National Radio Astronomy Observatory

Installer: Justin Strombeck, Daniel Sherman
Location: Green Bank, WV
Type of Job: Exterior foam and coating application
Square Footage of Job: 1315
Equipment Used: Graco H-XP2 proportioner, Hydra M 4000 coatings pump, Graco Fusion AP gun
Number of people needed for the Job: 3
Number of days required by the Job: 2
Special Requirements: The staging area was four stories from ground level and needed an extra three bucks 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, we had to pay close attention to the weather and especially the wind, with respect to over spray.
Foam and coatings used: Lapolla FL-2800 foam, Lapolla TF-1000 coatings

Project Description: Installed in the 1960s, the National Radio Astronomy Observatory (NRAO)’s 43 Meter Radio Telescope, located in Green Bank, WV, is deemed the largest equatorial satellite telescope in the world. Currently, the telescope is being used in a collaborative project with the Massachusetts Institute of Technology (MIT) to study pulsars. The NRAO contracted Ken Wells, an owner of Elite Insulation & Poly Pro, LLC, to furnish and apply spray polyurethane foam insulation and elastomeric coating on the polar shaft of the 140-foot telescope. The metal exterior of the polar shaft was expanding on the side exposed to the sun and not on the shaded side, due to excessive heat from the sun. The nonuniform metal expansion caused measurements taken by NRAO scientists to come out inaccurate. To solve the issue of the expanding metal, Wells and his team applied 1½ inches of 2.8 density, Lapolla closed-cell foam and Lapolla's TF-1000 quick set elastomeric coatings. “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.

Benefits of using Foam: For this job, there was really no other option for an operating satellite telescope. 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 an “cool roof” style white elastomeric coating. A spray foam roofing style system was really the best and their only option.