

Staples® , an EPA Green Power Partner, Lowers Heating Costs with an EPDM Roof



JOB PROFILE

PROJECT LOCATION:
Montgomery, NY

CARLISLE APPLICATOR:
Nations Roof LLC

ROOFING CONSULTANT:
Building Envelope Management

BUILDING OWNER:
Staples

ROOFING SYSTEM:
Carlisle 60-Mil Sure-Seal® EPDM

**SUSTAINABLE
DESIGN ELEMENTS:**

- Black EPDM membrane to reduce heating costs
- Added 23.5 R-value from EPS and Polyiso insulation
- Low-VOC Bonding Adhesive
- Recycled construction waste



Known across the globe for its wide variety of products from stationery to computer technology, Staples enjoys a long history of innovation. From its inception in the 1980s, Staples has grown into a multi-national corporation with thousands of stores in more than a dozen countries. It has also established itself as one of the most environmentally friendly companies in the world, enjoying a ranking in the top 25 of the EPA's Green Power Partnership® list combined with three Partner of the Year awards (2004, 2007 and 2011). With thousands of products featuring recycled or post-consumer content, an eco-friendly paper policy, and alternative energy use at some of its facilities, Staples is leading the charge for sustainability.

By 2011, the standing-seam metal roof on the company's Montgomery, NY distribution facility had reached the end of its service life. Maintenance costs were growing exponentially as problem areas were addressed on a case-by-case basis. Staples was investing heavily in improvements at the facility, and the roof was at the top of their list. The vast inventory of office goods – including paper supplies, printer ink, and electronic devices – would be unfit for purchase if the rooftop experienced massive failure. The facility manager at Staples, Steven Oberholtzer, knew that the time had come for a comprehensive roof replacement. True to Staples' ethos of providing environmentally friendly products and services, he was looking for a new roofing system that would provide sustainable protection from the elements over the long term.





Staples Construction and Engineering department and Bill O'Neill, a veteran roofing consultant from Building Envelope Management of Hull, Massachusetts, were tasked in mid-2011 with developing a replacement roofing system that would offer energy savings in addition to leak-free performance. The original roofing system, a 24-gauge metal roof, had served the facility for 28 years; however, its lack of insulation and patch-and-repair response to rooftop failure resulted in continued energy loss. O'Neill employed the help of Carlisle SynTec to develop the design for a new roof. Increasing the facility's energy efficiency was of paramount concern.

"I've been doing business with Carlisle for 30 years," said O'Neill. "They manufacture time-tested products right here in the United States, and they provide superior support. The people at Carlisle never let me down in the past, so utilizing their design team to support me on this project was a no-brainer."

Of the many options available, a solution was developed that would meet the demands of cold New York winters and warm summers, all while protecting the facility's occupants and ensuring the salability of the products inside.

The group utilized Carlisle's RoofSense™ lifecycle analysis program to help Staples make the most informed decision when selecting the material for its rooftop.

RoofSense is a web-based lifecycle analysis program that calculates the potential energy savings realized from energy-efficient roof designs for the next 10, 20 or 30 years. Available free through Carlisle's sales representatives, RoofSense reports accurately demonstrate how building owners can potentially save thousands in energy and maintenance costs.



CASE STUDY

“EPDM is a dependable material that lasts a long time, and its dark-color will help the facility keep its energy costs down...”

—Bill O’Neill

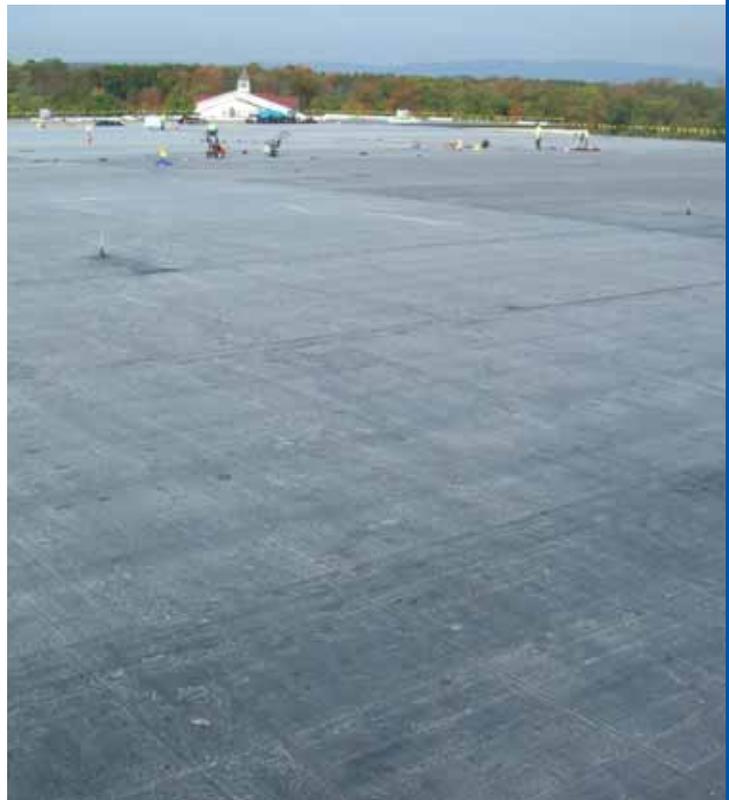
After reviewing several options, the team recommended that the standing-seam metal roof be overlaid with two layers of insulation topped with an adhered layer of EPDM, a rubber roofing membrane known for its toughness and dependability.

