

# NEW ROOFING SYSTEM HELPS PRESERVE HISTORIC NEW MEXICO BUILDING

BY CARTER SLUSHER

**A**fter serving primarily as an unoccupied storage facility for nearly 15 years, the historic Lister Building in Lovington, NM, began its road to renovation in 2007. The cornerstone of the project was a new roofing system

specified to replace an aged, badly damaged, and leaking built-up roofing (BUR) system.

Built in 1931 by I.W. Lister, the two-story building was purchased by the Lea County Museum in 2007. According to Jim Harris, director of the museum, the main

floor will serve as the Lea County Athletic Hall of Fame and also house an oil and gas exhibit and a town meeting hall. The upstairs will house exhibits reflecting the history of Lea County, including '30s and '40s law offices.



*Built in 1931, the Lister Building in Lovington, NM, features a decorative façade that includes parapet walls ranging from 3 to 7 ft high.*



*Among the challenges of reroofing the Lister Building was improving drainage around two unusual and inefficient rooftop saddles. One saddle, shown on left, was covered in shingles.*

### Identify Building Needs

Constructed with a unique slip-form concrete method of the early 20th century, the building's exterior features a decorative façade that includes parapet walls ranging from 3 ft high along the back and sides to more than 7 ft in the front.

Over the years, the existing 7,000-sq-ft roof was repaired and patched several times. Multiple layers of built-up roofing materials formed a rigid and heavy covering over a wood-plank deck.

Additionally, two peaked, triangular-shaped saddles had been constructed on the rooftop to help move water toward scuppers. Both 130-ft-long structures, which were covered with shingles, are about 10 ft wide at the building's rear and narrow to a

point at the front. Combined, they represent about 30% of the roof surface.

Inside, redwood-style fine wood detailing used to decorate the second floor offices was in jeopardy of water damage from the deteriorated roofing system.

Reroofing the local landmark presented several challenges:

- **Remote location** – Lovington is a small town located about 300 miles southeast of Albuquerque, NM, and 200 miles southwest of Amarillo, Texas, making the coordination of materials, equipment, and installation crews difficult.
- **Limited access** – The building is adjacent to a movie theater and sits directly across the street from the

county courthouse. Proximity to these public facilities and surrounding areas created concerns about fumes, odors, and smoke.

- **Tight quarters** – Improving drainage around the two unusual rooftop saddles was further complicated by three skylights set between them on the relatively small roof.

Vickie Crenshaw, RRC, RRO, PE, president of Crenshaw Consulting Group, Hobbs, NM, said, "Reroofing the Lister Building was a challenging yet rewarding project because the goal was to design a long-term maintainable roof system while improving drainage and addressing the aging parapet walls without modifying the



*A cold-applied SBS modified bitumen roofing system was specified to replace an aged, badly damaged, and leaking built-up roofing system on the historic Lister Building.*

building's exterior architecture."

Crenshaw worked in partnership with Firestone Building Products to determine the best option. Due to the poor condition of the old BUR system, a complete tear-off was required. Seeking a balance of high performance and cost effectiveness, a two-ply, cold-applied Firestone SBS modified bitumen system was specified. The total system offers the sustainable, maintainable, and reliable protection needed on the nearly 80-year-old building.

SBS modified bitumen roofing systems are based on flexible, rubberized asphalt that is extremely durable and resists water penetration while providing superior elongation and recovery properties over a broad range of temperature extremes – critical to the New Mexico climate. Cold-applied SBS systems, which have been in use throughout the industry for 30 years, have gained popularity over the last five years due to their improved FM wind-uplift performance.

"A cold-applied SBS system was a great fit for this project, because fumes, odors, and smoke from a traditional built-up roofing system application would have affected the nearby public facilities and activities held in the area," added Crenshaw. Plus, using a kettle to pump hot asphalt up two stories would have been a difficult process

with another facility adjacent to the Lister Building.

#### **Tear off and Replacement**

Amarillo, Texas-based Construction Services, a Tecta America Company, handled all aspects of the complete tear-off and roof replacement project. After removing the existing system down to the wood deck, Construction Services nailed a Firestone MB base sheet over the deck to establish a good installation surface.

Next, a layer of 2.5-in Firestone ISO 95+™ polyiso was mechanically fastened to the deck. Where needed, tapered insulation was used to add slope and ensure positive drainage. Using multipurpose cold adhesive, Construction Services then adhered a half-inch-thick, high-density polyiso coverboard to the insulation, followed by a Firestone SBS modified bitumen base sheet and a white, granule-surfaced Firestone SBS FR cap sheet.

"We like using cold-applied adhesive because it eliminates the danger and liability of hot asphalt," said Tracy Honea, project manager/estimator, Construction Services. "If workers are injured using hot asphalt, they could be out for an extended period of time. Cold adhesives are much safer, and it's very easy for crew members to install."

