

CASE STUDY:

Protecting the priceless in Salisbury House



Customer:
Salisbury House

Region:
Des Moines, Iowa, USA

Product Solutions:
**SAPPHIRE™ Fire Suppression
System delivering 3M™ Novec™
1230 Fire Protection Fluid**

The goals of this installation were protecting artifacts from both fire and the effects of water and smoke, providing a cost-effective solution to the potential threat of fire, and ensuring the safety of museum guests and personnel.

SAPPHIRE™ Protects Priceless Artifacts

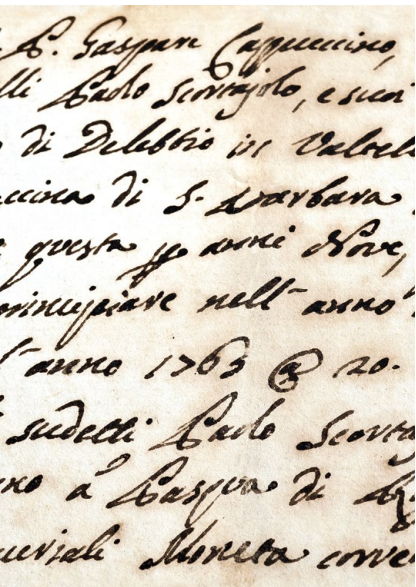
An architectural gem in Des Moines, Iowa, the Salisbury House, is home to original manuscripts of some of history's most enduring names including Abraham Lincoln and Queen Elizabeth I, as well as first edition prints of the King James Bible and works by Ernest Hemingway and D.H. Lawrence.

The Salisbury House was built between 1923 and 1928 by financier Carl Weeks and modelled after the King's House in Salisbury, England. Over the course of five years, architects and craftsmen from all over the U.S. were hired to painstakingly recreate every feature of the Tudor-style mansion that captured the imagination of the Iowa pharmaceuticals magnate. Eventually, the mansion would swell to 42 rooms, many of which are dedicated to showcasing an expansive art collection. The paintings and sculptures, intricate wood panelling and rich tapestries collected in this home all celebrate human expression and craftsmanship and have been preserved through the 20th century to educate and inspire future generations.

Given the cultural importance of the Salisbury House to the community of Des Moines, not only as an architectural masterpiece but also as the home of priceless artifacts, the Salisbury House Foundation opted to use a clean agent extinguishing system. This system extinguishes fires without causing any damage to electronics, works of art, irreplaceable artifacts and other critical assets. This system provides the ideal solution for hospitals, museums, libraries, telecommunications centres and other facilities seeking to protect critical assets that could be damaged by ordinary fire suppression systems. The system installed by Johnson Controls following NFPA 2001, Clean Agent Extinguishing Systems.

The greatest concern was protecting the institution's rare books collection, which includes more than 2,200 rare books and 700 original letters, manuscripts, and documents.

Approved by key city decision-makers



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The SAPPHIRE™ Fire Suppression System was recommended, which uses an FK-5-1-12 (Dodecafluor-2-methylpentan-3-one) suppression agent.

This classification requires the clean agent to be electrically nonconductive and leave no residue upon evaporation. It resembles water, but does not cause the type of damage associated with water when putting out a fire due to its inert affect on ink or paints. The agent extinguishes a fire via its cooling effect, not by displacing oxygen in the hazard area. It can be used to protect artwork, electronic equipment and other delicate items without causing any harm.

The suppression system chemically interferes with the fire combustion process, therefore bringing it to a halt. It also works faster than a water sprinkler system, which is designed to work when it detects an actual flame. The clean agent system detects fire at invisible levels, identifying particles of combustion before they turn into damaging flames.

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The system was approved after key city decision-makers, including the fire marshal, attended a room pressure test. As the architects did not want to compromise the original doors or windows with special seals

or sealant, the pressure test was a must. The room was so well built that it passed the test and encompassed the necessary requirements needed to host the suppression system.

Once the test phase was complete, the next phase was to decide on appropriate tank size, nozzles, and piping and begin the installation, which proved to be a challenge as the library was comprised of intricate wood panels on the floor, ceiling and wall finishes. Bookshelves and various wood panels had to be removed to conceal pipe and detection wiring.

While the Salisbury House was undergoing extensive work to replace its electrical wiring, heating, cooling, and security systems, the clean agent fire suppression system was installed with minimal interference in the renovation work that was already taking place in the facility. The system is concealed behind antique built-in bookshelves that house the institutions' rare books. Salisbury's onsite restoration team disassembled small pieces of the oak bookshelves and reassembled them during the installation.

The system installation was completed in January 2006. To confirm the system was functioning with absolute accuracy, a room integrity test was conducted. This included a smoke test and a fan test to identify any leaks in the room. Onsite to observe the test were representatives from the Des Moines Fire Department. Since the initial installation, a site inspection has been administered every six months.

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