COMPLETED PROJECTS

SITE:	**National Archives Australia**
LOCATION:	**BELMONT**
SCOPE OF WORK:	Fire Protection
COMPLETION DATE:	August 2018
CONTRACT VALUE:	**$260K**

National Archives Australia is a Records Management & Document storage facility located in Belmont. The new state-of-the-art facility which is the first two levelled compactus racking system in Western Australia, replaces the existing storage facility in Victoria Park and increases the available storage area up to 16 shelf kilometres for the collection of preservation and management of archival records in a controlled storage environment. The documentation stored is of National Importance.

SCOPE DETAILS

Within our scope, we were tasked with the design and installation of:

- A compliant Water Mist System in accordance with AS4587-1999
- Fire Detection & Occupant Warning System in accordance with AS1670.1-2015

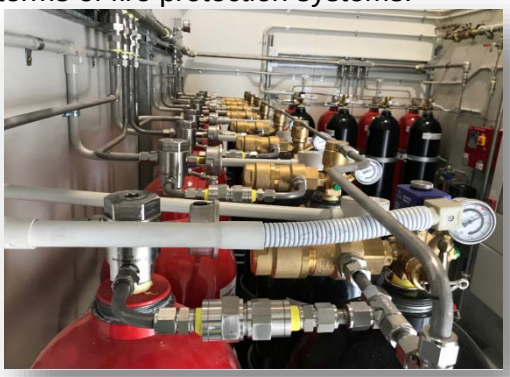
Works completed by Firesafe included a Bespoke designed and Engineered High Pressure Water Mist system installed to protect all risk areas of the building using a wet system with automatic bulbs in the offices, loading dock and plant room known as Zone 2.

Additionally a Dry Water Mist system consisting of a pre-action dry system philosophy using VESDA aspirating smoke detection and automatic bulbs in the airlock and records storage area was installed in the document storage area referred to as Zone 1. There are a total of 100 Fogex water mist nozzles installed within this area installed on S/S Schedule 40 pipe work and SS tube in a 3M x 4M grid.

The pre-action system remains in a dry state until the smoke detection system activates and opens the zone valve to the area.

The water mist system is supplied using a cylinder system of 12 nitrogen cylinders and 12 water cylinders. This system also has a small jockey pump installed to prevent cylinder activation in the event of a small leak occurring. This superior fire-fighting technology combines cooling techniques with a radiant heat attenuation and oxygen depletion to extinguish fires quickly.

Water Mist systems also use 90% less water than a traditional water sprinkler system which makes it more environmentally sound and cost effective in terms of fire protection systems.



The fire detection system installed included a Sub Indicator Panel installed in the Fire Control Room, Photo Optical Smoke detection, thermal detection and monitoring equipment for installed equipment.

CHALLENGES & SOLUTIONS

Throughout the project we were faced with various challenges:

CHALLENGE – Pipe Supports

The project contained many challenges, including: Installing tubing under the insulated panel ceiling, the challenge with this is that the ceiling panel was not load rated / bearing, thus the supports had to be installed off the main structure, before the ceiling went in and penetrate the ceiling panel.

SOLUTIONS – Pipe Supports

To overcome the issue with the Ceiling Panels, Firesafe had to design, Survey and install to exact millimetres for holes to be pre drilled in the ceiling panels. Once the pipe supports were installed the ceiling panels were able to be installed and then the pipe following that. This precise design and construction methodology maintained the interests of all parties without extending costs.

CHALLENGE – Space Constraints

Another challenge was the facility was existing and the building was being converted internally, there was no additional space for pump rooms or water tanks.

SOLUTIONS – Space Constraints

The solution to this was the use of stored pressure cylinders in an easily accessible arrangement. Through the design process and engineering we established a design criteria supporting the required run times for discharge, without flooding that would damage sensitive documents, and minimised the required spatial requirements for the system to be able to operate without pumps and tanks.