

# ROWING RED

Historic Philadelphia Boathouse Gets a New Vibrant Red Roof with High-Performance Coating

By Ron Partridge



› As the earliest of the surviving Boathouse Row structures, the home of the Philadelphia Girls' Rowing Club (far left) serves to anchor the other elegant boathouses along the banks of the Schuylkill River. All photos courtesy of Arkema Inc.

**T**he Philadelphia Girls' Rowing Club is an amateur all-female rowing club located on Philadelphia's picturesque Boathouse Row — a national historic landmark and birthplace of American rowing. Founded in 1938, it is the oldest active women's sports club in the U.S. and home to Olympic, Masters, and National Champion rowers.

As the earliest of the surviving Boathouse Row structures, the home of the Philadelphia Girls' Rowing Club serves to anchor the other elegant boathouses along the banks of the Schuylkill River. With its signature “barn-red” roof and prominent location just downstream from the bend in the river, the house is a cherished symbol of the history of rowing and the place of women in a predominantly male sport.

Listed in the Philadelphia Register of Historic Sites, the two-and-a-half-story Italianate style boathouse stands largely unchanged from the days in which it was built in 1861. A hipped roof — double-pitched in the front — and topped by a distinctive square cupola imparts much of the building's architectural character and aesthetics.

## Historic Roof Preservation

After experiencing some roof performance problems in 1994, the Philadelphia Girls' Rowing Club contracted Cooper Roofing to install a new roofing system on their prized boathouse. The Philadelphia Historic Commission took serious notice of the project and wanted the new roof to match the original 19th-century design. To gain insight into the original roof composition, work crews took a cross section of the roof down to the wood deck and found the building's original flat seam-soldered tin (terne) roof, coated with “Tinner's Red” lead paint.

Although the goal of historic restoration is to use original materials, in many instances this is not feasible due to product performance and/or economic reasons. This was the case with the historic boathouse's reroofing project as lead-based paints used in the 19th century were long discontinued due to environmental, health, and safety concerns, as well as inferior performance. As a nonprofit relying primarily on membership dues, the club also couldn't

afford a roof replacement with tin or other metal.

Respectful to the high historic aesthetic standards established and the club's budget constraints, Cooper Roofing proposed — and the Historic Commission accepted — an alternative cost-effective solution using a smooth modified bitumen membrane. This flexible membrane was installed in a way to replicate the aesthetic of old-world tin roofing coated with a properly tinted (“Colonial Red”) elastomeric system.

### Challenging Weathering Environment

Situated low along the riverbank, the historic boathouse is subjected not only to wind-driven heavy rains, but also water from the nearby falls downstream. Extreme seasonal temperature fluctuations of the Mid-Atlantic region, which crosses over the freeze-thaw threshold more than any other area of the country, also puts a lot of back and forth stress on the roof. Adding to these challenging weathering conditions are the urban environment's acid rain and fine soot in the air.

In 2019, the roof of the building was showing signs of significant weathering, degradation, and color fade. Upon inspection, the team from Cooper Roofing determined that the existing roof coating applied seven years earlier reached the end of its useful service life, and club members decided to move forward with a recoating project.

“There was noticeable chalking, blistering, alligator cracking, and dulling of the surface as a result of dirt, mildew, and other airborne pollutants,” said Terry Cooper, owner of Cooper Roofing. “The roof clearly needed to be recoated to ensure protection of the building envelope, as well as to revitalize its iconic barn-red aesthetic appearance.”

### Desired Longer Service Life

For the roof restoration, the Philadelphia Girls' Rowing Club wanted a durable solution that would stand up to the challenging weathering conditions much longer than the typical seven-year lifecycle of an elastomeric coating. The hot and cold seasonal fluctuations, combined with the riverfront urban location, called for a superior coating system offering excellent water repellency and resistance to dirt and biological



➤ Showing signs of significant weathering, degradation, and color fade, the roof was in dire need of a recoating.

growth. Because the red roof is such an important landmark on Boathouse Row, long-lasting color retention was also of vital importance to both club members and the city itself.

