Protecting valuable artworks at Aberdeen Treasure Hub

Aberdeen Treasure Hub is a new publicly accessible museum collections store, built in one of the regeneration areas of Aberdeen, Scotland, to house historical artefacts and artworks when they are not on display. Instead of building a secure storage facility which was completely inaccessible to the public, Aberdeen City Council achieved a vision of creating an open-access showcase for historical objects and artworks, enabling the whole community to engage with arts and culture.

A safe, sustainable, space-efficient solution

Protecting sensitive works of art from fire needs careful consideration. A clean fire extinguishing agent with a compact storage footprint was sought, in a building already crammed with other building services. A high safety margin was vital, to protect visitors and workers in the occupied space in the event of a system discharge. And with global warming and the environment front of mind, another important consideration was sustainability.

With these defined requirements, the council, via the contractors, engaged Vipond Fire Protection, an approved third party accredited fire company to help design, install and commission the gas suppression systems. Vipond recommended a SAPPHIRE® Suppression System from Johnson Controls which ticked all the boxes for the client’s requirements. One of the key ingredients in SAPPHIRE is 3M™ Novec™ 1230 Fire Protection Fluid, which is used in systems around the world to protect high value assets. Novec 1230 fluid has zero ozone depletion potential and a global warming potential of <1, meeting the customer requirements for a sustainable solution. Unlike hydrofluorocarbons (HFCs) used in fire extinguishing, Novec 1230 fluid faces no regulatory threats to installation, production or refill, and the 3M™ Blue Sky™ Warranty offers long term reassurance that should this change within 20 years of installation, the purchase price of the fluid will be refunded. Novec 1230 fluid also provides the highest margin of safety of any clean agent solution, making it safe for occupied spaces.

Design and installation

Vipond designed and installed a series of automatic systems, that are also provided with manual release devices at the entrance to each protected area. In automatic mode, two zones of detection are activated before the system will discharge. This is accompanied by a series of audible and visual alarms to alert the occupants of system activation, plus hold buttons to delay the discharge, if necessary. The green light for the fire protection system came relatively late in the construction programme and some interesting challenges were embraced by Vipond’s experienced designers. Many of the other building services were already installed when the systems were given the go-ahead to proceed. Due to these space constraints, a 42 bar system utilising distribution valves was configured.

In the large plant room, a bank of eight x 180 litre containers was installed, providing protection to four rooms, through the distribution valve system. A further bank of six containers with distribution valves was fitted in a smaller plant room. To provide the quantity of Novec 1230 fluid needed for the multi-collection store protection, another twelve modular containers were installed in the large plant-room and multi-collection store. The flexibility of design enabled the system to be configured around severe space constraints within the building. All container banks operate simultaneously to provide the optimum amount of Novec 1230 to the room where the fire is detected. A further smaller room housing important assets has its own system. In all, a highly comprehensive fire suppression system which protects all spaces of Aberdeen Treasure Hub.

All secure

In the event of a fire, the SAPPHIRE system works fast and is designed to rapidly absorb heat to the point where combustion ceases, effectively stopping a fire before it has the chance to spread. This provides peace of mind to the Aberdeen Treasure Hub, and reassurance that their works of art will be enjoyed for many generations to come.
Novec™ 1230 Fire Protection Fluid is an advanced clean agent fire suppression material, based on a proprietary chemistry from 3M. It was designed to address industry needs for clean agent fire protection that is safe and effective, while offering a sustainable environmental profile that no other halocarbon agent can match. This includes: Zero Ozone Depletion Potential; a 5-day atmospheric lifetime, and a Global Warming Potential of 1. Because of these properties, Novec 1230 fluid is not targeted for phase-down or regulatory restrictions anywhere in the world. It is approved for use in total flooding fire suppression systems by the U.S. EPA and most major regulatory bodies. All of this makes Novec 1230 fluid today’s sustainable choice for clean agent agent fire protection.

The Novec™ Brand Family

The Novec brand is the hallmark for a variety of proprietary 3M products. Although each has its own unique formula and performance properties, all 3M™ Novec™ products are designed in common to address the need for safe, effective, sustainable solutions in industry-specific applications. These include precision and electronics cleaning, heat transfer, fire protection, protective coatings, immersion cooling, advanced insulation media replacement solutions and several specialty chemical applications.

Regulatory: For regulatory information about this product, contact your 3M representative.

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