

*UPDATED 6/25/09

Her Secret is Patience
Downtown Civic Space Park, Phoenix, Arizona

Fact Sheet

Purpose:

- Create a sense of place that has distinct yet equally compelling character and presence both day and night.
- Reference local climate patterns, flora, and geologic history to create a new civic icon.
- Create view corridors from multiple directions to visually attract people to the new downtown civic space.
- Foster community by creating sensory engagement worthy of keeping people together in a shared public space.
- Use “wind choreography” to make palpable the softness of the sculptural form and encourage movement of the visual landscape up towards the sky.

Location: Downtown Civic Space, Phoenix, Arizona (Central Avenue and Taylor Street)

Client: City of Phoenix Office of Arts and Culture Public Art Program

Budget: US \$2.5 million

Completion: April 2009

Artist: Janet Echelman, Janet Echelman, Inc., www.echelman.com

Press Contacts:

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Design and Fabrication Team:

Janet Echelman, artist

Buro Happold, net engineering

Peter Heppel Associates, aeronautical engineering

Speranza Architecture, consultant

CAID Industries, fabricator and project engineering

M3 Engineering, steel structure engineering

Paul Deeb, VOX, lighting

Nexus Steel, structural erection

Foresite Design and Construction, sculptural foundations

Diamond Nets, net fabrication

NETServices, net installation

Awards: 2008 Award for Excellence in Structural Engineering to M3 Engineering from the Arizona Structural Engineering Association (ASEA).

Description:

Her Secret is Patience is the newly inaugurated icon suspended above the new two-city-block Phoenix Civic Space park in the middle of downtown. The sculpture is monumental yet soft, fixed

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in place but constantly in motion. Responding to the desert winds, the piece welcomes all to come and watch the “wind choreography” play across the net.

The large three-dimensional multi-layered net form is created by a combination of hand-baited and machine-loomed knotting, and is the result of a collaborative effort with an international team of award-winning engineers. This work redefines the 'art space,' by bringing viewers eyes upwards to the sky, focused on a new celestial object.

During the day, the 145-foot-tall sculpture hovers high above heads, treetops, and buildings. The sculpture projects what the artist calls “shadow drawings” onto the ground, which she says are inspired by Phoenix’s cloud shadows that captivated her from the first site visit.

At night, the illumination program, developed by Paul Deeb of VOX in consultation with the artist, changes color gradually through the seasons. Using 20 high-intensity metal halide fixtures at five separate locations, Deeb combined a range of blue and magenta filters to enhance without overpowering the richness of the net's integrally-colored polyester fiber. The lighting design also changes what portion of the sculpture is illuminated, leaving parts obscured in mystery, much like the phases of the moon.

When traveling to Phoenix for the first time, the artist said she was “mesmerized by the broad, open sky that seemed to stretch endlessly.” She said she was drawn to Arizona's distinctive monsoon cloud formations, "the shock of desert winds, whirls of dust, the crash of lightning, and that luminous blue turning to violet and orange, then velvety blue-black." She was also inspired by the structure and pace of desert flora. "I'm moved by the exertion of the Cereus, a spiny cactus putting down roots in search of water in the desert, her patience in saving up every ounce of energy until, one night, in the middle of the cool darkness, she unfurls one succulent bloom," said the artist. Another source of inspiration was the local fossil record, which geologists confirmed shows evidence that this site was once an ocean filled with marine life.

Title: The artist confirmed its title as "*Her Secret is Patience*." It comes from a quote by the American poet philosopher Ralph Waldo Emerson, who wrote "Adopt the pace of nature; her secret is patience." The work during construction was unofficially referred to by the nickname "Sky Bloom."

Materials:

Painted galvanized steel and cables; changing sets of recyclable high-tenacity polyester braided twine netting; colored lighting with computerized programming.

Size and Arrangement:

Poles: 105 feet, 125 feet and 145 feet tall

Rings: Outer: 100 feet wide; Inner: 30 feet wide

Cable: 1 ¾ -inch cable; 1-inch cable

Net Dimensions: 100 feet wide at the top – 15 feet wide at the bottom

The lowest part of the net hangs 38 feet above the ground. The highest rises to about 100 feet.

Wind Load: designed to withstand summer monsoon winds.