In search of a high-performance coating to provide the durability and aesthetic performance characteristics required for the job, Cooper Roofing reached out to the experts at Acrymax Technologies in Media, Pa. For nearly seven decades, the company's engineered coating systems have been used to overcome very challenging problems at countless historic roof restoration projects.

“We are deeply committed to the preservation of historic roofing systems and each product we recommend is carefully chosen to achieve a specific objective,” said Eric Bennung, product development engineer at Acrymax. “For the roof topcoat on the boathouse, we selected our AF-4400 coating, which combines the flexibility of an elastomeric acrylic with the superior durability properties of Kynar Aquatec® fluoropolymer technology.”

Coatings formulated with water-based Kynar Aquatec PVDF emulsions provide the same long-lasting durability, extreme weatherability, and color-retention properties as Kynar 500® PVDF resin-based coatings, which can withstand extended exposure to temperature extremes, ultraviolet rays, and other harsh climate conditions. However, unlike factory-applied Kynar 500 resin-based coatings, coatings based on Kynar Aquatec PVDF emulsions cure at ambient temperatures, meaning they can be field applied to a variety of substrates



and as a finish coat over acrylic basecoats. They also offer outstanding resistance to dirt, staining, algae, mold, and corrosion, and they are excellent at preventing water from penetrating the surface, since PVDF is naturally hydrophobic.

**Restoration Gets Underway**

All materials and processes used in this high visibility project were selected for their high-performance qualities. The team from Cooper Roofing started the job by power washing the entire 3,150-square-foot roof to clean off any debris, dirt, chipping paint, and other contaminants that can interfere with adhesion. As the next step in preparing the surface for the coating job ahead, workers repaired any low areas, ponds, blisters, and cracking where water might pool up and cause leaking issues.

Once the roof surface was properly prepared, Cooper Roofing roller applied a barn-red acrylic elastomeric basecoat (Acrymax AF130XT) at an application rate of 1 gallon per 100 square feet (16 wet mils). This ensured a minimum dry film thickness of 8.5 mils. Working from top to bottom, the crew then roller applied the barn-red AF-4400 high-performance topcoat in a manner to achieve specified dry film requirements and to provide a uniform, pinhole free, and continuous coating film.

According to Chase Cooper, project manager for the roofing work, the high-performance topcoat was very user-friendly and easy to work with.

“From an applicator’s point of view, I was very pleased with the end result and would definitely



› The high-performance coating used on the historic boathouse will keep the roof’s aesthetic appearance looking bright barn red for many years ahead.

recommend it to customers who are looking for a high-quality roof coating that will last for 15 to 20 years or more,” he said.

**PHILADELPHIA GIRLS’ ROWING CLUB BOATHOUSE**

**Location:**  
Philadelphia, Pa.

**Roofer:**  
Cooper Roofing Corp., Bridgeport, Pa.

**Website:**  
[cooperroofing.com](http://cooperroofing.com)

**Roof Size:**  
3,150-square-foot roof

**Completion Date:**  
2019

**Key Challenge?:**  
Giving new life and increased durability for the roof above a 150-year-old structure with historic and sentimental ties to the community.

**Roofing Products:**  
• AF-4400 coating by Acrymax Technologies  
• Kynar Aquatec PVDF resin-based coating

**Long-Lasting Protection and Beauty Restored**

The restoration was completed over a two-day period in September 2019 when the weather was mild and dry.

“It was a very memorable and exciting job for Acrymax to collaborate with Cooper Roofing and Arkema on because of the history behind this landmark building on Boat House Row,” said Bennung. “By applying Acrymax’s durable AF-4400 topcoat formulated with Kynar Aquatec PVDF resins, we can expect the new roof to stand up to the area’s challenging weathering conditions for a very long time.”

“The new roof on our 150-year-old clubhouse looks great and we are very happy with how these three locally based companies took charge

of the entire process in providing us with a superior, cost-effective restoration solution,” said Sophia Socha, president of the Philadelphia Girls’ Rowing Club. “They went through great lengths in matching the historic color needed and applying a premium coating product to keep its aesthetic appearance looking bright barn red for many years ahead.” **RC**

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