



“Solar Illumination I: Evolution of Language,” exterior, San Jose’s Pearl Ave. Branch Library, artist Lynn Goodpasture, fabrication Peters Studios. PHOTO: L. Fladzinski.

Green Glass

“Solar Illumination I: Evolution of Language”

By Shawn Waggoner

In the first installment of Green Glass, “Glass Art” took a look at green practices in the manufacturing sector and revealed the many ways Glass Alchemy in Portland, Oregon, strives to minimize its carbon footprint. In this installment of our new series, we will examine the art itself — the first permanent public art installation in the US that combines art glass with photovoltaic cells (solar power) in an architectural application.

With the opening of the Pearl Avenue Branch Library in San Jose, California, in August 2008, the City became the first municipality in the United States to install permanent public art that combines photovoltaic (PV) cells and art glass in an architectural application.

Artist Lynn Goodpasture collaborated with Peters Glass Studios, Portland, Oregon, and Paderborn, Germany, in the creation of four art glass windows, each 98” x 34 3/4”, embedded with PV cells that in turn power a suspended glass LED-illuminated lamp. The artwork’s imagery explores the evolution of alphabets as the foundation of the written word. Each window contains characters in scripts that are the basis for written Latin, Russian, Vietnamese and numerous Indian languages. “We are all one” is engraved repeatedly in cuneiform on the lamp. As this installation explores cultural differences in the windows, the color-changing lamp bridges those distinctions by celebrating what we share.

Goodpasture conceived “Solar Illumination I: Evolution of Language” to link the past with the future by exploring the first writings of humankind, at the same time the art incorporates the newest applications of solar and LED technologies.

On October 7, 2007, Mayor Chuck Reed introduced San Jose’s Green Vision, which set 10 ambitious goals for environmental protection and economic development. This 15-year plan envisions: creating 25,000 Clean Tech jobs; building or retrofitting 50 million square feet of green buildings; installing 100,000 solar roofs (1/10 of Governor Arnold Schwarzenegger’s 1 million solar roofs for



“Solar Illumination I: Evolution of Language,” exterior corner, San Jose’s Pearl Ave. Branch Library, artist Lynn Goodpasture, fabrication Peters Studios. PHOTO: L. Fladzinski.

California initiative); reducing per capita electricity use by half; becoming a zero waste city; recycling and reusing 100 percent of the City's water; and moving to 100 percent renewable energy.

San Jose, the nation's 10th largest city, already is a leader in clean energy and solar innovation, with leading corporations such as SunPower, SoloPower, Stion, Nanosolar, Fat Spaniel, SunWize, Sopogy, and others headquartered in the City. Electric vehicle manufacturer Tesla Motors recently announced that it would locate its headquarters and new manufacturing plant in San Jose.

Goodpasture's work, "Solar Illumination I: Evolution of Language," was commissioned through the City of San José Public Art Program. The Public Art Program takes direction from the City's visual, urban design and planning frameworks – the overall patterns of development, the City's visual character and activities, and the areas that are being targeted for public infrastructure and private development. With the emphasis on innovation in all sectors from housing to technology, artists have the opportunity to respond to a wide array of forward thinking ideas embraced by the City and its communities.

Mayor Reed's remarks clearly indicate the importance of the synthesis of art with the broad goals of the City: "This innovative art project at the Pearl Avenue Branch Library is a great addition to the already remarkable collection of art in our world-class library system. Art and technology intersect in a creative and inspiring way, recognizing our community's diversity, celebrating the history of innovation, and highlighting the great strides we are making with the San José Green Vision."

Since 1998, Goodpasture has worked exclusively in art that is integrated into architecture. She has received commissions for sites including schools, hospitals and transportation centers and works in a variety of materials including glass, mosaic, tile and metal. She creates architectural glass windows, mosaic murals, glass and metal lighting elements, and large scale public clocks. Goodpasture is keenly interested in the integration of art and technology, particularly the application of art as an environmental statement.

A primary intention of the art is to encourage awareness of the real possibility of harnessing renewable energy to provide for basic energy needs. Says Goodpasture, "The intrinsic experience provided by this artwork has the possibility of influencing and encouraging people to take greater responsibility for our planet and its resources. It is particularly hoped that children will absorb the meaning and possibilities of this art installation, and it was fortunate that the children's section of the library includes the southwest corner of the building, the ideal site for the photovoltaic cells.

