

COMPLETED PROJECTS

SITE:	RAAF Pearce (Air 5428 PTS Facilities)
LOCATION:	Bullsbrook & Gingin WA
SCOPE OF WORK:	Fire Protection - (Wet & Dry Systems)
COMPLETION DATE:	March 2018

LAING O'ROURKE

The RAAF Pearce located in Bullsbrook is 35 kms north of Perth and is the main Royal Australian Air Force base in Western Australia for the No 2 Flying Training School, No 79 Squadron and the Republic of Singapore Air Force. It is considered the busiest RAAF base in Australia in terms of aircraft movements.

The base covers an area of approximately 1,000 hectares and although its primary role is pilot training, it remains the only permanent Air Force base on the west coast of Australia.



The Air 5428 Phase 1 Pilot Training System Project is to introduce a new ADF basic and advanced training system to increase the efficient and effectiveness to the existing fixed wing Pilot Training System. This will give RAAF the capability to train Qualified Flight Instructors with setting flying standards and auditing flying practices which is currently delivered through the Central Flight School as RAAF Base East Sale.

Firesafe were awarded the contract to complete the Fire Protection Services installations on the following new and existing buildings:

- Fire Services Pump Room
- MST Building
- 2FTS Building
- Gingin Facility



SCOPE DETAIL:

Within our scope for this project we supplied and installed the following components:

- Design, supply and installation of a Fire Sprinkler System compliant with AS2118-1999 to the MST Building.
- Low Level (Low expansion foam) Deluge System designed in accordance with NFPA 409 installed to the Aircraft storage Hangers of the MST Building.
- Triplex Diesel Fire Pump Sets fitted out to the existing Pump House compliant with AS2941-2008.
- Pre-Action Sprinkler System compliant with AS2118-1999 installed to the FTD Wing of the 2FTS Building.
- Fully compliant Hose Reel system to AS2441 installed to the MST Building, 2FTS Building and the Gingin facility.
- Compliant Portable Extinguishers to AS2444 throughout all buildings.
- Fire Detection & Emergency Warning Intercom Systems in accordance with AS1603 and AS1670 throughout all buildings.

FIRE DETECTION SYSTEMS

MST Building

Firesafe Detection completed installation works within the MST Building including a Fire Indicator Panel interfaced to the sites existing communication network, smoke detection throughout the offices, multi-aspirated smoke detection system (VESDA) to Hangars 1 & 2 and a number of Comms Rooms, flame detection throughout Hangars 1 & 2, installation of occupant warning digital voice command with PA capabilities, installation of output units for roller shutter doors in Hangars 1 and 2 and the supply and installation of hydrocarbon detection system to the drainage system of the AFFF Foam Deluge Systems. The installed Fire Indicator Panel has full fibre optic network capabilities in readiness for the future upgrading of the bases communication systems to fibre optic.

The Fire Detection System is also utilised to monitor the Sprinkler Systems and AFFF Foam Deluge Systems, providing indication and control for the Sprinkler and AFFF Foam Deluge Systems. Monitoring is reported directly to the bases Fire Control Centre.

2FTS Building

Firesafe Detection completed installation works within the 2FTS Building including a Fire Indicator Panel interfaced to the sites existing communication network, smoke detection throughout the offices, multi-aspirated smoke detection system (VESDA) to the FTD Wing and a number of Comms Rooms and installation of occupant warning digital voice command with PA capabilities. The installed Fire Indicator Panel has full fibre optic network capabilities in readiness for the future upgrading of the bases communication systems to fibre optic.

The Fire Detection System is also utilised to monitor the Pre-Action Sprinkler Systems, providing indication and control for the Pre-Action Sprinkler System. Monitoring is reported directly to the bases Fire Control Centre.



GINGIN Facility

Firesafe Detection completed installation works within the Gingin Facility including a Fire Indicator Panel interfaced to the RAAF Pearce Fire Control Centre via a voice dialler, smoke detection throughout the offices, multi-aspirated smoke detection system (VESDA) to a number of Comms Rooms and installation of occupant warning digital voice command with PA capabilities. The installed Fire Indicator Panel has full fibre optic network capabilities in readiness for the future upgrading of the bases communication systems to fibre optic.

