A SUSTAINABLE SYSTEM

Roofing professionals discuss their experiences with RoofPoint™

by Beth Wang

Photo courtesy of Firestone Building Products Co., Indianapolis

Introduced in 2012 through a pilot program, RoofPoint, a roof rating system for sustainable roof systems, has been formally launched by the Center for Environmental Innovation in Roofing as a permanent sustainable rating program for the low-slope roofing industry.

Developed by the center, RoofPoint is a voluntary, consensus-based rating system that helps building owners and designers select nonresidential roof systems based on long-term energy and environmental benefits.

According to Jim Hoff, the center's vice president of research, the rating system was developed from a need to address environmentally friendly roof space not addressed by most whole-building green rating systems.

"Most whole-building green rating systems don't effectively address the nearly 3 billion square feet of roof space replaced each year," Hoff says. "It's difficult to apply a system such as LEED® when replacing a roof system, which is not related to other building improvements."

The program serves as:

- A checklist to identify how current roof systems provide economic value and protect the environment
- A guideline to establish design installation and maintenance criteria for the selection of sustainable roof systems
- An assessment to compare different sustainable roofing strategies and select optimal roof systems for any building and site condition
- A recognition program to validate roof system selection and reward environmental innovation in roofing

An aerial view of Headquarter Honda's roof system

Photo courtesy of Tecta America Central Florida, Clermont, Fla.

Evaluation

RoofPoint is organized into five functional areas that are further organized into a series of credits. The five areas are Energy Management, Materials Management, Durability and Life Cycle Management, Water Management and Innovation in Roofing.

To be included in the RoofPoint program, a project must score a minimum of 12 credits with a minimum of three in the Energy Management category, two in the Materials Management and Water Management categories, and four in the Durability and Life Cycle Management category.

Hoff says the average project scores about 20 credits. The highest-scoring project to date received 32 out of a possible 35 credits.

Initial goals

The center set a goal for RoofPoint to register at least 100 projects during its first year and has exceeded that number. Almost 300 projects now are registered, and Hoff says the projects are geographically diverse with locations throughout Canada, Mexico and 36 U.S. states.

Hoff says the center also wants the program to be suitable for different roof system types and to include new construction and reroofing projects with an emphasis on reroofing. The program's current reroofing to new roof project ratio is 55 percent to 45 percent, respectively.

RoofPoint continues to grow and add new projects to its database. Following are four projects that showcase RoofPoint-approved roof systems and highlight unique work performed by roofing contractors.

Headquarter Honda

One of RoofPoint's pilot projects, Headquarter Honda, Clermont, Fla., was completed in 2010. The building owners wanted to build a LEED Platinum project incorporating a traditional reflective membrane roof system, vegetative roof system, solar and thermal systems, a paver system and daylighting units.

Tecta America Central Florida, Clermont, built the roof system, incorporating Tecta America Environmental Solutions (Tecta ES™), which was formed to help businesses use their roof systems as an effective way to generate energy and find cost savings. The Headquarter Honda project incorporated the four primary Tecta ES service lines: Tecta Performance,™ Tecta Green,™ Tecta Daylight™ and Tecta Solar.™

As a result of the project, Headquarter Honda features a vegetative roof area that offsets stormwater retention requirements and allows the building owner to construct additional car service bays and a lube center without needing to construct an on-site drainage pond. The service area also features a controlled daylighting system on the roof and a 126-kilowatt (kW) rooftop photovoltaic (PV) system that generates about 196 megawatt-hours of power per year at an annual savings of $19,500, reducing the facility's grid demand during normal operating hours.

Also, Headquarter Honda's 80-gallon, 56-square-foot solar thermal domestic hot water system provides all the facility's hot water needs, and the reflective roof membrane and insulation reduce the building's heat load.

Although the project primarily was a LEED Platinum project, Geoff Hagan, southeast regional sales manager and environmental solutions director for Tecta America Central Florida, says the rooftop environmental solutions Tecta America Central Florida installed made the roof system "fit perfectly within the RoofPoint guidelines."

In 2011, the project was one of eight facilities to submit and receive a RoofPoint Pilot Evaluation. The project received 22 RoofPoint credits, scoring highest in the Energy Management and Durability and Life Cycle Management categories. Tecta America Central Florida also received the 2011 RoofPoint Excellence in Design Award for Excellence in Water Management.

