seekingSHADE
student design competition

results

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San Ysidro, CA – On December 4, 2010 a seven-person jury selected John Voekel as the winner of the seekingSHADE Student Design Competition. The competition, open to college- and postcollegiate-level students in the United States, challenged participants to conceive a shade structure for the forthcoming pedestrian bridge at the United States Land Port of Entry in San Ysidro, California.

Located between San Diego and Tijuana, the San Ysidro Land Port of Entry is the busiest land port in the world and processes an average of 50,000 northbound vehicles and 25,000 northbound pedestrians each day. The existing 30-year old facility can no longer support operational needs and will be replaced with a new facility that will improve homeland security, operational efficiency, officer and public safety, and the traveler's experience.

The new facility is being developed by the Public Buildings Service of the U.S. General Services Administration (GSA), which constructs, modernizes, and maintains more than 362 million square feet of federal civilian workspace.

The seekingSHADE Student Design Competition is sponsored by GSA's Pacific Rim Region. It requested realizable, environmentally sensitive designs that could be incorporated in the San Ysidro project; the shade structure could potentially be installed on a pedestrian bridge which will join the overall Port design by the Seattle architecture studio The Miller Hull Partnership.

"I am genuinely impressed by the creativity of the students' submissions," said Les Shepherd, chief architect of GSA. "I am also pleased that the contestants applied themselves specifically to the design of a shade structure: It will perform a vital service to the numerous pedestrians visiting and using the San Ysidro Land Port of Entry upon its completion."

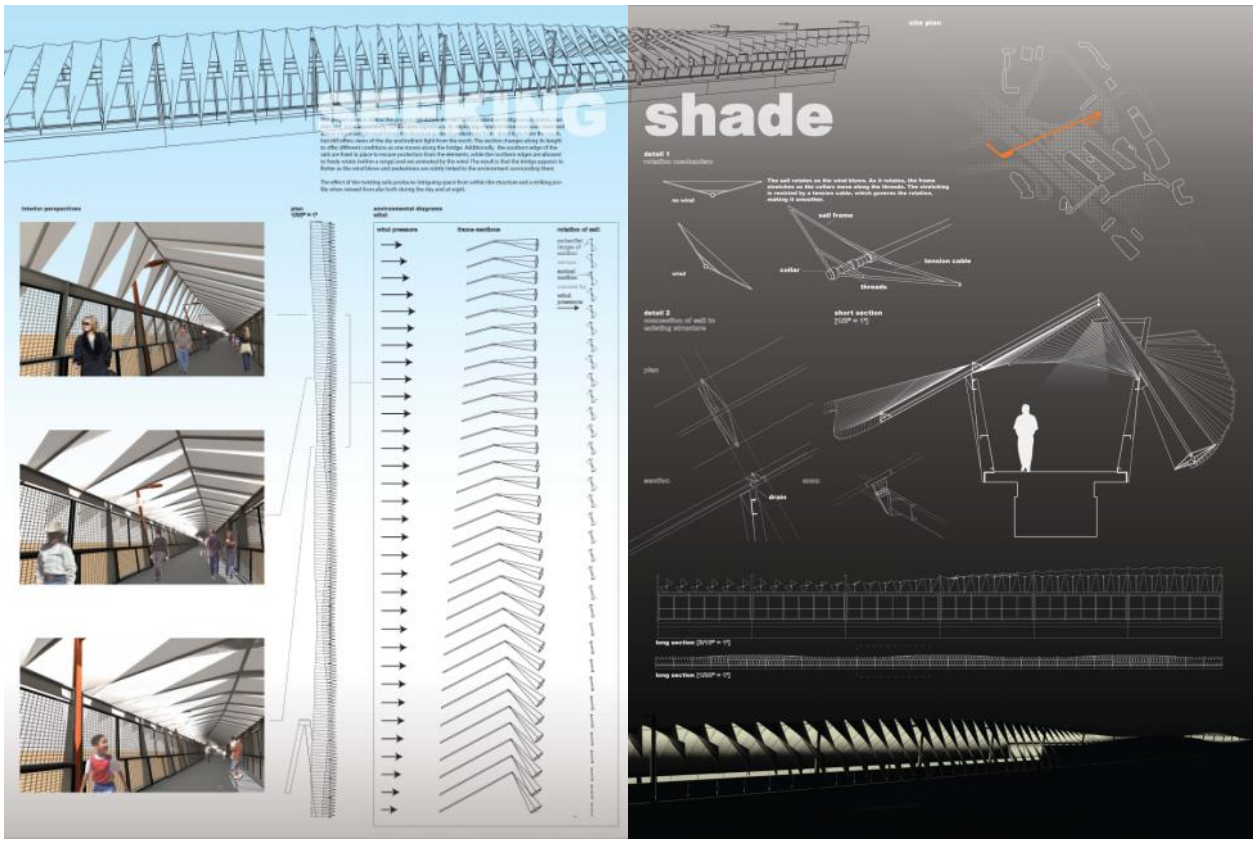
Students from sixteen architecture, design and engineering programs across the United States registered to participate in the competition. Contest winner John Voekel is a dual degree candidate at the University of California, Berkeley pursuing a Master of Architecture and Master of Science in Structural Engineering.

