

NANO-CLEAR PROTECTION FOR COOLING TOWERS

**Project:**

Restore and protect fiberglass cooling tower exteriors.
Extend the service life of the fiberglass.

Project Location:

Norman, OK.

Applicator/Installer:

Tower Tech
100 E California Ave.
Suite 210
Oklahoma City, OK, 73104
405-979-2100

Coating Formulation:

Nano-Clear Industrial Coating –
aliphatic polyurethane/polyurea.

Application System:

Roller.

Dates of Application:

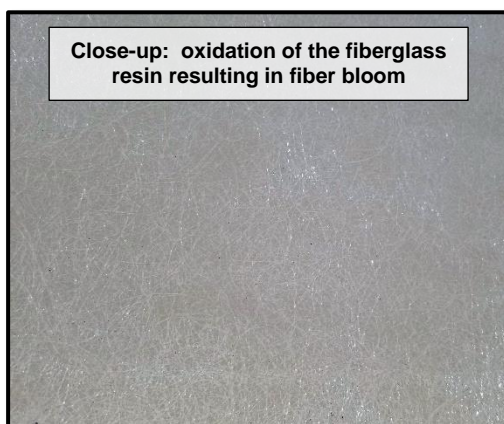
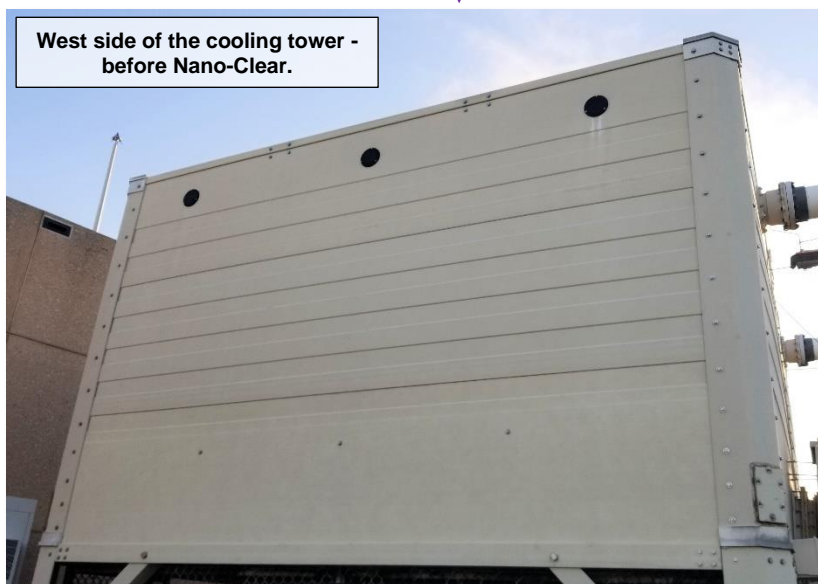
21-22 October 2021.



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CURRENT SITUATION:

The cooling towers were installed at the customer's facility in 1996. After 25 years of service, the exterior surfaces of the pultruded fiberglass were becoming heavily oxidized and faded. On the south and west sides of the cooling towers the fiberglass started to show fiber bloom. The fiberglass needed to be protected from further UV degradation and color fade.



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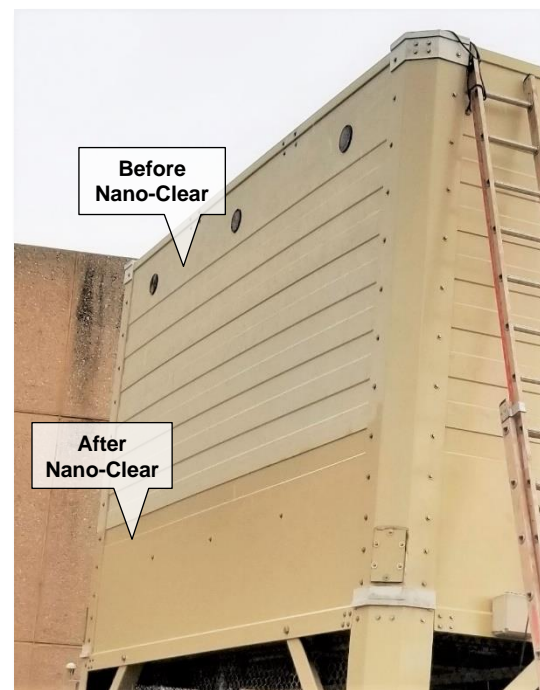
SOLUTION:

