Green Dot Awards_Submission Info Page
Category: Build

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A description of your company and the name(s) and title(s) of the creators and collaborators of the project:
Belzberg Architects is about architectural innovation and for us, design is a collaborative process- a dialogue, between client and architect working to push the boundaries of convention. Form is a merger of conceptual investigation with production methodology. Process accommodates sustainability, performance, and large-scale implementation. Our practice is flexible, nimble, evolving, and unconventional.

Los Angeles Museum of the Holocaust
Project Manager: Aaron Leppanen
Project Team: Andrew Atwood, Carina Bien-Wilner, Barry Gartin, Brock DeSmit, Christopher Arntzen, Cory Taylor, Daniel Rentsch, David Cheung, Eric Stimmel, Erik Sollom, Justin Brechtel, Philip Lee, Lauren Zuzack

Detailed explanation of the entry to include: a. What the entry is and its intended use. b. How the entry is manufactured and delivered to consumers. c. How the entry exhibits excellence in sustainability and environmental responsibility (although not a requirement, use "What We're Looking For" as noted under each category as a guideline).

Finished in November of 2010, the new 32,000 square foot building for the Los Angeles Museum of the Holocaust is located within a public park adjacent to the existing Los Angeles Holocaust Memorial in Los Angeles, CA. The museum is committed to commemoration and education by providing free Holocaust education to the entire community with special consideration to underserved and underfunded Title I schools as well as the Greater Los Angeles school system. The museum has one of the largest intensive green roofs in Southern California and is certified LEED Gold from the US Green Building Council.

Key Project Goals: The primary design strategy embeds the museum into the surrounding park landscape. This achieves a greater contextual integration while maintaining the openness of the site by continuing the usable green-space over the

museum roof. An iconic structure, in this scenario, seamlessly inhabits rather than competes with the site, bridging the community formally and functionally with the building's intent. Creating a sustainable, LEED certified structure, employing innovative technology solutions in both the construction and day-to-day function of the museum, and establishing a processional narrative of experience were all achieved within the modest budget of $450/sq ft.

Energy Use: By submerging the museum below ground, both the earth and green roof furnish extensive thermal insulation. This combined with the constant moderate below grade temperature and natural light (fed by a centralized ramp) lowers the overall energy consumption for heating, cooling, and lighting. Specifically, these measures translate to a 40% savings in usage and costs via high efficiency light fixtures, glazing, and skylights as well as daylight/occupancy sensors, high SEER value mechanical equipment, programmable thermostats, and the high R-value roof structure. Exterior lighting uses innovative off-the-grid LED solar light poles that save as much as 75% in energy consumption.

Water Use: The museum sits atop a continually flowing perched ground water source. Perforated pipes lie below the mat slab foundation and concentrate ground water towards two cisterns (holding tanks) in the lower level. Pipes connecting the cisterns to the green roof irrigate the vegetation above avoiding the use of tap water altogether- a solution that lowers overall consumption and use by more than 51%. This percentage qualifies the museum for exemplary performance by LEED standards. All of the plumbing fixtures are low flow, including faucets with aerators, low flow toilets, and waterless urinals.

Materials: Over 20% of the material costs for the museum were spent on materials with recycled content. Many of the essential products used to obtain this percentage include high fly-ash content concrete, the steel rebar, and the mdf used for all interior display millwork. All imbedded rebar contains a minimum of 80% recycled content. In addition, over 20% of the material costs were spent on materials that were manufactured and extracted regionally from within a 500 mile radius. Lastly, a 15,000 sq. ft. site-integrated semi-intensive green roof provides heat island roof reduction and urban run-off mitigation.

Indoor Air Quality and Daylighting Initiatives: The museum provides over 75% of the building with natural daylight and views to the outdoors, allowing individual control of the lighting/thermal comfort and maximizing open space despite being underground. As what is essentially one large partitioned room, the lighting scheme capitalizes on the central ramp as a major natural lighting element. Additionally, this layout eases the VAV system and helps intake of near 100% fresh air with a large turnover rate. During construction, all contractors working on the museum were required to comply with an Indoor Air Quality Plan while onsite to ensure clean air quality.

Site Selection Considerations: The museum's location within a city park establishes special programmatic considerations such as maintaining open, usable green space and increases the need to service the local community as well as eliciting their direct involvement. Furthermore, the site inhabits a flood control channel and city-wide flood basin which presents daunting environmental challenges with respect to the design intent. Yet fortunately, the park location offers a major opportunity as a convergence zone for multiple pre-existing modes of alternative transportation.

Grants/Incentives Received: The construction of the museum owes its existence to a crucial incentive: the land, owned by the city of Los Angeles, was donated solely because of the subterranean design scheme. The choice to use sustainability as a fundamental conceptual element rather than a supplemental one allowed the site, building, and community to work in tandem and ultimately, made the project more effective in its mission as an educational and cultural institution.

Post-Occupancy Performance: We are currently conducting a Thermal Comfort Survey to assess the effectiveness and quality of the interior air and its impact on patrons and staff. Another interesting prospect includes tracking the maturity of the green roof from its initial planting in late 2010. Since the maturity of the roof could take a full year, a reference point exists in which one could fully determine a measurable effect on energy savings and water runoff mitigation vis-à-vis the LEED compliant elements. This process is longer term but a valuable opportunity nevertheless to build a case for future LEED-based design strategies.

Design Innovation: Major design innovations for the museum aren't merely formal. Programmatic innovation is a key element of success by incorporating interactive media technologies to provide patrons with a personalized educational experience. Basic linguistic barriers that minimize community reach are overcome through multi-lingual iTouch devices, ultimately allowing patrons to select desired languages for audio/video information. Touch-screen interfaces continue this strategy and enable viewers to create and customize their own learning experience through interaction with both others and the technology itself. Additionally, the use of shotcrete in the construction process in lieu of traditional concrete brings costs down and satisfies sustainability requirements.