Staples made it a point to use local business for the work at this facility, and several contractors from the surrounding area were invited to bid. Longtime Carlisle applicator Nations Roof LLC of Yonkers, NY was chosen to install the new Carlisle EPDM roofing system.

The facility’s roof, consisting of one large level and an office area broken up into three distinct sections, posed some challenges for roofing crews. The vast size of the roof required logistical discipline for the loading and installation of materials due to the light gauge of the old roof surface. Approximately 50 fan curbs, HVAC penetrations, gas lines and heater vents would need to be worked around during the process. Crews began the job in September 2011.

Three-inch InsulFoam® FL, a custom-made, high-performance flute-fill insulation consisting of a closed-cell, lightweight expanded polystyrene (EPS), was installed between seams of the existing metal rooftop. InsulFoam FL’s long-term, stable R-value and excellent dimensional stability, compressive strength and water-resistant properties were complemented by Carlisle’s two-inch, 25-psi HP-H Polyiso, a rigid insulation board featuring polyisocyanurate foam core bonded on each side to fiber-reinforced facers. The combination of the two layers of insulation afforded the facility a high R-value alternative to its original metal roof, allowing Staples to save money on energy costs and reduce its carbon footprint.

One of the main features of the distribution center’s new roofing system was the membrane selected to cover the metal roof. Carlisle’s 60-mil Sure-Seal® EPDM membrane is a time-proven material backed up by a half-century of performance and reliability. The membrane is not only high-quality and user-friendly,



but it also offers an environmental benefit to the eco-conscious Staples. Darker-colored roofing materials are beneficial in facilities that consume more energy heating the building rather than cooling the building as they absorb solar energy from the sun. In most northern climates, building owners spend substantially more money trying to keep their buildings and people warm than they do trying to keep them cool in the relatively short summer. Black EPDM membranes also improve worker safety by reducing the snow load and burning off morning frost or dew. Frost and dew can be virtually impossible for HVAC or maintenance workers to see on white membranes leading to a higher potential for accidents and injuries.

CASE STUDY



The EPDM membrane was rolled out in 16.5-foot x 100-foot sheets and applied over the course of several months. “Our crews enjoy installing Carlisle’s EPDM roof systems,” said Nations’ Vice President of Operations Sal DiSanto. “The membranes and accessories are easy to install and they offer our customers years and years of uncompromising performance.” Crews worked through the New Year, switching from Carlisle’s standard bonding adhesive to its Low-VOC Bonding Adhesive to comply with a change in New York’s building regulations that limit the amount of VOCs allowed in roofing products. Carlisle’s Low-VOC Bonding Adhesive is a high-strength, solvent-based contact adhesive that allows bonding of EPDM and TPO membranes to various porous and non-porous substrates. This product meets the <250gpl VOC content requirements of the OTC Model Rule for Single-Ply Roofing Adhesives.

Throughout the installation, Carlisle’s pressure-sensitive accessories were used for the sake of consistency, and as a way of passing labor savings onto the customer. Staples, whose commitment to sustainability has driven its ink and toner cartridge recycling program for years, was able to recycle much of the refuse generated on the project. The company’s history of environmental stewardship continued when seven 30-yard containers full of cardboard and three 30-yard containers filled with scrap metal were recycled.

“This job was nearly one million square feet and there was virtually no trash generated. That’s true sustainability,” said O’Neill. By the end of the roofing project in April 2012, the company that had committed itself to sustainability was once again able to lower its environmental impact with the installation of an energy-efficient roofing system backed by a 20-year, 72-mph total system warranty from Carlisle.

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