Each cooling tower is 18'L x 12"W x 12'H. The two cooling towers are placed within inches of each other, so the two sides that face each other were not coated. The remaining three sides of each cooling tower were coated along with the legs and support members.

The oxidized fiberglass on all exposed sides of each cooling tower were coated with Nano-Clear Industrial Coating – a clear, aliphatic, polyurethane/polyurea hybrid coating that contains a UV absorber.

Nano-Clear is specifically formulated to penetrate oxidized fiberglass and paint. Nano-Clear penetrated into the oxidized fiberglass profile enhancing the faded color while forming a highly cross-linked, long-term protective barrier on top of the fiberglass stopping the progression of UV damage.

Some of the fiberglass surface had fiber bloomed. The presence of fiber bloom is a result of UV oxidation (degradation) of the resin portion of the fiberglass matrix. The recommendation would be to apply Nano-Clear before evidence of fiber bloom. Additional coatings of Nano-Clear were required due to the fiber bloom.



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APPLICATION:

Step 1: Pressure washing all surfaces to receive the Nano-Clear coating.

- All the exterior surfaces of the cooling tower were pressure washed with clean water using a non-heated 2000 psi pressure washer.

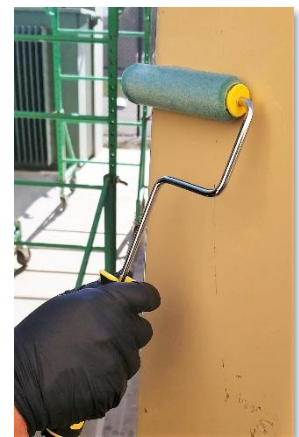


Step 2: Detergent wash of all surfaces.

- Immediately after pressure washing, that same surface was washed with a high pH biodegradable, phosphate free detergent and scrubbed with a medium stiff bristle broom to mechanically agitate the fiberglass surface removing dirt and contaminants.
- This was followed by a clean water rinse.

Step 3: Application of Nano-Clear using rollers.

- Spray application is the preferred method of applying Nano-Clear. Due to the close proximity of the cooling towers to a university parking lot and students going in and out of the facility, rolling Nano-Clear was chosen.
- When rolling Nano-Clear onto the fiberglass surface it is important to use the correct roller. The recommended roller is a Purdy Parrot roller. It leaves a smooth surface with minimal orange peel. In this application the roller did not create any bubbles so adding a roller additive was not necessary.
- Prior to rolling on Nano-Clear, the area to be rolled was wiped with acetone to remove dirt or contaminants that had landed on the surface between cleaning and coating.
- The first coat of Nano-Clear was applied to the fiberglass with the objective of thoroughly wetting out the fiberglass surface. When rolling with Nano-Clear it is important to roll from the bottom of the target area up. This keeps the material from running. Once the majority of the coating material in the roller had been applied to the fiberglass surface then the applied coating was rolled in a cross-hatch direction to ensure a complete, uniform coat of Nano-Clear.
- A minimum of two coats of Nano-Clear is always required. For this project, three coats were used over the majority of the surfaces on these cooling towers. The second coat was applied after the first coat had 7-10 minutes to flash off solvents and become tacky. The same procedure was followed for the third coat.
- The finished cured coating had an overall smooth finish. Some areas with advanced fiber bloom had a slightly rough texture. All surfaces were completely coated and protected.



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A small investment made a remarkable difference in long-term protection and extended service life!

