



Photos courtesy of Charles F. Evans Co. Inc., Elmira, N.Y.

RESTORING LADY LIBERTY

CHARLES F. EVANS HELPS RENOVATE BRADFORD COUNTY COURTHOUSE

BY CHRYSTINE ELLE HANUS

Constructed in 1898, Bradford County Courthouse has dominated the Towanda, Pa., skyline for 120 years. The structure showcases several prominent architectural styles characteristic of the period.

The facade on the west entrance exhibits neoclassical features; the rear and side arms of the cross were designed in an early Renaissance Revival style; and the interior reflects late Victorian and Beaux-Arts designs. The four-story courthouse also features stonework with stone quarried from nearby Barclay Mountain and a 50-foot-wide ornate dome measuring 70 feet from the ground to its peak.

In 1987, the courthouse was placed on the National Register of Historic Places. During 2016-17, it underwent a \$3 million renovation, including roof system restoration that was performed in two phases. Charles F. Evans Co. Inc., Elmira, N.Y., was selected by Bradford County as the roofing contractor for the project.

PROJECT NAME:

Bradford County Courthouse

PROJECT LOCATION:

Towanda, Pa.

PROJECT DURATION:

April 2016-November 2017

ROOF SYSTEM TYPE:

Copper

ROOFING CONTRACTOR:

Charles F. Evans Co. Inc., Elmira, N.Y.

ROOFING MANUFACTURERS:

GCP Applied Technologies Inc., Cambridge, Mass.; Revere Copper Products Inc., Rome, N.Y.

PHASE ONE

Phase one began in April 2016 and involved work on the dome. Charles F. Evans workers removed the existing, deteriorated terracotta roof tiles. As demolition work began, workers discovered the original tiles had been poorly secured to the roof framing that also was poorly installed on the dome structure.

Workers fastened new wood blocking to support new plywood sheathing followed by two layers of 30-pound felt. Because of the dome's 29-foot-wide radius, workers rechecked field measurements and adjusted the widths of flat-seam panels. Workers then fastened 3,300 square feet of flat-seam, 20-ounce, cold-rolled Revere copper panels on the courthouse's dome. As workers reached the top of the dome with a 4:12 slope, the panels were soldered.

"It was amazing to watch the craftsmanship involved in such a large project," says Kim Corbett, maintenance director for Bradford County. "Panel by panel, our dome was transformed into a beautiful copper roof. They also created copper gutters and downspouts that were all hand-fabricated and soldered on-site. Amazing!"

In addition, Charles F. Evans workers applied self-adhering Grace Ice & Water Shield® HT in the built-in gutter at the base of the dome and fabricated copper ventilation pieces to blend into the existing structure.

As a result of weak spots and degrading copper created by more than a century of exposure to the elements, workers also performed intricate repair work to the statue of Lady Justice at the dome's peak.

"Charles F. Evans refurbished our 'Lady Liberty,' a copper monument at the peak of the dome," Corbett says. "She had withstood the weather for almost 120 years and had numerous coats of paint on her. They meticulously stripped, cleaned, repaired and brought her back to her original beauty."

As with most historical building restoration projects, there were other challenges. The dome's interior contains an ornate and delicate mural that needed to be protected from the elements for the project's duration. At the end of every shift, Charles F. Evans workers "dried-in" the roof and ended each work day early to ensure materials were lapped correctly.

"Maintaining a watertight environment was important to us because we recently had the beautiful, architectural ceiling cleaned, painted and preserved," Corbett says.

PHASE TWO

Charles F. Evans completed work on phase one in November 2016 and began work on phase two in April 2017. Phase two involved replacing the courthouse's lower main roof areas with 12,000 square feet of batten-seam copper panels.

Workers removed the existing 12-inch corrugated copper panels and cleaned the steel deck, applied self-adhering Grace Ice & Water Shield HT and then fastened new 2- by 4-inch wood subframing, two layers of 1½-inch-thick extruded polystyrene insulation and 5⁄8-inch-thick plywood sheathing followed by a layer of 30-pound felt before fastening the raised batten-seam copper panels.

