CARLISLE SYNTEC SYSTEMS

NVELOP BUILDING ENVELOPE SOLUTIONS

TRUSTED COMPATIBILITY | **WARRANTED PROTECTION**

CASE STUDY

The Combination of Carlisle SynTec Systems and Carlisle Coatings & Waterproofing Helps to Power Southern Maryland

JOB PROFILE

PROJECT LOCATION:
Leonardtown, MD

GENERAL CONTRACTOR:
Scheibel Construction

ARCHITECT:
Lawrence Abell & Associates, LTD.

ENVELOPE CONSULTANT:
Simpson, Gumpertz & Heger

BUILDING OWNER:
Southern Maryland Electric Cooperative, Southern Region Facility

SYSTEM:

- Carlisle SynTec Systems' 60-mil Sure-Weld TPO Membrane with Contour Rib
- Air & Vapor Barrier: CCW's Fire Resist Barritech VP and Barritech NP Fluid-Applied Membranes
- Below-grade: Carlisle Coatings and Waterproofing's (CCW) MiraDRI® 860

Since 1937, much of southern Maryland has relied upon the Southern Maryland Electric Cooperative (SMECO) for its electrical power supply. SMECO provides electrical power to 161,000 customers, operating primarily from its headquarter facility in Leonardtown, Maryland. Originally built in the 1980s, this vital facility was in need of replacement by 2019. SMECO began conversations with architectural firm Lawrence Abell & Associates, Ltd. to design a new, sustainable facility that would enable SMECO to continually modernize its operations, provide customers with improved service, and create a healthy and more efficient workspace for its employees.

Throughout the planning, design, and construction phases of this project, SMECO utilized the integrated project delivery method, which means that the owner, designers, and construction managers collaborate fully throughout the project to optimize efficiency and reduce waste. The team involved in that process includes Lawrence Abell & Associates, envelope consultant Simpson, Gupertz & Heger; and general contractor Scheibel Construction. By early summer 2019, this team had completed the facility design, and construction broke ground in July.

Construction on the new facility is scheduled to continue through August 2021, at which point the existing building will be removed and additional groundwork will be completed. All construction components are expected to be complete by late fall 2021.

One of the primary goals of this sustainable project is to achieve a LEED® Silver rating. Given his goal, the design and construction team knew that choosing energy-efficient, high-performance products would be an essential element. With this in mind, Scheibel

SOUTHERN MARYLAND ELECTRIC COOPERATIVE, SOUTHERN REGION FACILITY

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Construction proposed the use of roofing and building envelope materials manufactured by Carlisle SynTec and Carlisle Coatings & Waterproofing (CCW). This project would require a number of sustainable and durable materials to address various design considerations, all of which Carlisle was able to provide through its NVELOP building envelope solutions.

The Carlisle building envelope components utilized on this project include below-grade, self-adhering sheet waterproofing membranes and a fluid-applied air and vapor barrier, utilized on the building's foundation and above-grade walls, as well as rooftop insulation and TPO membrane. The combination of these components will not only enable this facility to achieve its desired LEED Silver rating but will also ensure optimal waterproof protection for the entire building.

The below-grade foundation was wrapped with CCW MiraDRI 860 self-adhering sheet waterproofing membrane, a 60-mil-thick membrane manufactured with a unique combination of rubberized asphalt and polyethylene laminated together to promote durability. While CCW's MiraDRI protects the foundation from infiltrating water, CCW's MiraDRAIN® system will facilitate proper drainage, relieve hydrostatic pressure, and protect the waterproofing system. In addition to promoting effective drainage, MiraDRAIN will also provide a lightweight, cost-effective alternative to traditional drainage systems.

Moving up from the foundation, the building's above-grade walls feature CCW's Fire Resist Barritech VP and Barritech NP fluid-applied air and vapor barriers. Made from fire-retardent materials, the combination of Barritech VP and Barritech NP permit use in many wall NFPA 285 requirements. Both membranes will also protect the building envelope against air and water infiltration, while Barritech NP will provide an additional barrier to vapors. When applied, these fully adhered membranes will create a monolithic barrier shield that is able to seal around fasteners and other penetrations, ensuring optimal protection against the elements.

Carlisle's NVELOP building envelope system will not only provide superior protection for the facility's below- and above-grade walls, but will also ensure optimal performance for the 71,000-square-foot rooftop. Scheibel Construction chose to use Carlisle's Sure-Weld Reinforced TPO white membrane in both 60- and 80-mil thicknesses. This membrane met the environmental requirements of the project, featuring 100% recyclability, and ENERGY STAR® qualification while also contributing toward LEED credits. But sustainability was only one aspect of performance that this membrane brought to the project.

Carlisle's Sure-Weld Reinforced TPO is manufactured using a hot-melt extrusion process, combining two TPO plies with a polyester fabric reinforcement that provides added strength and puncture resistance for extreme durability. The membrane also features Carlisle's unique Octaguard XT™ weathering package, which makes it extremely resistant to harsh weather conditions, including hail, UV rays, oxidation, and temperature fluctuations.

Portions of the rooftop also feature Carlisle's Sure-Weld Reinforced TPO with Contour Rib, a unique system that creates the aesthetic appeal of a standing-seam metal roof at a significantly reduced cost with enhanced performance, providing an ideal alternative to the traditional metal rooftop.

The rooftop membrane system also incorporates additional components manufactured by Carlisle, including VapAir Seal MD membrane. This vapor-retardant membrane is specifically designed for use over steel decks underneath mechanically fastened insulation. Manufactured with a reinforced composite aluminium foil with a self-adhesive SBS backing, VapAir Seal MD provides superior vapor resistance, accommodating even the most extreme internal vapor-producing conditions, including bathrooms, kitchens, and the like. In addition, this membrane features a removable poly release film, which provides a quick and easy application, reducing labor and construction timelines.

A third energy-efficient component to this rooftop will be Carlisle's 4.5-inch-thick InsulBase polyiso rigid insulation board that will be mechanically fastened to the roof deck on top of the VapAir Seal MD membrane. This insulation will provide a minimum thermal value of R-30, enhancing the energy efficiency of the facility while significantly lowering its overall operating costs.

The combination of these high-performing rooftop components enabled the design and construction teams to address a variety of challenges that existed on this project, including a multitude of expansion joints; six solatubes; RTU and DOAS curb penetrations; and generator intake and exhaust penthouses. These specific elements to the rooftop construction are present in the context of the larger challenge of installing components that will fully and effectively integrate into a pre-engineered metal building roof system.

With its utilization of Carlisle's NVELOP building envelope components, from the foundation all the way to the rooftop, this new SMECO facility will be able to achieve its goals in sustainability—providing an enhanced environment for its employees and improved services to its customers, all with the additional benefits of reduced operating costs, increased efficiency, and long-term facility performance. Customers in southern Maryland are about to be pleasantly surprised.

800-479-6832 | P.O. Box 7000 | Carlisle, PA 17013 | Fax: 717-245-7053 | **www.carlislesyntec.com**

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