

**Project:**

Fort Adams
Newport, RI

Building Owner:

Fort Adams Trust

Architect:

Newport Collaborative Architects, Inc.
Newport, RI

Waterproofing Contractor:

Eagle Cornice Co., Inc.
Cranston, RI

Waterproofing System:

Sarnafil System 1000, including a G476, 80-mil membrane, felt-leveling layer NWP-HD and protection layer G445

Project Size:

8,200 sq. ft.

Completed:

November 2004

"The sentiment in the mind of every citizen is national strength. To secure us against these dangers our coast and inland frontiers should be fortified..."

-President James Monroe
Inaugural Address, March 4, 1817

Fort Adams Revived

Spanning Newport, RI's Narragansett Bay, Fort Adams was designed to physically defend the United States from the threat of enemy ships.

Established as a direct response to the War of 1812, the Fort was part of President James Monroe's Third System of Fortifications that protected America from homeland attack. Built in 1857 of shale and granite, with 50-foot walls and a dirt roof, Fort Adams is the largest fort in North America.

In an effort to revitalize and open the site for public tours, the Fort Adams Trust was formed in 1994. With the assistance

of government grants, its officer's quarters would be the first area to be restored.

"Historically, it was the finest part of the Fort, where the officers and their families lived. It had beautiful sliding doors, sunlight and ornate furniture," said Project Manager Arnold Robinson, director of planning with Newport Collaborative Architects, Inc., Newport, RI. "Now it's a wild west ghost town. It's all there, but it's bleached out."

The Project

In order to renovate the officer's quarters, the leaking roof had to be restored first. Made of soil and grass atop masonry (ramparts) that are 20 feet deep in some spots, the roof was designed to camouflage the fort from a distance.

"That's what protected the rooms from the rain and snow," said Glenn Szalay, technical sales representative for Sarnafil. "They didn't have Sarnafil back then; they didn't have architects; and yet the Fort still

held up for over 150 years!”

In an effort to protect the officer’s quarters from weather damage during its rehabilitation, the team removed just six feet of vertical soil and installed the waterproofing system at that level. Because the Fort was built prior to the Civil War, there were no drawings to reveal its site plans. The team went into the excavations blind.

“It was like operating without an x-ray,” said Larry Brillon, president of Eagle Cornice Co., Cranston, RI, the project’s contractor. “We found that the back wall was irregular with sharp, jagged rock.”

This gave the team their greatest challenge - finding a way to attach a membrane to irregular masonry, while still maintaining the historic look, an objective that was essential to the Trust.

The Solution

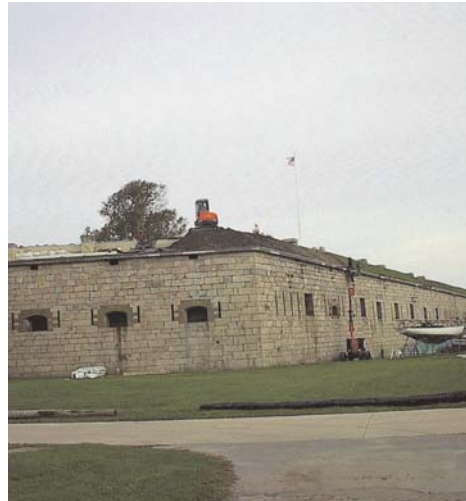
“Sarnafil designed a trough that acted as a receptor, allowing the membrane to go down into the hollowed out area,” said Brillon. “That created a key-like structure that held the membrane and other system components in place. Once the overburden was reinstated, we filled the trough back up and it held everything in place.”

While the ramparts were being prepared for the waterproofing system, masons worked to restore the Fort’s granite chimneys which were previously buried up to their caps in soil.

“One of the chimneys was retrofitted in the 1870s,” said Robinson. “A guy signed his name and it was still there, so some of the masonry crew signed the chimneys this time around as well.”

Eagle Cornice installed Sarnafil’s System 1000 atop Fort Adams’ officers’ quarters. The system, which measures 600 linear

feet long, includes a protection layer, followed by a felt mat and the G476, 80-mil waterproof membrane. Additional felt and protection layers were laid on top, followed by a drainage mat, and then, the ramparts were replaced.



Eagle Cornice overcame many site challenges in the installation of the waterproofing system.

“We really had to work together on this project,” said Szalay. “We had to brainstorm ideas on how to best take care of certain areas so they would be water-tight. We knew once we put the soil and grass back on, there was no turning back. We had to make sure that everything was perfect.”

The Result

The team was able to mask the entire system in historic materials, hiding the waterproofing system from view and exceeding the expectations of the Trust.

“The way it is right now looks fantastic,” said Eric Hertfelder, executive director of the Fort Adams Trust. “They did a great job. The high-tech waterproofing is invisible to the naked eye. We wanted it to look like it did in the Civil War and it does.”

Due to the nature of the project’s challenges and the success at which they were met, the renovation of Fort Adams’ officers’ quarters was named the **2004 Waterproofing Project of the Year** by Sarnafil.

“To solve a problem properly, make it technically correct and still stay in budget – that’s the magic formula,” said Brillon.

And yet the real magic in this story is the history behind it.

“What made this project unique was that this was the first time we restored the earthen and ramparts,” said Robinson, who is also restoring the interior of the officer’s quarters back to the different periods in which it was used. “It’s beginning to look how it did historically – well caped and well maintained. You can get a real sense of history just walking through the officer’s quarters - it’s really like walking back into the nineteenth century. It feels like it’s in black and white. It’ll be great to finally bring it back to color.”

Fort Adams Facts:

- Original construction began in 1824 with an appropriation of \$50,000 from Congress
- Featured underground listening galleries tunneled under the glacis
- Fort holds 2,400 men and 468 cannons
- Fort was manned with 200 officers during times of peace as well
- Although the Fort was never attacked, it was in active use until 1950
- The Fort’s garden is six and a half acres
- The Third System of Fortifications includes approximately 30 forts along the East Coast

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