

# Sure-Flex™ PVC

Roofing Systems

## CASE STUDY

### Sure-Flex PVC Protects Students at West Springfield High School



#### JOB PROFILE

**PROJECT LOCATIONS:**  
West Springfield, MA

**SQUARE FOOTAGE:**  
146,000

**PROJECT DURATION:**  
26 months

**ROOFING CONTRACTOR:**  
Titan Roofing, Inc.

**ROOFING SYSTEM:**

- » .060 Sure-Flex™ PVC
- » RhinoBond® membrane attachment system
- » ¼"-thick DensDeck® Roof Board
- » Two layers 2.5"-thick polyiso insulation

Originally established in 1915, West Springfield High School has built a reputation of serving its students and community well. As the only high school in the city, West Springfield High has a significant responsibility in providing top-quality education in a safe environment for its nearly 1,200 students. In 2012, when it became evident that the school facilities were inadequate for the increasing student enrollment the school district knew that they needed to construct a new school.

Construction projects of this magnitude can be infinitely complex, and one of the most complex elements is coordinating the construction teams that are working on different parts of the facility. The rooftop construction plays a major role in this coordination as the interior finishes needed to remain watertight, which means that rooftop construction must be perfectly timed.

This presented the greatest challenge to the team at Titan Roofing, the local contractor that was chosen to manage the rooftop construction. In addition to the coordination and scheduling challenges, the 146,000 square feet of rooftop presented a unique challenge



in that it had at least 20 different levels of elevation, all of which had to be constructed individually and with varying components in order to enable effective stormwater management. All of this had to be completed within 26 months.

Because of these unique construction elements, Titan Roofing chose to use Carlisle SynTec Systems' Sure-Flex™ PVC roofing membrane attached using Carlisle's RhinoBond® system, which would not only provide superior performance but would enable the installation team to work quickly.

The rooftop installation began by covering the new metal deck with ½"-thick Carlisle DensDeck® Roof Board, which was mechanically attached with Carlisle's fasteners and plates. Once the cover board was in place, the installation crew rolled out Carlisle's VapAir Seal™

725TR self-adhered air and vapor barrier membrane, adhering it to the cover board with spray-applied CAV-GRIP™ primer, which provided a quick, strong adhesive tack. The VapAir Seal 725TR membrane provided waterproofing for the interior of the building, ensuring that the work being completed inside was protected until Titan's crew returned to install the remaining roofing components.

The next step was to install two layers of Carlisle's 2.5"-thick polyisocyanurate insulation and a ¼"-thick layer of DensDeck cover board for additional protection and energy efficiency. This multi-layered system was mechanically attached to the metal decking with Carlisle's HP-X fasteners and RhinoBond plates. The final step in this construction was the Sure-Flex PVC membrane. The installation crew loose-laid 10-foot-by-100-foot sheets of the membrane over the rooftop, heat-welding the adjoining seams for monolithic waterproofing.

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coverage. The 60-mil-thick, white PVC membrane was then welded to the insulation plates using a non-penetrating, electromagnetic induction welding process with Carlisle's RhinoBond attachment system. The 15-person crew used multiple RhinoBond systems across the rooftop to further speed up the installation process.

The use of the RhinoBond attachment system enabled the crew to quickly waterproof areas of the building that needed protection from the weather, allowing them to return to those areas later on to complete the final membrane welding process. The RhinoBond system also enabled Titan to meet the stringent Factory Mutual, wind uplift and 20-year warranty requirements

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of the project while using fewer fasteners and larger membrane sheets, saving both material and labor costs when compared to traditional attachment methods.

The use of Carlisle's Sure-Flex PVC membrane also contributed to the speed of the rooftop installation. "The membrane seams welded nicely throughout all of the weather conditions we encountered during the 26 months of installation," said Brian McKernan of Titan Roofing.

Carlisle's PVC membrane also enabled the installation of solar panels on top of the school's gym facility. Because of its high reflectivity, Carlisle's white PVC is ideal for use under rooftop

solar as it enhances energy efficiency and provides the reflection needed for optimal solar energy production.

Despite the unique complications and challenges of this project, Titan Roofing was able to complete the entire rooftop construction by February 2014, just in time for students and staff to move into the new facility after spring break. This cutting-edge facility includes a large gymnasium, a new 25-yard pool and an indoor walking track, as well as a new library, cafeteria and auditorium. Under the protection of Carlisle's highly durable PVC roofing system, the students of West Springfield High will now be able to enjoy state-of-the-art academic and athletic facilities for years to come.