

Miraval Resort and Spa

Lenox, MA

Designing fire protection for the Miraval Resort & Spa in Lenox, Massachusetts was multi-faceted endeavor. RAN designed sprinkler systems, stand-pipes, and fire alarm systems throughout the 30-building complex.

The original fire alarm systems within the complex were not compatible with each other due to differences in manufacturers. This caused the accuracy of the alerts to be insufficient. If a fire alarm was activated, the main panel would only report which building the fire is in, not a specific room. RAN addressed this by designing a wireless radio mesh fire alarm network. This system eliminates the hardwiring from the fire alarms to the original receiver and is replaced with radio transmitters which are received by a central receiver. The receiver is connected to a monitor where the guard has an interactive display of the complex where guards can see exactly what room the fire is located. This not only creates a safer environment for guests of the resort, but it also saved our client millions of dollars because they did not need to replace all the existing fire alarms.



One of the buildings in this complex is over 250 years old and had no existing fire protection measures. This building was originally a privately owned mansion but was being converted to a hotel and banquet facility. RAN designed a wireless fire alarm system within the building to limit disruption to the original ornate ceilings. The wireless fire alarms eliminated the need for holes in the walls to hardwire the fire alarms together, effectively preserving the building's historical integrity. The fire alarms in this building also feed into the wireless radio mesh fire alarm network. The sprinkler system was also designed strategically to maintain the aesthetics of the building. The historical building has original ornate architectural designs, so keeping these features intact was an important aspect of the project.

Size: 30 Buildings; Construction Cost: \$6,000,000



Historical

Grant Cottage State Historic Site

Wilton, NY

Client: NYS Office of Parks, Recreation & Historic Preservation



The purpose of this project is to design fire protection for Grant Cottage in Wilton, New York. This cottage is where President Ulysses S. Grant passed away, so protecting this 43-acre historic landmark effectively was of the utmost importance. RAN was brought on as a sub-consultant and was charged with several major fire protection engineering tasks. First, we had to review existing building and site documentation to guide the remainder of the project. We found that there was a low water supply, so the system used must require low amount of water. After reviewing the current documentation, we needed to develop a code analysis to determine the code installation requirements for any and all new systems. RAN also evaluated potential fire suppression systems that would be most appropriate to protect this historical treasure. RAN decided on the Victaulic Vortex system, which use nitrogen to put out the fire and water mist to keep it out. Lastly, we agreed to assist with arbitration with the code enforcement official to assist with any concerns and a comprehensive protection plan. This project has supplied us with the knowledge and experience necessary to protect historical buildings.

Yoo D4 Condominiums

Boston, MA

This project involved the conversion and preservation of the historic District 4 (D4) police station into a luxury residential development. The 1931-built Georgian Revival brick and sandstone building, with its Corinthian pilasters and pediment windows, was vacated after 70 years of occupancy. Renovation of the approximately 57,000-square-foot building included the underground parking garage and the replacement of all building systems. There are now twenty-six residential units ranging in size from approximately 750 to 2000 square feet with a relatively even distribution of one, two, and three bedrooms.



Historical

Olana State Historic Site

Hudson, NY

Client: NYS Office of Parks, Recreation & Historic Preservation



The Olana State Historic Site is a complex that was owned by Frederic Edwin Church, who was pivotal in the Hudson River School of landscape painting. This site is one of a few artist home, studio, and estate complexes left intact today. RAN Fire Protection Engineering is included on this project to evaluate the current fire protection for the buildings in this historic site. We will also be documenting the current mist system and verify its accuracy with the original drawings. In this process, we will also identify the site's ability to limit fire damage to the structure. The drawings used in documenting the mist system will be updated using AutoCAD. RAN is tasked with analyzing the code to identify requirements for the original code of record for the fire protection system installation and any requirements for new or modified fire protection systems. Lastly, RAN will provide arbitration assistance with the Code Enforcement Official to identify any other concerns and develop a comprehensive protection plan.

Vassar College Chapel Organ

Poughkeepsie, NY

The Vassar Chapel, which was built in 1904, is the main religious building at Vassar College. It provides space for 600 occupants, with a significant number of rows. Although the chapel has been altered, repaired, and improved, it is one of the few college buildings that has not had any serious renovations.

RAN Fire Protection Engineering did consulting services for the Chapel Organ located at Vassar Chapel Organ at Vassar College in Poughkeepsie, NY. RAN Engineers designed a sprinkler system, in keeping it consistent of NFPA 13. RAN Also did the consulting services for the Fire Alarm Design which consulted on initiation layout in compliance with NFPA 72.



Historical

John Jay Homestead

Katonah, NY



The John Jay Homestead was home to John Jay, who was the President of the Continental Congress, the first Chief Justice of the U.S. Supreme Court, and the Governor of New York. It is 1 of 6 state historical sites and 12 parks administered by the New York State Office of Parks, Recreation and Historic Preservation.

RAN Fire Protection Engineering was retained to design a fire suppression system and a fire detection and alarm system. The fire suppression system that was used in this facility is a water mist fire suppression system. Water mist systems produce fine droplets to suppress the fire. Because this system uses significantly less water, this results in less water damage to the building which will drastically help to preserve the historical elements of the building.