According to Hagan, RoofPoint is easy to follow and can help a project achieve better results.

"A roof system's durability is important," Hagan says. "If anything, you can sell a system's durability to a building owner just using RoofPoint's guidelines. From a durability and maintenance perspective, the Durability and Life Cycle Management category is a must to follow."

Ogden International School of Chicago

In 2011, Bennett & Brosseau Roofing Inc., Romeoville, Ill., was contracted to build the roof system on the newly constructed Ogden International School of Chicago, a LEED-certified building that replaced the deteriorating William B. Ogden Public School in Chicago's Near North Side neighborhood; project foreman Keith Shelly headed the project. The school, which houses about 900 students, was designed by Nagle Hartray Architecture, Chicago, with Terry Guen Design Associates Inc., Chicago.

The school's roof incorporates a vegetative roof system with accessible walkways, a stormwater harvesting system, and a rooftop garden and play area.

According to Ron Taylor, senior project manager for Bennett & Brosseau Roofing, one of the most unique features on the roof is the permeable paver walkway that winds through the roof system's intensive vegetative portion.

John Magill, Bennett & Brosseau Roofing's horticulturist, says the company learned about RoofPoint through a mailer that was sent to the company's office.

"We were excited to see a program that recognized sustainability and innovation," Magill says. "Ogden incorporates vegetation, lighting, seating, play areas, fencing and pavers in addition to all the responsibilities of waterproofing."

Magill performs maintenance work on Ogden International School of Chicago's roof, including periodic irrigation, weekly weeding, seasonal fertilization, seasonal deadheading, planting and more. He says the surface area of the roof system, which scored highest in RoofPoint's Water Management Category, is 90 percent vegetative.

Taylor says one of the advantages of the RoofPoint program is the way it highlights a roof system's sustainable features.

"As a professional roofing contractor, it's nice to see interest in the roof system," he says. "Most people understand the importance of a good roof system, but roof systems go far beyond just keeping the building dry. It is nice to see a recognition system in place for innovation in design and installation techniques."

Bayer CropScience

Bayer CropScience's facility in Kansas City, Mo., produces seed treatments, herbicides, fungicides and insecticides designed to help farmers meet demand for food, feed, fiber and energy crops.

In 2011, Cornell Roofing & Sheet Metal Co., Independence, Mo., was contracted to reroof the facility's 26-year-old polymer-modified bitumen roof system.

According to Joyce Beach, executive vice president of Cornell Roofing & Sheet Metal, the roof system is thermally efficient and uses solar power for renewable energy. It features a highly reflective and durable roof surface, high-thermal system integrity, a high amount of recycled content and a rooftop solar energy system. The system's roof covering is pH-neutral, and the system's white reflective surface reduces the urban heat island effect. The project also generated less waste by recycling tear-off materials.

The project received 23.5 RoofPoint credits for its high R-value insulation, best thermal practices, roof surface thermal contribution, rooftop energy system, recycled content, roof waste management, low-volatile organic compound materials, total water management, construction moisture management, roof system durability enhancement and roof maintenance program.

"This project was an example of overall sustainability from renewable energy to energy conservation and recycling of the old roof system," says Craig Isaacson, vice president of the project's manufacturer DERBIGUM Americas Inc., Kansas City, Mo.

For the project, DERBIGUM Americas received the 2012 RoofPoint Excellence in Design Award for Excellence in Energy Management.

According to Beach, the RoofPoint guidelines are helpful and easy to follow.

"It's valuable," she says. "You look for the points you'd receive for each process, and that guides you when selecting the system."

View of Ogden International School of Chicago's vegetative roof system from the building's northeast corner

Photo courtesy of Bennett & Brosseau Roofing Inc., Romeoville, Ill.

Bridgestone Americas Technical Center

Bridgestone Americas Technical Center, Akron, Ohio, which opened in 2012, houses 450 employees who develop tire technologies for Bridgestone Americas Inc., Nashville, Tenn.

Jerry Morris, facilities manager for Bridgestone Americas Technical Center, says the goal of Bridgestone Americas and project architect SoL Harris/Day Architecture, North Canton, Ohio, was to build a LEED Gold-certified building. An accessible vegetative roof system was incorporated into the design to increase energy efficiency, increase the roof system's life and blend the building with the facility's park-like campus setting.

