



## Crown of Gold: Roof Gleams Anew Atop N.Y. Landmark

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By Joe Maty  
Editor, *Durability + Design*

New York Life Insurance Company has successfully built an indelible brand identity by calling itself "The Company You Keep."

Perhaps equally firmly etched into public consciousness of the venerable Empire State-based concern is its landmark headquarters building on Madison Avenue, a Gothic-revival, Indiana limestone edifice designed in 1926 by the legendary Cass Gilbert. The towering structure has loomed large in the company's media imagery for many years.

No doubt it's the building the company will keep, considering its intimate connection with the corporate identity.

Recently, the company also demonstrated that the building's roof it is surely determined to keep—intact in all its gold-gilt glory, a gem glittering amid Gotham's steel, stone, and concrete canyons.

New York Life summoned The Gilders' Studio Inc., based in Olney, Md., to formulate and execute a restoration and regilding program for the pyramidal, lantern-topped roof, composed of 25,000 gilded tiles. The job entailed an in-depth evaluation of materials and methods to return the roof and lantern to their former, glittering appearance. The company also serves as construction manager for the project.

Michael Kramer, president of The Gilders Studio, said the roof is the largest exterior gold-leaf structure in the country, at more than 30,000 square feet.



*The upper section of the building, showing the gilded roof following restoration*

*Photos courtesy of The Gilders' Studio.*

### Gilbert: A towering figure in American architecture

The New York Life building, completed in 1928 at a reported cost of \$21 million, is regarded as the last major skyscraper design of Cass Gilbert, whose masterful body of work includes the landmark Woolworth building in New York; the U.S. Supreme Court; the St. Louis Art Museum and St. Louis Public Library; and state capitol buildings in Minnesota, Arkansas and West Virginia.

Restoration programs involving three major Gilbert works have been the subject of articles in *Journal of Architectural Coatings* (now *Durability + Design*): 90 West Street in New York (see [Miracle at 90 West Street](#)); the Woolworth (see [Preserving the 'Cathedral of Commerce' demands devotion to the details of Gothic landmark](#)); and the West Virginia State Capitol (see [Memorable masterpieces](#)).

The New York Life building soars to a height of 615 feet, with 40 floors, and is listed on the National Register of Historic Places as a National Historic Landmark, and also was designated as a New York City landmark by the city's Landmarks Preservation Commission.

New York Life Insurance traces its beginnings to 1845, and the company has been headquartered at the Madison Avenue building since its completion in 1928.

### A steep challenge

New clay tiles on the building's roof had last been installed in the mid-1990s, and were covered with a baked gold enamel, said Kramer. Representatives of New York Life indicated a preference to retain the tiles rather than replace them. Restoration and recoating *in situ* were determined to be the most cost-effective option, and would result in a roof that could be maintained and "spot-repaired" with gilding as needed.



*Atlantic Hoisting and Scaffolding erected 23 levels of scaffolding for the project.*

Kramer said an investigation of the existing tiles indicated that the tiles had been fired at a higher temperature than the bake specified for the enameling, as a higher temperature would adversely affect the gold color. He said it also appeared that lead content in the original gold enamel from 1967 was replaced by bismuth in the 1995 versions.

Lead “is a great UV inhibitor and plasticizer,” and contributed to the long-term durability of the tiles installed in 1967, he said.

In any case, “the tiles were fine; it was the fired gold enameling that was failing,” Kramer said. The weatherability of the porcelain enamel was apparently not up to the task, with wash patterns from rainfall correlating with areas of enamel failure.

### **The restoration plan**

Although The Gilders’ Studio first entered the picture in 2000 to investigate and chart a roof-resuscitation approach, discussions lurched forward in fits and stops over the next several years. Finally, in 2005, New York Life signaled its readiness to move forward with a program to remove the gold enamel and proceed with traditional gold-leaf application.

A good deal of study and testing was carried out to determine the best means of removing the failing gold enamel and applying the necessary coatings and gold leaf. A number of abrasive blast media were evaluated, including walnut shell, bicarbonate of soda (baking soda), coal slag, even corncob. The objective was removal of the failing enamel but modest etching—not removal—of the underlying glaze to provide a profile that would facilitate adhesion of primer.

Then came the job of settling on a coating/gilding system of primer, oil size, and gold leaf. A battery of tests—salt fog, thermal cycling, QUV—were conducted on primers, and determined that an epoxy primer would best serve the purpose.

