations—long divided by Interstate 70. The landscape architect approached the project with three primary goals: expand the zero energy, LEED Platinum environment beyond the building envelope to create a unique landscape experience; respect the existing mesa by using it to inform the building siting and specific landscape design; and create replicable design details that were sustainable and could be extended across future campus development.

Scope
The landscape architect was a critical member of the integrated design build team and was responsible for the design of all exterior spaces, including entry plazas, gathering spaces and dining terraces, a new surface parking area with integrated stormwater management, a new transit loop and shelters, new pedestrian and bicycle circulation routes and the reintroduction of a diverse prairie landscape around the building. The prairie landscape design included three major ecologic zones using native species from the South Table Mountain environment.

The landscape scope evolved through the landscape architect’s participation in the NREL Integrated Project Team (IPT) meetings. The contributions of the landscape architect proved to be an enormous asset to the entire design team through their role as leaders of a holistic design build approach focused on building and site.

Philosophy
The landscape architect first analyzed the RSF context at three scales: the campus-wide level, the immediate site and the South Table Mountain landscape. The site presented two immediate concerns: steep slopes and storm water conveyance. Rock-littered building excavation material and two prominent arroyos inspired a design solution that could be applied across the entire site, meet the client’s needs and promote tangible sustainability. An important design objective was to draw inspiration from the natural and historical mesa landscape and reflect these features as part of the built environment.

Intent
Site design at RSF exemplifies NREL’s commitment to sustainable design, employee safety and comfort, and dynamic design. The design focuses on the mesa and local materials to create a new form of outdoor environment for NREL employees and visitors that merge sustainability with site specific landscape solutions and reintroduced native ecologies. The outdoor spaces were designed with improved employee productivity, efficiency and
The design team created a variety of exterior spaces and courtyards that function as an extension of the typical indoor office space. Two distinct plazas create different landscape experiences and perform different roles within the landscape. The east plaza functions as a main entry area with seating, small garden spaces and an integrated storm water garden used to capture site runoff. The west plaza is a space for relaxation and gatherings with dramatic views to the mountains and direct connections to the prairie landscape. Detailed design elements include site-harvested rock filled gabion baskets and reused excavated material. The landscape design integrated storm water into the design by making the runoff a visible design component and designing concrete catch basins, filled with crushed, recycled glass to hold roof runoff for a brief time until the water cascades over a custom steel weir. The water then travels through the plazas in vegetated swales, reducing the dependence on the supplemental irrigation system.

The landscape architect also expanded on NREL’s “Beyond Innovation” ideals by designing a parking lot that serves as an example for sustainable parking design. The sustainable parking lot was designed as an integrated system with the following features: lateral bioswales planted with a custom seed mix, LED occupancy sensor lighting, solar-powered campus shuttle shelters and two porous paving parking bays. Thirteen spaces are paved with porous concrete while another 13 spaces paved with FilterPave, a relatively new product in Colorado made of granite and recycled glass. To test the sustainability of the system, the two bays will be monitored over time for durability and effectiveness.

In addition to the site landscape design, the team developed an interpretive signage program, including a custom sign template and 18 narratives with graphics to explain the various sustainable systems present within the design. The signs educate employees, visitors and tour groups about sustainable design and the initiatives at work in the landscape and building.

**LA Role:**
The landscape architect served as prime consultant for the site design and infrastructure design. The contract was structured as a design-build, firm fixed price project with complete transparency between the designers and the contractor. The larger consultant team consisted of civil, structural, mechanical and electrical engineers; data and telecom designers; a lighting designer; irrigation designer; signage consultant; and prairie restoration ecologist. The landscape architect coordinated directly with the design team and the contractor on a daily basis to ensure the design was within budget and achieved maximum value for the client. As part of the design-build and firm-fixed-price nature of the project, the landscape architect was on site daily during the construction process to follow progress and make necessary field changes.

**Special Factors:**
The site constraints presented the greatest challenge and opportunity for the project. Steep slopes on South Table Mountain and the existing arroyos directly informed the overall design solution. Working within the firm-fixed-price contract model generated design and material fluctuation as the project progressed.

**Project Significance:**
The project represents an innovative model of sustainability and demonstrates how landscape can be used to enhance the employee experience by creating a landscape experience that embraces sustainability and the natural features of the surrounding environment. The project also highlights the role landscape architects have in leading and influencing large integrated project teams and clients. In this case, the landscape architect led the charge by working with various representatives within NREL and leading them through an integrated design process from concept design through construction warranty.