Net-Sculpture Info:

The nets are the result of a detailed, computer-assisted process that ensured that their shapes and wind movement corresponded with Echelman's vision. The design process for the nets was a further development of Peter Heppel Associates' process for Echelman's piece *She Changes*

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(2005) in Matosinhos and Porto, Portugal. The process for the nets begins with 3-D digital sketching in Maya, and Buro Happold engineers developed new computer software in collaboration with Peter Heppel Associates to translate these forms into a CAD package in order to define their surfaces and build their geometry. This new model is exported into Buro Happold's form finding software to find the deflected shape of the assembled net sculpture under the effects of gravity. Wind analysis of this model conducted by Buro Happold and Peter Heppel Associates provided information necessary to determine the twine tenacity required for each loomed net panel. This information is then translated into construction drawings that specify the exact looming patterns for fabrication, including the description of color information for each individual bobbin, and the varying lengths of the meshes for knotting, hand baiting, and hand splicing.

The fabrication involved a series of North American industrial factories specializing in hand-craftsmanship. The trades involved steel fabrication, fiber generation, twine braiding, commercial fishing net production, hand-crafting, and installation within a complex landscape. Diamond Nets, of Everson, WA, overcame significant design challenges to produce the nets. The firm's craftsmen effectively translated Buro Happold's sophisticated digital models into the analog crafts of hand-knotting, hand-splicing, and hand-baiting that fishermen and lace-makers have practiced for millennia. *Her Secret is Patience* is made of multiple layers of nets: the outer, colored sculptural net, including the "wormhole" going up inside the center; the supporting structural net, and the cover net. Each edge of the diamond mesh is a different length, requiring the use of hand-splicing on every single joint

Steel Structure Info:

The structure, built by CAID Industries, is supported by three (3) towers that are up to 145' tall. The towers and the 1.3/4" diameter tie-back cables are attached to caisson foundations which are 30' deep by 5' diameter drilled into the subgrade. The two shorter towers were shipped to the site complete (105' & 120' long shipping pieces), while the tallest tower was shipped in halves for field assembly and welding.

The rings are suspended about 100 ft. above the ground and are connected to each other by a star pattern of 1" diameter steel cable. The end terminations of these cables are carefully enclosed within the pipe rings to minimize opportunities for the net to snag during a high wind event. The outer ring is fabricated from 16" diameter pipe and the inner ring is fabricated from 12" diameter pipe. These pipe shapes were obtained by mechanical rolling performed by a contractor experienced in fabricating roller-coasters. The rings are somewhat organic in shape, following the design intent of the artist to create a desired complex geometry with the larger ring approximately 100' across and the smaller ring 30' across.

Tie-down cables secure the rings to the base of each tower. These tie-down cables provide structural stability in the event of high wind and minimize the lateral and vertical movement the rings will experience under this load.

More Information:

http://www.echelman.com/site/phoenix_project.html

http://phoenix.gov/ARTS/civic_faq.html

<http://www.phoenix.gov/parks/civicam.html>

<http://www.phoenix.gov/parks/pkscam.html>

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Biography:

Janet Echelman

Through her art, Janet Echelman reshapes urban airspace with monumental public sculptures that respond to environmental forces like wind, water, and sunlight.

In 2009, Janet inaugurates two major art commissions in North America. *Water Sky Garden* for the Richmond Olympic Oval, a venue for the 2010 Vancouver Olympic Winter Games, takes run-off water from the Oval's 5-acre roof and transforms it into a water garden intersected by red curved pedestrian bridges, "water-drawing" aeration fountains, and red "sky lanterns" that respond to the wind. Her 145' high sculpture for the Phoenix Civic Space, *Her Secret is Patience*, makes the pattern of desert winds visible to the human eye and casts intricate shadow drawings onto the ground.

Portugal is home to Echelman's recent *She Changes*, a 164-foot-tall waterfront netted wind sculpture suspended above a 3-lane highway roundabout, which received the IFAI International Achievement Award and the Public Art Network's Year in Review Award. Her team won the Hoboken September 11th Memorial competition, which will result in construction of a new freestanding island in the Hudson River.

Exhibitions of her painting, prints, and sculpture have been held in Venice, Madrid, Bombay, Jakarta, Hong Kong, Kyoto, and New York City. Recipient of the Harvard University Loeb Fellowship, the Aspen Institute Henry Crown Fellowship, a Fulbright Lectureship, and grants from New York Foundation for the Arts, Pollock-Krasner Foundation, Japan Foundation, and Rotary International Foundation, she currently serves on the board of the Aspen Institute Energy and Environment Awards, and the National Fulbright Association.

After graduating from Harvard College in 1987 with Highest Honors in Visual Studies, she received graduate degrees in painting and in psychology. From 1988-1993, Janet lived as an artist on the island of Bali, Indonesia, before moving to New York City. She now lives in Brookline, Massachusetts with her husband and their two children.