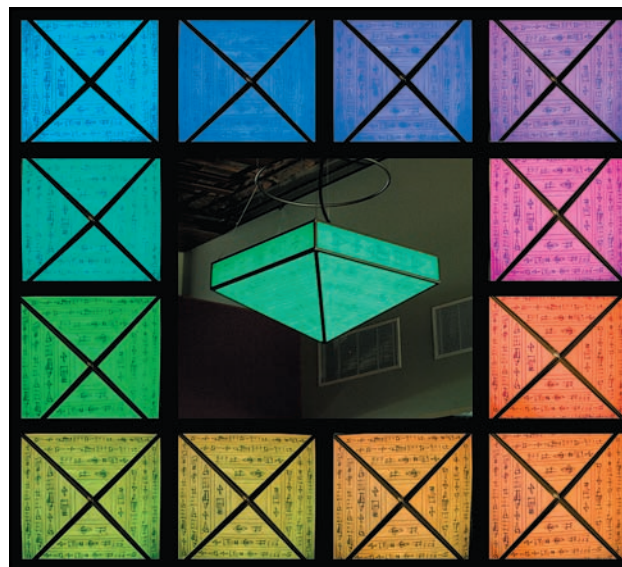
"Public libraries exist for the purpose of illuminating the minds of all people of all ages, and in this sense a library is one of our truly egalitarian institutions. This project expresses that purpose directly and symbolically. My solar art glass windows illuminate the suspended glass lamp, as knowledge illuminates the intellect, and a window illuminates a room. The glass lamp is illuminated with LED lights that have been custom programmed to move slowly and subtly through the spectrum every 30 minutes. In this way the solar energy is visually manifested, and the lamp functions as a time-keeping piece," explains Goodpasture.

"Another intention of this project is to awaken people to the miracle of language and writing, which provides a key to understanding the past, expressing the present and imagining the future." The art glass windows explore the evolution of ancient alphabets from languages that are predominate in the Pearl Avenue Branch Library's collection.

To fabricate her work, Goodpasture selected Peters Studios. Parent company Glasmalerei Peters, a family owned German art glass studio, was founded almost 100 years ago. Among their many



"Solar Illumination I: Evolution of Language," exterior pair Latin and Vietnamese windows, San Jose's Pearl Ave. Branch Library, artist Lynn Goodpasture, fabrication Peters Studios. PHOTO: L. Fladzinski.



"Solar Illumination I: Evolution of Language," lamp, San Jose's Pearl Ave. Branch Library, artist Lynn Goodpasture, fabrication Peters Studios. PHOTO: Lynn Goodpasture. Image of the lamp as the color changing LEDs cycle through the spectrum. Composite demonstrates the color changing dynamic.



“Solar Illumination I: Evolution of Language,” lamp with boy, San Jose’s Pearl Ave. Branch Library, artist Lynn Goodpasture, fabrication Peters Studios. PHOTO: Richard Johns.



“Solar Illumination I: Evolution of Language,” interior corner, San Jose’s Pearl Ave. Branch Library, artist Lynn Goodpasture, fabrication Peters Studios. PHOTO: L. Fladzinski.

artistic offerings, this studio is a recognized leader in the development of photovoltaic art glass and has created significant PV art glass installations in Canada and Europe. The Peters Studio is also a leader in the fabrication of fine art glass. Therefore they were in the unique position of offering both technologically advanced solar windows combined with the remarkable beauty of art glass. Glas-malerei Peters worked very closely with Goodpasture to develop this project.

Each unit was comprised of three pieces of plate glass. The 4” square solar cells,

144 in all, are embedded between two panes of heat strengthened glass, which have exceptionally high light transmittance. The solar glass has high retention of solar properties and is positioned on the exterior side of each window. The interior glass was treated as art and was sandblasted and painted with transparent, translucent, and opaque colors, which were kiln-fired for permanence. The triple glazed unit provides enhanced thermal insulation and exterior sound reduction. The geometric forms of the cells are integrated into the art work and function as a sun shade. The photovoltaic insulated glass units were designed to fit the specifications of standard window frames. The PV system was integrated with the conventional electrical system to use as a back-up during prolonged periods of dark days, although it is anticipated that this will rarely, if ever, be necessary.

“Building integrated photovoltaics (BIPV) is one of the fastest growing segments in the U.S. solar market today,” says Peter Kaufmann, Peters Studios. “This leaves great opportunity for architects and artists to collaborate and integrate both the practicality of solar energy with the aesthetic of art glass into the skin of their buildings. Based on the response I receive from artists and architects alike I am confident in the next five years we will see considerable growth in the application of this combination. How can you go wrong...glass art and sustainable energy...together at last!”

San Jose Public Library system (SJPL) is the largest public library system between San Francisco and Los Angeles on California’s Central Coast. It serves a culturally diverse population of 974,000 in the nation’s 10th largest city. Recipient of the prestigious national Library of the Year award, SJPL is recognized across the country for its innovation and leadership in the field and is one of the busiest library systems nationwide, with an annual checkout rate of more than 14 million items. Pearl Avenue Branch Library is located at 4270 Pearl Ave., San Jose, CA 95136. Library hours are Mon., 2 p.m. – 7 p.m.; Tue. – Wed., 11 a.m. – 8 p.m.; Thu. – Sat., 10 a.m. – 6 p.m.; closed on Sunday. For information call (408) 808-3053. For more information on San Jose’s Green Vision visit www.sanjoseca.gov/greenvision/. For more information on artist Lynn Goodpasture, visit www.LynnGoodpasture.com. For more information on Peters Glass Studio visit www.glass-art-peters.com. ♦