Voekel has many ambitions for his future. “I would like to work professionally, get licensed, and run an architecture and engineering practice that takes both sides seriously and not at odds with one another.” said Voekel. “I would also like to teach.”

His proposal features a series of tetrahedral-shaped, modular shading devices arranged along the pedestrian bridge. Each module is comprised of canvas fabric stretched across lightweight steel frames. While the southern edge of each component is fastened to the bridge and provides pedestrians protection from the sun, the northern edge rotates freely and responds to breezes uniquely. The result is that the bridge appears to flutter as the wind blows and subtly links pedestrians to the environment surrounding them.

GSA’s Region 9 chief architect Maria Ciprazo describes how Vokel’s concept melds function with form, "The kinetic nature of the winning design will not only serve the functional need of providing shade and shelter, but will also draw the interest of those crossing the bridge as the portions of the shade structure moves with the prevailing winds.”

New School of Architecture student Carla Wijaya was selected as runner-up in the competition, and the University of Southern California’s Feng-Cheng O’Connor is second runner-up. The jury included international architect Enrique Norten, GSA Chief Architect Les Shepherd, Miller Hull partner Craig Curtis, GSA Region 9 Chief Architect Maria Ciprazo, community development officer David Flores, former Port Director Oscar Preciado, and the pedestrian bridge’s lead structural engineer Bob Matthews. The winning entries can be viewed at the competition website: www.seekingshadecompetition.info.