According to Honea, among the biggest challenges working with cold adhesives is keeping the roof surface clean and not letting the adhesive get too cold or too warm. "It is not a big problem; you just have to be aware of it. We installed the cold-applied system over a two-and-one-half week period in March and April 2008, and the adhesive cured out very well," he explained.

To avoid potential slippage of the membrane on the two peaked roofs at the center of the building, Construction Services saddled an entire roll of SBS modified bitumen over each ridge to ensure both sides had the same amount of material. Since the rooftop can be seen from a nearby building, this procedure ensured no sheet ended at either ridge, making it a more visually appealing roof surface. Honea added,

"It was an exceptionally clean job. The finished roof was pristine."

#### **Cold-Applied Systems in the Southwest**

Although hot-mopped BUR is more prevalent in the southwestern U.S., there is growing market awareness and acceptance for cold-applied SBS modified bitumen roofing among contractors, owners, and specifiers who are looking for alternatives to built-up roofing systems and installation methods, particularly in light of unstable asphalt pricing.


With the current instability in the overall petroleum market, raw materials needed to produce asphalt roofing are rising at unprecedented rates. For roofing systems such as the traditional hot-applied BURs where multiple layers of asphalt-saturated felt are mopped together, the escalating asphalt prices can make them cost-prohibitive. As such, there is greater demand for cold-applied systems, which use asphalt more efficiently yet offer better long-term performance at a lower cost to the owner.

Crenshaw added, "In recent years, there has been an increase in the FM and UL approvals with cold-applied systems, and there are some noteworthy differences with the long-term performance of these membranes over hot-applied systems, so I expect

to see a greater shift to cold-applied SBS roofing systems.”

#### Coming Together

To assist the Lea County Museum in making this project a reality, Firestone Building Products donated all roofing materials, providing specification direction and onsite technical support. Construction Services supplied the new skylights and a roof hatch. And Steve Gendron, principal of Albuquerque-based Upland Corporation; Firestone representatives for New Mexico; and Vickie Crenshaw of Crenshaw Consulting donated much of their time and expertise to make this project a reality.

“Restoring the Lister Building was an urgent need for the Lovington community, and it would not have been possible without the outstanding support of everyone involved,” Harris said. “Working together, the team showed a great commitment to southeastern New Mexico and helped preserve a piece of our history. Best of all, the roof is performing great and we couldn’t be happier.” 

### Comparison of SBS Modified Bitumen and Traditional Built-up Roofing Systems

	BUR	SBS Modified Bitumen
High puncture resistance	X	X
Flexibility and recovery		X
Fights building movement – low strain energy	X	
Dissipates energy from building movement		X
Redundancy	X	X
Fatigue resistance		X
Constructed with rooftop (environmental) variables	X	
Constructed via uniform plant production process		X
Diminishing supply of skilled applicators	X	
Subzero flexibility		X
Elongation to 100 percent with complete recovery		X

#### Carter Slusher

Carter Slusher is the modified bitumen and insulation systems engineer for Firestone Building Products. He is responsible for the design and specification of Firestone’s modified bitumen and polyiso roof systems and supporting technical documents. During his 30-year tenure in the commercial roofing industry, Slusher has earned two patents for modified bitumen products, served as chairman of the SPRI Modified Bitumen Committee that developed a new roofing standard, and served as an officer of the ASTM Committee D 08 on Roofing and Waterproofing for eight years. In 2000, he was granted the ASTM Award of Merit—the society’s highest award for distinguished service and individual contributions to standards activities—and the honorary title of Fellow. Slusher also holds a bachelor’s degree in chemistry from the University of Missouri.



## OMG OFFERS ROOF DRAIN COURSE

OMG Roofing Products has unveiled its first distance-learning course for RCI members. The course, entitled “Retrofit Roof Drains,” is free to RCI members, is available online, and qualifies for Continuing Education Hours (CEHs) from RCI, Inc.

“Roof drainage is a fundamental element of sound roof design practices,” said Dan Genovese, product manager for OMG. “Our first distance-learning program is a comprehensive overview of roof drain use when approaching new and low-sloped reroofing projects.”

The distance-learning program addresses a variety of issues, including proper design, important specification considerations, proper measurement techniques, performance testing methods, ANSI/SPRI Standard RD-1, Factory Mutual guidelines, typical installation, preventive maintenance, and solutions to water-ponding issues. The presentation includes a variety of illustrative drawings, charts, and photographs.

RCI members interested in taking the one-credit, hour-long course can register online at [www.olyfast.com/continuingeducation.aspx](http://www.olyfast.com/continuingeducation.aspx). Upon successful completion of the course and test, OMG will provide qualified participants with a certificate of completion and a 12-inch metal architectural scale.

For additional information, visit [www.olyfast.com](http://www.olyfast.com), call (800) 633-3800, or e-mail [info@olyfast.com](mailto:info@olyfast.com).