### **Materials issues**

The plan devised for the job ran into complications, due in part to environmental regulations on coatings that went into force in recent years. A solvent-based polyamide epoxy primer that was found to be the optimal choice in 2003 testing was no longer available when execution of the restoration program finally commenced in 2007, due to new limits on VOC (volatile organic compounds) in New York and other northeastern states. In addition, a phenolic resin-based size product from the French company Lefranc and Bourgeois, described by Kramer as the longtime industry standard, also was not available due to new European Union rules prohibiting lead content. An alternative, lead-free size from the company was found lacking, he said.

“So we had this project, with were without a primer system or a size system,” he recalled. Finally, after further testing and evaluation, alternative primer and size materials were chosen, and the project commenced in early 2007 with removal of the existing gold enamel.

Kramer said a sponge-type media proved to be a good choice for the job of coatings removal, as it scoured the surface and absorbed any dust generated by the loosening of the existing coating. In the process, the media is recycled and reused multiple times with a vacuum and sorting system supplied by Sponge-Jet Inc., Portsmouth, N.H.

The media type used was Sponge-Jet’s Silver Sponge, a composite of aluminum oxide and urethane sponge. The media is offered in a range of aluminum-oxide grit sizes, with the grade determined by the profile specified for the job. The profile range is from 6 microns (less than .25 mil) to approximately 100 micron (appr. 4 mil).

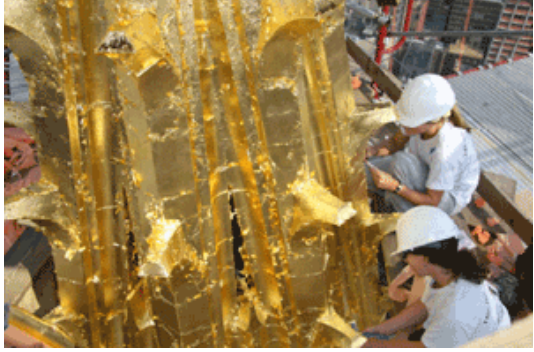
Application of the two-component primer—MACROPOXY 646 from The Sherwin-Williams Company—was done by the painting subcontractor, Caruso Painting and Decorating Corp. of New York. Scaffolding—a monumental job in itself, with 23 levels needed from the base of the roof to the top of the lantern—was erected over a six-week period in early 2007 by Atlantic Hoisting and Scaffolding, Brooklyn, N.Y. Application of size and gilding was the work of The Gilders’ Studio, using a slow oil size from Rolco Labs, Carlstadt, N.J. The gilding was done with 23.75-karat leaf from Italy.

The primer is described as a fast-cure, high-solids polyamide epoxy formulated for use in demanding exterior applications. VOC content without thinning is listed as 250 grams per liter.



*The roof and lantern, shown shrouded in mesh during coatings-removal process.*

### Fixing the lantern



*Gilding in progress.*

Extensive repair and restoration was required on the lantern, a 65-foot-high golden adornment atop the peak of the roof. The structure, originally bronze and copper, had been restored in 1967 with copper, including some lead-coated copper, and a combination of bituminous-type material, lead, and some type of textured paint over all the surfaces as a waterproofing system, Kramer said. The surface had been painted and regilded in 1995.

After deciding complete coating removal was the proper course of action, the project team used the Peel-Away system from Dumond Chemicals to remove the coating from the

lantern's lower portions. The system, however, did not remove the bituminous material on the lantern's upper section, where heat guns and the sponge media was used. A relatively low temperature was employed with the heat guns to prevent vaporizing of any lead content in the layers of coatings and tar.

H&S Environmental, a New Jersey company, was employed to provide containment and disposal services for lead-containing materials removed from the roof and lantern. Kramer said the project team consulted extensively with New York OSHA representatives, and he said the discussions helped to ensure seamless compliance with regulations and guidelines. "You're in a partnership with them," he said.

The lantern restoration job required extensive repairs to the lower portion of the structure and its associated ornamentation. The epoxy primer was used on the lantern's lower section, composed of lead-coated copper, while a zinc chromate primer from Rust-Oleum was used on the top 45 feet, which remained bronze and copper. Kramer said the acid content of an epoxy coating could be incompatible with bronze. The Gilders' Studio completed the job with application of oil size and gilding.

### Solid, gold

Margaret "Peggy" Brady, New York Life corporate vice president, building operations, said company officers like what they see when they gaze up at the restored roof. "We wanted it to be repairable, and we can spot-repair it with the gilding," she said. "We haven't seen any marring or discoloration, and we are following a maintenance program going forward."

Brady said the company values greatly its landmark building and the distinctive gold roof, which she describes as consistent with other noteworthy architecture in this section of Manhattan.

"It's a good roof; it's solid. And we want to be able to maintain it," she said.

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*An ornamental finial following gilding; in the background is the Empire State Building.*