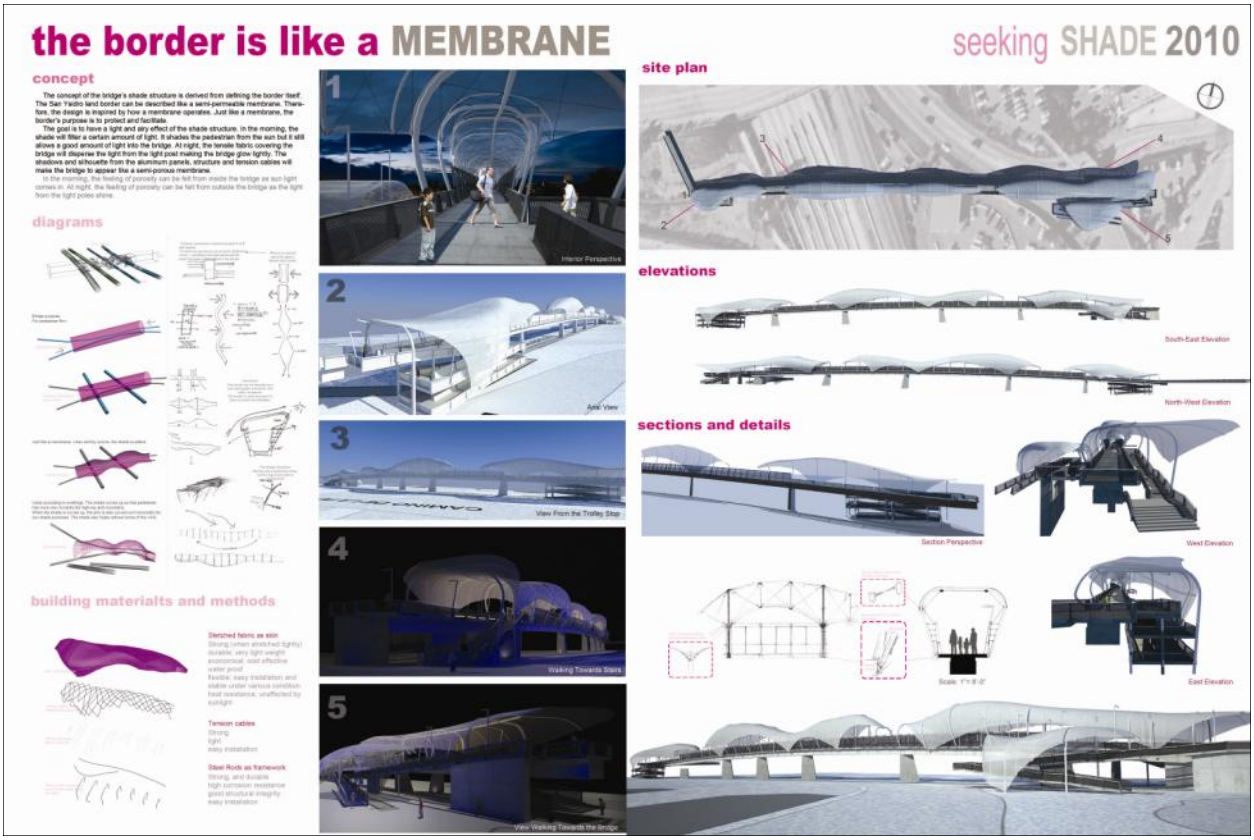


1st

John Voekel
U.C. Berkeley

"This project aims to define the progression across the San Ysidro pedestrian bridge as a dynamic, variable and, most importantly, comfortable experience. By deploying standard dimension sails stretched across a light-weight steal frame, the structure protects pedestrians from direct light from the south, but still offers views of the sky and indirect light from the north. The section changes along its length to offer different conditions as one moves along the bridge. Additionally, the southern edge of the sails are fixed in place to ensure protection from the elements, while the northern edges are allowed to freely rotate [within a range] and are animated by the wind. The result is that the bridge appears to flutter as the wind blows and pedestrians are subtly linked to the environment surrounding them.

The effect of the twisting sails produces intriguing space from within the structure and a striking profile when viewed from afar both during the day and at night." — John Voekel