FIRE SPRINKLER SYSTEMS

MST BUILDING

The wet fire installation works within the MST Building included the installation of a Light Hazard Fire Sprinkler System to the Office areas, a Fire Sprinkler System to the Storage and Facilities areas, Fire Sprinkler Systems to the Hangars 1 & 2 and Pop-up AFFF Foam Deluge Systems to Hangars 1 & 2.

The MST Valve Room contained the installation of 2 x DN200 Deluge Systems Control Valve sets for the Hangars, 2 x 2500lre Stainless Steel AFFF Foam holding tanks, 1 x FireDOS Foam Induction System, 2 x DN150 Sprinkler Systems Control Valve sets for the Hangers and 1 x DN65 Sprinkler Control Valve set for the Offices, Storage and Facilities being the remaining building sections.



MST Building works also included the supply and installation of a Fire Hose Reel System and Fire Extinguishers. The Fire Hose Reels installed to the Hangars are inclusive of mobile Foam making equipment which is quickly and easily coupled to the Hose Reel.

2FTS Building

The wet fire installation works within the 2FTS Building included the installation of a Pre-Action Sprinkler System to the FTD Wing. The protected rooms are the 2 Flight Simulator rooms and the associated Comms Room. The DN50 Pre-Action Control Valve set being a single interlock type is located in a cupboard directly at the rear of the Comms Room.

2FTS Building works also included the supply and installation of a Fire Hydrant System to Level 1, Fire Hose Reel System throughout the building and Fire Extinguishers throughout the building.



GINGIN FACILITY

Gingin Facility works included the supply and installation of a Fire Hose Reel System, Fire Extinguishers and a Fire Blanket.

The Fire Hose Reel installed to the Hangar is inclusive of mobile Foam making equipment which is quickly and easily coupled to the Hose Reel.

CHALLENGES & SOLUTIONS:

Throughout the project we were faced with various challenges:

- Firesafe's first challenge on the project was to provide an Engineered solution with high level Hydraulic calculations to prove the existing 355mm HDPE water supply main from the existing Pump House to the new buildings was going to be adequate to meet the requirements of the new systems in the MST Building.
- As part of the Engineered solution, Firesafe installed a temporary containerised Pump set adjacent to the existing Pump House in order to maintain water supply requirements to all existing wet Fire Protection Systems on the base whilst staging the installation of the new Triplex Diesel Fire Pumps into the existing Pump House building.



- In addition, a temporary connection was made through the Pump House existing FIP to maintain all the required monitoring from the Fire Pumps back to the Fire Control Centre at the Base.

The outcome saw a smooth transition through the staged Fire Pump replacement with very minimal impact and downtime to the sites Fire Systems.



- The installation of the Pop-up AFFF Foam Deluge Systems to the Hangars provided its own unique challenge with the inground pipework requiring to be set up such the entire system would drain back through a single drain point to the underground holding tanks for the contaminated discharge water.

The correct levels were achieved with an adjustable bracket engineered specifically for the purpose and levels were set every 3 metres via survey equipment.



- A precise installation methodology was developed and successfully implemented as required for the Pop-up AFFF Foam Deluge Systems in the MST Hangars in order to achieve hydrostatic testing, backfill and compaction requirements, accurate final levels of the Foam Nozzles and stage handover milestones of sections for following trades maintaining the overall construction program.



- As the systems had to be installed on this Defence project in accordance with all standard government protocols of which some are above that required by the industry standard, Firesafe had to design, fabricate, install and commission the works with the utmost precision to meet these standards.
- The nature of the site and the high levels of security meant that Firesafe had to ensure they met the site requirements at all times and were able to complete the project with no record of security or site procedure breaches
- As the RAAF Pearce Airbase site is operational and a highly classified security risk, numerous measures needed to be put into place to manage material movements and the working within an active airbase, especially around the runway and taxiway areas.
- For the majority of the construction process, Firesafe undertook the lead with significant coordination measures to install and commission sections as the build went forward whilst maintaining the integrity of the facility affected by the upgrade.
- All employees who work on these projects are required to be the necessary DCAS access permits and undergo any site specific inductions, due to the jurisdictions of working on the airside of a RAAF Airbase. Firesafe managed and maintained a regular installation team on the project to effectively reduce the lengthy induction process to gain full site access and produce productive site time.
- Further impact was that the airbase is under the jurisdiction of the Australian government requiring additional clearance to be issued for entry to site, all material movements had to be pre planned in advance and this was achieved with our in house fabrication team meeting all deadlines.