New York State Capitol Building

Albany, NY

Client: NYS Office of General Services

Services Provided:

- Code Analysis
- Fire Pump Design
- Fire Alarm System Design
- Preservation of Historical Building

The NYS Capitol Building houses the New York State Governor's Office and the New York State Legislature. The building was completed in 1899 at a cost of \$25 million, a modern-day equivalent to roughly half a billion dollars. RAN Fire Protection Engineering commenced work on the NYS Capitol project to address the existing level of fire protection.

The project involved the investigation of the existing fire pump arrangements to assess measures concerning flow problems. The design required the removal of three fire pumps, which allowed for consolidation into one fire pump with emergency backup power. The project also included the upgrading of the fire department hose valves on all eight standpipes throughout the building. The design increased the functionality and general reliability of the fire protection system in its entirety.

Construction Cost: \$1,500,000 Size: 10 stories



Historical

McMahon Building System

New Haven, CT

In 2016, RAN secured a project to design new fire alarm and mass notification systems for five federal buildings in New Haven, Connecticut. The building contained aging fire alarm systems of various manufacturers. The building included offices, courthouses, parking garages, a historic building, and a high rise.

For all buildings, RAN developed design criteria and Construction Documents for replacement of all fire alarm systems with a new integrated mass notification system. The mass notification system provided audible and visual notification to occupants throughout the buildings, including selective paging through a detailed overall sequence of operations. Additionally, a bi-directional amplification (BDA) system was designed to facilitate emergency responder radio coverage throughout the buildings.

The nature of historic courthouses provided an added challenge to the project, such as the Richard C. Lee United States Courthouse which was built over 100 years ago. Due to its historical significance and the unique use of marble throughout the building, RAN worked closely with architects specializing in historical buildings. This partnership helped to ensure the historical features of the building were preserved.



Lee Courthouse Chambers and Law Library

New Haven, CT

The Richard C. Lee Courthouse is a 3,650 square foot monumental courthouse of the United States District Court for the District of Connecticut. RAN performed the fire protection design services for the Lee Courthouse Chambers and Circuit Library. The fire protection designs consisted of fire sprinklers and piping, as well as their layouts. The designs also contain hydraulic calculations to ensure that the systems worked properly and well with any existing systems that were still in the building.



Historical

Ogdensburg Federal Patrol Building

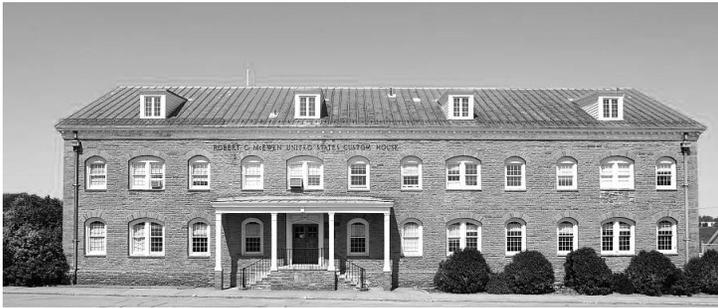
Ogdensburg, NY

Client: General Services Administration

Services Provided:

- Designed a Performance-Based Fire Protection System
- Life Safety Systems Design
- NFPA 101A Alternative Approach to Life Safety

The Robert C. McEwen U.S. Custom House is the oldest building in Ogdensburg, New York and the oldest within the General Services Administration's building inventory. Constructed in 1809–1810, the building is closely linked to the development of Ogdensburg and shipping along the St. Lawrence River.



The U. S. Custom House is a fine example of the utilitarian buildings constructed in native limestone in the late 18th and early 19th centuries in the Ogdensburg region. The building interior dates entirely from 1937, when a complete remodeling was undertaken to provide offices for the U.S. Customs Service. Vestiges of the 1809– 1810 structure remain in transverse load-bearing masonry walls, the closets under the eaves of the third floor, and the original beams.

This project included a complete overhaul of the building's fire protection and life safety systems utilizing NFPA 914 Code for the Fire Protection of Historic Structures and NFPA 101, Life Safety Code. RAN Fire Protection Engineering served as the lead fire protection engineer for the project. Due to the limitations associated with the historic nature of the building, alternative design approaches were necessary to provide an adequate level of life safety. A performance-based fire protection design was incorporated into the project. The design was based on the anticipated fire severity predicted by fire modeling. A final cost-effective design that addressed the specific hazards in the buildings was accomplished.

Construction Cost: \$150,000 Size: 40,000 sq-ft

Historical

New York State Military Museum

Saratoga Springs, NY

The mission of the New York State Military Museum and Veterans Research Center in Saratoga Springs is to preserve, interpret and disseminate the story, history and records of New York State's military forces and veterans. The collection is divided into the museum and the library/archives holdings. The museum is the first facility dedicated expressly to the preservation and public display of New York State's priceless collection of 10,000 military artifacts, some of which date to before the American Revolution.

The scope of the project was to design a fire protection system for the overflow historical items located in the archive building. This building is generally not occupied on a regular basis and it contains a large collection of historical items that are displayed on a rotating basis. The objective of the project was to design a fire protection system that will detect and extinguish a fire during its incipient stages. Another objective was to limit the damage that could be caused by the fire extinguishing medium to the area of origin and the artifacts.

A new clean agent system was installed to protect the collection within the building. The system was designed to provide protection to the storage areas along with the adjacent administration areas. Included in the design was a new fire detection and alarm system, with cross zoning allowing for verification of a fire condition prior to the release of the clean agent suppression agent. The project was completed in 2004.

