

SPRAY POLYURETHANE FOAM ALLIANCE
SPFA
 NATIONAL
**INDUSTRY
 EXCELLENCE
 AWARDS
 2012**

SPF BRINGS EQUALITY
 TO STAR SEARCHING,
**KEEPING THE
 HEAVENS IN
 VIEW**

**SPFA 2012 NATIONAL CONTRACTOR
 EXCELLENCE AWARD WINNING PROJECT
 (SPECIALTY APPLICATION)**

Congratulations to Elite Insulation/Poly Pro LLC, winner of the 2012 Annual SPFA National Contractor Excellence Award for Specialty Application. This project is an example of SPF's performance, applicability and appeal, in this case to the world's premiere single-dish radio telescope. Winners of the SPFA Awards must submit their project and have it judged best-in-class by a panel of construction industry leaders.

THE 43-METER equatorial telescope located at the Green Bank Observatory in West Virginia will spend many more years focused upon the heavens thanks to SPF.

Installed in 1965, the National Radio Astronomy Observatory's (NRAO) 43 Meter Radio Telescope is considered one of the largest equatorial satellite telescopes in the world. The telescope has been used for many purposes such as a collaborative project with the Massachusetts Institute of Technology (MIT) to study pulsars and turbulent properties of Earth's ionosphere. Its performance is enhanced by its location within the National Radio Quiet Zone (NRQZ), established by the US FCC in 1958 to minimize possible harmful interference to the National Radio Astronomy Observatory (NRAO) in Green Bank, WV and the radio receiving facilities for the United States Navy in Sugar Grove, WV. This enclosed a land area of approximately 13,000 square miles near the state border between Virginia and West Virginia

Over time and constantly exposed to the elements, the metal exterior of the polar shaft was expanding on the side exposed to the sun while not expanding

on the shaded side, due to excessive heat. The non-uniform metal expansion caused measurements taken by NRAO scientists to be inaccurate. The original fixed-budget used to develop the telescope meant a fast-track to completion, and resulted in unknown mechanical performance of the giant regarding stress to the panels and possible deformation.

Playing such an important scientific role, in conjunction with other radio telescopes around the globe, the 2,500 ton moving-weight unit could not be out of action for long nor could it allow environmental factors to reduce its accuracy.

To solve the issue of the expanding metal, Wells and his team applied 1½ inches of 2.8 density, Lapolla FL-2800 closed-cell foam and Lapolla's TF-1000 quick set elastomeric coatings on the polar shaft of the 140-foot telescope. This amounted to a 1,000 square foot, sensitive installation. They used a Graco H-XP2 proportioner, Hydra M 4000 coatings pump, and Graco Fusion AP gun.

"The foam and coatings helped the polar shaft to stay at a uniform temperature," said Wells. "If one side is exposed to the sun, it will be kept the same temperature as the opposite [non-exposed] side."



The staging area was four stories from ground level and needed three extra sections of scaffold to reach the areas in need of attention. Scaffolding had to be secured and tied down and all installers on the scaffold were required to wear a safety harness with a fall restricting lanyard. Also, being that high in the air, on top of a mountain, the crew had to pay close attention to the weather and especially the wind with respect to overspray.

"We originally won the job in September of 2010," said Wells. "At the time, the roofing season was coming to a close and the weather was not favorable for an exterior foam application. The NRAO complex is way up in the mountains of West Virginia and the weather there is fairly extreme. We were forced to wait until the spring of 2011 to find a suitable day." That day came in May 2011. With the improved weather conditions, installers Justin Strombeck and Daniel Sherman were able to meet all necessary safety and exterior spray installation requirements for Elite to begin work on the telescope.

Two days later, the job was completed with positive reactions from the NRAO scientists.

"For this job, there was really no other option for an operating satellite telescope," said Wells. "The polar shaft is weather exposed, and a moving part of the telescope. They needed something fully adhered that had excellent insulating properties and could be coated with a 'cool roof' style white elastomeric coating. A sprayfoam roofing style system was really the best and their only option."


"It's back!" exclaims the NRAO website, referencing the return of the telescope. After a short break, the telescope is back in action and coordinating with the other radio telescopes of the region on important discovery and research.

"It was not a huge project square-footage-wise," said Wells. "But this is one big pile of complicated concrete, steel, servos, actuators and cabling. It was one of the more technically challenging installations I have seen, and it couldn't go wrong. I really am proud that the SPFA and the industry recognized

this unique project and bestowed an annual Contractor Excellence Award upon us for the hard work." ○

PolyPro LLC (www.polyprollc.net) is a locally owned and operated family business established by Bob, Ken and Chris Wells. Being involved in the traditional fiberglass insulation for many years, we have witnessed changes in the insulation industry. Namely, the increasing cost of energy, consumer driven environmental awareness and a demand for more efficient homes. Traditional insulation has its limits and in order to meet consumer needs, PolyPro set out to provide a range of insulation systems that would significantly improve the way homes and buildings are insulated. Spray Polyurethane foams and their associated hybrid methods are those systems. We are the Valley's leading full-service spray polyurethane foam insulation company.

The National Radio Astronomy Observatory (<https://science.nrao.edu/facilities/gbt/other-telescopes/43meter>) is a facility of the National Science Foundation operated under cooperative agreement by Associated Universities, Inc.



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