PHOTO: COURTESY OF LEHIGH HANSON

A Sustained Commitment

Addressing climate change with solar, energy-efficient and other environmentally friendly products

By Kate Gawlik

The Fred D. Thompson U.S. Courthouse and Federal Building in Nashville was renovated with a sustainable focus, including a photocatalytic cement exterior that keeps surfaces cleaner and abates organic and inorganic substances.

WHAT'S INSIDE

A Sustainable Season

When President Joe Biden signed the Inflation Reduction Act on Aug. 16, climate change and energy security were on his mind. The act includes about $370 billion in energy and climate-related spending. During the signing ceremony, Biden said, "With this law, the American people won and the special interests lost. For a while people doubted whether any of that was going to happen, but we are in a season of substance."

The construction industry and its many sectors have responded as people predict how the act will impact the industry. Many organizations report this was an important step in fighting climate change.

The American Institute of Architects' AIA Executive Vice President/ Chief Executive Officer Lakisha Ann Woods, CAE, says, "I am proud of the work AIA has done to get Congress to include language addressing our legislative priorities. AIA's sustained commitment to advocating for legislation addressing greenhouse gas emissions from the built environment as well as resilient and affordable communities is evident throughout this bill. Though the climate crisis still requires our unrelenting attention, this legislation is a step in the right direction."

According to AIA, the design and construction industry is watching:

- Building Energy Codes. The act includes $330 million in grants to both state and local governments that adopt the latest energy codes that meet or exceed the 2021 International Energy Conservation Code (IECC) and/or ASHRAE 90.1-2019. There also is $670 million available when states and local governments use zero-energy stretch codes.
- Federal Building Energy Efficiency. The General Services Administration (GSA) was awarded $250 million for facility retrofits. In addition, $2.15 billion was allotted for the Federal Buildings Fund that GSA can use to install low-embodied carbon materials and products. GSA has an additional $975 million to invest in sustainable technologies.
- Greenhouse Gas Reduction Fund. Low-income communities have access to $7 billion in competitive grants to use zero-emission technologies.
- Tax Incentives. There are changes to tax incentives to watch, like the Energy Efficient Commercial Building Tax Deduction (179D), Energy Efficient Home Improvement Credit (25C), New Energy Efficient Home Credit (45L), and Research and Development tax credit (R&D).

Those who manufacture sustainable materials and products are looking to the act as an opportunity for growth. A highly talked about solar tax credit is covered in the Solar Energy Manufacturing for America Act, which passed as part of the inflation act.

Jon Tomlinson, manager of the Solar Structure Division with Nucor Building Group, says, "This recent tax policy is breaking news and will help drive solar and clean energy for the next 10 years."

In response to the act, the Solar Energy Industries Association (SEIA) released a whitepaper, Catalyzing American Solar Manufacturing, that discusses how the solar and storage markets can prepare for a solar push by building up their manufacturing practices with a strong workforce.

SEIA President and CEO Abigail Ross Hopper notes, "For the first time, the United States has industrial policy in place that will usher in a new era of clean energy manufacturing. This roadmap is a blueprint for strategically growing America's clean energy supply chain and supporting the companies that have committed to U.S. production once the reconciliation package becomes law. If we follow the recommendations in the paper, we can grow the U.S. solar manufacturing workforce and put the solar and storage industry on a path to secure, sustainable and equitable growth for decades to come."

Economists predict it will take two to three years to see the impacts of the Inflation Reduction Act. ◆

A Solar Success

Businesses will be looking to solar success stories to determine if diving into a solar installation is truly worth it. Lagunitas Brewing Co. in Petaluma, Calif., used to annually spend $1 million on electricity. They then underwent a $5-million, 2.1-MW solar project with the installation of more than 6,000 LG solar panels. One year after the installation, Lagunitas offset about 60% of the brewery's energy use and budget.

"Operating the brewery through solar panels and offsetting the amount of energy that we are using is an incredible feeling," says Keely Wachs, head of consumer affairs & CSR of Lagunitas. "Not only are we excited to see this green energy do great things for Lagunitas, but we're also proud to know that it's doing great things for the environment and our community as well."

Three solar arrays were installed at the site. One was placed on the administrative building, the second sits on a cold-storage building, and the third is a ground mount at an adjacent farm property owned by Lagunitas. The third installation, known as cow-port structures, are elevated so cows and sheep can graze under the array. These structures also provides shade for the animals.

The install was done by Westcoast Solar Energy with LG 72-cell 340W solar panels. Visit lagunitas.com for details. ◆

Courthouse Renovated With Photocatalytic Concrete

Court was back in session in May at the Fred D. Thompson U.S. Courthouse and Federal Building in Nashville after four years of construction. The vast renovation project had a focus on sustainability, including its exterior concrete. Lehigh Hanson, part of HeidelbergCement, provided the TX-Active photocatalytic cement to GATE Precast to produce and construct the facade's exterior concrete elements. This installation is the largest TX-Active photocatalytic project in the United States.

TX-Active photocatalytic cement allows sunlight, humidity and the catalyst to work with the concrete to create a facade that is self-cleaning and smog-eating without facade damage.

PHOTO: COURTESY OF LEHIGH HANSON

Photocatalytic cement incorporates cement with a specially formulated catalyst that reacts with sunlight and atmospheric humidity to create a reaction that speeds up and magnifies the benefits of sunlight on a building. In this case, sunlight, humidity and the catalyst work together with the concrete to create a facade that is self-cleaning (de-soiling) and smog-eating—all without consuming the catalyst or the concrete.

Mo Wright, marketing director of GATE Precast, says, "One of the nice features of this concrete facade is that once it is installed, there is little to no follow-up maintenance for the life of the building." This is a sustainable benefit.

Since first being used in 1996, photocatalytic cements have been developed to react with the surrounding environment to remove pollutants from the air, creating a twofold benefit that keeps its surfaces cleaner and abates organic and inorganic substances that are responsible for air pollution. The building literally cleans itself and the air around it.

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