According to Morris, 100 percent of the vegetative roof system's stormwater, along with stormwater recovery from other areas of the building, is collected in a cistern and used to water all the vegetative roof plants and landscaped areas adjacent to the building.

"Firestone Building Products is committed to a proactive environmental policy," says John Geary, director of education and industry relations for Firestone Building Products Co. Inc., Indianapolis. "We believe it is

A Cornell Roofing & Sheet Metal employee installs solar panels on Bayer CropScience's roof system.

Photo courtesy of Cornell Roofing & Sheet Metal Co., Independence, Mo.

An aerial view of Bridgestone Americas Technical Center's roof system

Photo courtesy of Firestone Building Products Co., Indianapolis

important to not only talk the talk by making and promoting environmentally sustainable products but also to walk the walk by using them in our own buildings."

Wooster Roofing and Construction Co., Akron, was contracted to build the roof system for Bridgestone Americas Technical Center. The company installed 90-mil-thick Firestone RubberGard™ EcoWhite™ Platinum™ EPDM on the main roof area, as well as Firestone Building Products' 90-mil-thick black EPDM on the vegetative roof areas around the building.

The facility's 16,000-square-foot vegetative roof system accounts for 19 percent of the total roof area and features prevegetated modular trays and prairie grasses.

Morris says the system has helped the facility with energy savings and accessibility. He says the roof system is new and it may be too soon to experience all its advantages; however, noticeable observations can be made. For example, snow remains on the roof longer, indicating a decrease in heat loss through the vegetative roof system. Morris also says there is improved water recovery.

The project received 19 RoofPoint credits and scored highest in the Energy Management category. Firestone Building Products also received the 2012 RoofPoint Excellence in Design Award for the project in the Advancing Sustainable Roofing category.

"RoofPoint helps us meet our environmental goals for new construction projects," Geary says. "But it also is applicable to reroofing situations, which make up more than 80 percent of roof systems installed in the U.S."

RoofPoint's future

Hoff says RoofPoint is focusing on three main goals to help RoofPoint achieve long-term success.

The first goal is to evolve RoofPoint into a national standard. As a national standard, RoofPoint can be referenced in key public documents and programs, including model building codes, government procurement standards, and state and federal energy legislation.

The second goal is to develop accreditation to certify RoofPoint professionals. The center would like to develop and certify a broad group of construction professionals who can combine professional roofing experience with a solid understanding of RoofPoint's principles and procedures. RoofPoint would target stakeholders, including roofing contractors, roof consultants and observers, local sales agents, construction specifiers and facility managers, who would focus primarily on helping specify and select roof systems at the local project level.

The third goal is to develop support tools to make RoofPoint more than just a rating system. The center already has released the RoofPoint Energy and Carbon Calculator, which contractors and designers can use to compare a RoofPoint design to another design or existing roof system. For more information, see Briefings, page 46.

The center also hopes to reach 1,000 registered projects by the end of this year. To help reach its goal, the center reached out to The Roofing Industry Alliance for Progress for support. In a report presented to the Alliance in April, the center notes 26 members of the Alliance and the center have submitted projects to RoofPoint, and 17 of those 26 members submitted more than one project. The report says if each of the more than 130 members of the Alliance and the center were to submit five projects during the next year, RoofPoint would be more than halfway to its goal of 1,000 projects by the end of this year.

Jim Kirby, the center's vice president of sustainability, says the center also would like to see more roofing professionals use RoofPoint guidelines to evaluate roof systems before installation.

Hoff and Kirby agree RoofPoint is reaching a vast audience that includes roofing contractors, manufacturers, building owners and roof consultants, and it's helping shed light on quality work performed by roofing contractors.

"We're crossing all realms in the manufacturing industry and reaching the upper tier of contractors who are performing high-quality work on a daily basis," Kirby says.

Looking forward

As RoofPoint continues to grow and develop, it aims to add more features and become a well-known tool to help its users choose, design and construct long-lasting, environmentally responsible roof systems.

"We want to be sure we have projects that represent the best of sustainable construction," Hoff says. "We want RoofPoint to be representative of what roofing contractors do every day."

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