New copper flashings, gutters and downspouts also were custom-fabricated and installed by Charles F. Evans' sheet metal fabrication shop.

"Our trade mechanics are the reason we are so successful on these projects," says Bill Burge, construction manager for Charles F. Evans. "We are affiliated with Sheet Metal Workers Local 112 out of Elmira, N.Y., and we also employed workers from Sheet Metal Workers Local 44 from Wilkes Barre, Pa. The group consisted of 6 to 8 guys led by Brian Babcock, superintendent for Charles F. Evans. They deserve all the credit on this successful project."

Work on the main roof areas required care to prevent the building's interior from being destroyed. Similar to work on the dome, Charles F. Evans workers dried-in the roof and ended each work day early to ensure materials were lapped correctly.



Top to bottom: Lady Liberty undergoes repairs; sheet metal mechanics custom-fabricated new copper flashings, gutters, downspouts and ventilation pieces; an aerial view of Bradford County Courthouse's new roof systems

SAFETY

The Bradford County Courthouse project had unique safety challenges.

“Charles F. Evans is an OSHA VPP Mobile Workforce roofing contractor, so we were well-suited for the safety challenges,” Burge says.

The Occupational Safety and Health Administration’s (OSHA’s) Voluntary Protection Program (VPP) Mobile Workforce recognizes employers that have “implemented effective safety and health management systems and maintain injury and illness rates below national Bureau of Labor Statistics averages for their respective industries.”

To achieve 100 percent fall protection at all times, workers integrated several fall-protection techniques.

Workers accessed a lower sloped roof by a scaffolding stair tower. Once at the eave’s edge, a walkway with warning lines was erected directing all workers to a fixed scaffolding ladder. At that point, workers accessed additional scaffolding erected around the dome’s base.

While working from scaffolding around the dome, workers removed the existing terracotta tiles around the bottom of the dome and worked their way up as they installed the copper panels.

“Being the workers were well over 100 feet in the air, the working environment was less than optimal, but they moved in a professional and orderly fashion and kept the interiors free from water,” Corbett says.

Extension ladders also were used for access. While the Charles F. Evans crew worked from ladders, they were tied-off 100 percent using self-retracting lifelines (SRLs) with beam straps anchored to structural steel. When the crew accessed the “shoulder area,” they then were able to set up roof jacks and planks to better assist their work.

A tiered scaffolding walkway also was erected to allow access to the base of the statue. For any necessary work needed outside the scaffolding system, anchor points were installed around the base, and workers remained tied-off using SRLs.

The protection of pedestrians and vehicles on the ground also was paramount as the courthouse remained fully functional during the project’s duration. Heavy ground traffic included two one-way streets around the complex and pedestrian traffic. Safety netting was installed on the railings of working scaffoldings, and fencing, barricades and signs were erected to direct pedestrian traffic to proper entrances.



Bradford County Courthouse’s new copper dome

A GEM IN THE COMMUNITY

In November 2017, Charles F. Evans completed the Bradford County Courthouse project with a perfect safety record.

“I observed Charles F. Evans’ work during construction on numerous occasions,” says Julie Palmer, an associate with Ardmore, Pa.-based Levine & Co. Inc., the company that designed the roof replacement project. “Their workmanship was impeccable. The courthouse’s new copper dome is a gem in the community.”

For exceptional work on Bradford County Courthouse, Charles F. Evans was selected as a 2018 Gold Circle Awards finalist by The Roofing Industry Alliance for Progress in the Outstanding Workmanship: Steep-slope and Safety Preparedness and Performance categories.

“Completion of the Bradford County Courthouse project showcases the Charles F. Evans continued adherence to our core values of quality, safety and uncompromising customer satisfaction on another historical restoration project,” Burge says. “We are proud to have been a partner on this challenging and rewarding historical restoration project.” 🌟🌟🌟

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