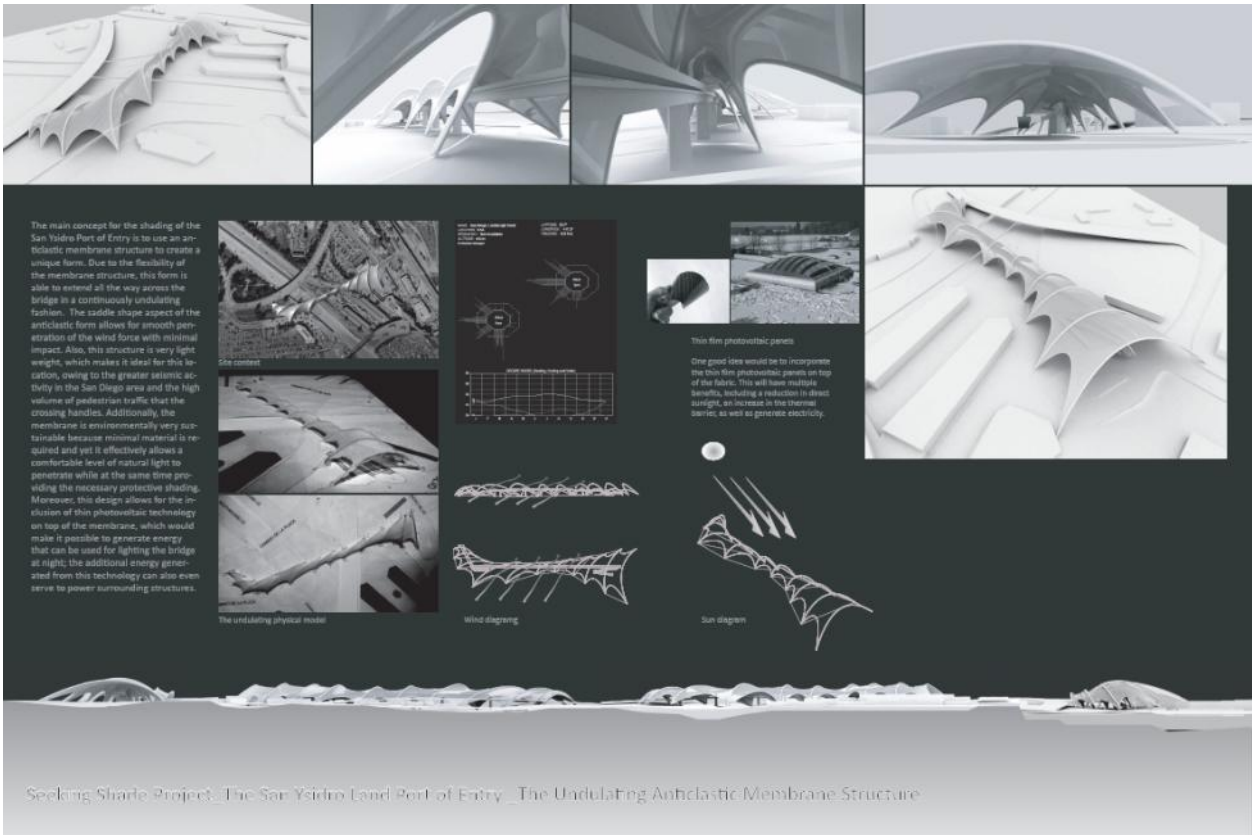


2nd

Carla Wijaya
New School of Architecture

"The concept of the bridge's shade structure is derived from defining the border itself. The San Ysidro land border can be describe like a semi-permeable membrane. Therefore, the design is inspired by how a membrane operates. Just like a membrane, the border's purpose is to protect and facilitate.

The goal is to have a light and airy effect of the shade structure. In the morning, the shade will filter a certain amount of light. It shades the pedestrian from the snu but it still allow a good amount of light into the bridge. At night, the tensile fabric covering the bridge will disperse the light from the light post making the bridge glow lightly. The shadows and silhouette from the aluminum panels, structure and tension cables will make the bridge to appear like a semi-porous membrane." —Carla Wijaya



3rd

Feng-Cheng O'Connor
University of Southern California

"The main concept for the shading of the San Ysidro Port of Entry is to use an anticlastic membrane structure to create a unique form. Due to the flexibility of the membrane structure, this form is able to extend all the way across the bridge in a continuously undulating fashion. The saddle shape aspect of the anticlastic form allows for smooth penetration of the wind force with minimal impact. Also, this structure is very light weight, which makes it ideal for this location, owing to the greater seismic activity in the San Diego area and the high volume of pedestrian traffic that the crossing handles. Additionally, the membrane is environmentally very sustainable because minimal material is required and yet it effectively allows a comfortable level of natural light to penetrate while at the same time providing the necessary protective shading. Moreover, this design allows for the inclusion of thin photovoltaic technology on top of the membrane, which would make it possible to generate energy that can be used for lighting the bridge at night; the additional energy generated from this technology can also even serve to power surrounding structures." —Feng-Cheng O'Connor