

Art meets solar

GreenLight

It seems obvious, pairing stained glass with solar cells. It's a wonder it hasn't been done more. A 40-ft-tall tower on the campus of Regent College in Vancouver, British Columbia, stands as testament to the intriguing marriage of art, religion and alternative energy.

Called True North/Lux Nova, the tower is designed to provide natural ventilation

to the theological library below. It includes 144 sq ft of photovoltaic art glass that powers colored LEDs that slowly change to the accompaniment of music.

The photovoltaic art is the creation of Toronto-based glass artist Sarah Hall. In this installation she uses laminated dichroic glass, employed in the past in the space industry for windshields on space-

craft. The glass is created by plating very thin layers of metal oxides onto a layer of glass in a vacuum chamber, which creates a dielectric interference filter that reflects or transmits specified colors.

A solar sandwich

In the True North/Lux Nova installation, the solar cells are sandwiched be-



Stained glass artist Sarah Hall examines dichroic glass during the design phase of the True North/Lux Nova tower on the campus of Regent College. Photo credit Wilhelm Peters.



Students will get a firsthand look at how solar cells provide power through this installation of art glass in the entryway stairwell of Grass Valley Elementary School in Portland, Ore. Photo courtesy of Sarah Hall Studio.

tween two panes of the glass. Viewers on one side see the colors, while all the light passes through and presents another color on the other side. In contrast to traditional colored glass, none of the light is absorbed – it’s all either reflected or transmitted.

The solar energy setup, designed by Christof Erban at Schüco International KG of Bielefeld, Germany, uses polycrystalline cells with a total capacity of 400 Wp, sent to batteries that power long columns of LEDs. The LEDs are Z-Power LEDs from

South Korea’s Seoul Semiconductor Co. Ltd. They provide a luminous flux of about 120 lm, making it theoretically possible to produce more than 16 million colors, according to Kai Kuehle, a technician at Enjoy Witt + Roggenkamp GbR of Paderborn, Germany, the company that provided the lighting design. The installation consists of a 7.5-m pipe divided into 12 segments, each measuring 62.5 cm and containing one LED. The lights illuminate the tower, while also providing light to the park outside.



40-ft tower over Vancouver’s Regent College theological library combines art glass with solar power and LED lighting. Photo credit Michael Elkan.

The next project Hall is working on will bring a demonstration of solar power to Grass Valley Elementary School in Portland, Ore., where students will be able to watch the science of light at work. As energy is collected with solar cells, a glass spiral is illuminated. The beauty of this installation, according to Hall, is that the students will see “so clearly” how solar power works. “When they have sun,” she added, “they have light.” ●

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