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Office skylight uses PV-powered SageGlass® products to improve comfort, view, energy-efficiency without heat, glare

Faribault, Minn. (April 2009) – Every summer for more than 10 years, a big, blue tarp would be draped over the top-floor skylight at Connecticut’s 100 W. Putnam office. This summer, the tarp and aging skylight have been replaced with a dynamically responsive, elegantly designed, photovoltaic (PV) powered system featuring SageGlass® products.



“Every May up until now, the building owner would cover one of the best features of the space, blocking the unwanted solar heat and glare so the tenants wouldn’t roast and could see their computer screens. This helped save a little on the air conditioning bills, but they lost all the natural light and views,” says Gilbert Ohls, president of Landis Hall, Inc., a construction management company based in Greenwich, Conn.

As the new tenants of 100 W. Putnam’s top-floor office, Duff Capital Advisors hired Landis Hall to create a working environment that maintained the intended benefits of the skylight. “People feel better and are more productive when they have natural light. We want to get the most out of people and still have fun,” says Phil Duff of Duff Capital. “It’s a brain-power-driven business and we need to facilitate collaboration. We have trading turrets with multiple computer screens and people directly under the skylight. It’s wonderful to have the natural light, but not if you can’t read your screen because of the glare or if you can’t control the solar radiant heat in summer.”

Ohls elaborates, “Our charge was to preserve the natural light any way that we could and make sure the skylight remained the focal point. They wanted the space to be energy-efficient and green, but also aesthetically pleasing. We also had to make sure it was functional to work under; visual and thermal comfort came first. You don’t want it too intense and you don’t want to feel like you’re working in a cave.”

In his search for an answer, Ohls arrived at four possible options that would “keep the natural light, yet enable the tenant to have some control.” These included an interior shading system, an



interior louver system, permanent glass tinting, and SAGE’s electronically tinting glass. “The problem with anything other than SageGlass technology was that those other options detracted from the best feature of the space,” says Ohls. “Shades and louvered equipment would cloud it up and block the view. Permanent tinting could not be peeled off during different times of the day or year, based on the weather. SAGE’s system gives us the ultimate flexibility, while staying energy-efficient and meeting our tight timeframe.”

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Duff agrees, “SAGE was the best solution. In comparison, everything else looked ugly or defeated the purpose. SAGE’s glass offered a clean look, adjustable control and durability.”

John Van Dine, president of SAGE Electrochromics, Inc., says that when Ohls contacted the company, it was obvious he’d done his research. “He already knew that we could provide a glass product that allowed Duff Capital to enjoy the sun’s benefits, while rejecting its undesirable effects such as fading, glare, and excessive heat — all without losing the view and connection to the outdoors,” says Van Dine, adding, “Gil also was excited to learn that we had been perfecting enhancements that include systems to control the glass at intermediate levels of tinting and to power the units with solar energy.”

Van Dine says that because of their low DC voltage and power consumption, and the complementary relationship between the amount of sunlight available and the level of tinting required to modulate it, SageGlass products are excellent candidates for PV power.



A 14-inch photovoltaic (PV) strip also was installed on the exterior along the bottom of the skylight to power the glass, while remaining invisible to the people inside. Fabricated by Suntech Power Holdings Co., Ltd., this PV strip captures and converts solar energy that allows the SageGlass lites to provide a constant intermediate state of tinting, allowing a range of 3.5% to 62% visible light into the building.

“The intermediate state means that you don’t have to have it any darker than necessary,” notes Ohls. “Depending on the intensity of the sun, there are times when the glass is so clear that you wouldn’t know it’s there; othertimes it is very noticeably tinted. Most of the time, it’s floating in between with a soft, tinted hue that cuts the glare, but still lets you see out. On a summer’s day, even on a cloudy day, the space requires little to no artificial light.”

In addition to providing the intermediate tinted states, the skylight for 100 W. Putnam is wired with override switches to control SageGlass product’s maximum and minimal tinted appearance. These control areas are grouped into eight zones corresponding with the tenant’s trading floor, workstations, lounge, kitchen, and boardroom.

The building’s tenants gained this operability, and unprecedented access to the outdoors, late last year. The original skylight (circa 1986) and its accompanying blue tarp were removed in the fall, and by the end of 2008, the 85- by 35-foot skylight array was installed. Acurlite Structural Skylights, Inc. was responsible for the removal, fabrication and installation. Contributing to the project’s environmental leadership, the skylight’s aluminum framing system contains approximately 64% recycled content. Linetec finished this material with a durable paint on the interior and an eco-friendly clear anodized on the exterior.

Working closely with SAGE, Landis Hall, a+i Architecture, and Skylight Consultants of America, Inc., Acurlite’s team managed the skylight’s replacement in phases. Tom Kozak, Acurlite’s director of sales, says, “We worked hand-in-hand with SAGE. We have a team approach to our projects. Every aspect in a project of this size and timeframe needs to be correct to eliminate any potential issues that may delay the project. I only wish all projects had this open line to all the players involved.”

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“We’re all focused on providing quality, on doing the best work possible,” concludes Ohls. “Duff Capital was a perfect customer for SAGE and for us. It’s not your typical renovation. It’s not your typical glass. We’re not your typical construction manager. It’s about being better than 99% of what’s out there, rising to the challenge, and enjoying the ultimate result.”

“Gil really goes the extra mile in managing the whole process – from the research to the factory visits to the construction coordination,” adds Duff. “I think of him as a partner in making our business work. Thanks to his efforts and all those who worked on our office, we have created a meaningful, substantial space.”



100 W. Putnam – Key Credits

Tenant:	Duff Capital Advisors of Greenwich, CT
Construction Manager:	Landis Hall, Inc. of Greenwich, CT
Architectural Designer:	a+i Architecture, pc of New York, NY
Skylight Manufacturer/Installer:	Acurlite Structural Skylights, Inc. of Berwick, PA with Skylight Consultants of America, Inc. of Martinsville, IN
Photovoltaic Supplier:	Suntech Power Holdings Co., Ltd. of Wuxi, China
Glass Producer:	SAGE Electrochromics, Inc. of Faribault, MN

Leaders in electrochromic technology for more than 15 years, SAGE Electrochromics, Inc. manufactures electronically tintable glass products that are available to the international architectural building market. Consistently proven reliable for use in exterior building applications, SageGlass® products help reduce energy bills by controlling solar heat gain and increase worker productivity by allowing additional daylighting, minimizing glare, and enhancing occupant comfort.

To learn more about SAGE and its products, please call 877-724-3321, or visit www.sage-ec.com.

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