

COMPLETED PROJECT

SITE:	Karrinyup Shopping Centre
LOCATION:	KARRINYUP WA
SCOPE OF WORK:	Fire Protection (Wet and Dry Fire)
COMPLETION DATE:	November 2021
VALUE:	\$21m

Karrinyup Shopping Centre was first established in 1973, the redevelopment of the centre makes it one of the largest shopping centres in Western Australia. Construction of the redevelopment commenced in 2018 with an expanded 2 floor fashion mall known as “The Loop” connecting from the Big W mall to the former centre entrance which features some of the international fashion retailers such as Uniqlo, Zara and Sephora added. A new food court known as “The Café Terrace” has been included on the second floor.



An expanded fresh food area which features Coles, ALDI and new food retailers has been included. A new alfresco entertainment and dining precinct known as “The West Deck” which includes 15 restaurants and a brand new 10 screen Hoyts Cinema plus entertainment venues such as Holey Moley and Strike Bowling have been added as part of the refurbishment.



Renovations also included upgrades to the Myers, Big W and Woolworths stores, plus various new retail stores have been added.

Two new multi-deck parking lots with over 4,900 car bays along with expanded roof-top and basement parking have been added.



SCOPE DETAILS

Within our scope for this project we were tasked with the design and construct contract for all the Wet Fire services and Fire Detection services which included:

- A fully compliant combined Automatic Fire Sprinkler System to AS2118.1-1999
- A fully compliant Hose Reel System to AS2441
- A fully compliant Hydrant System to meet AS 2419.1
- Compliant Portable Extinguishers to AS2444
- Fire Pump Sets installed in accordance with AS2941-2013
- A fully compliant Fire Detection & Alarm system to AS1670.1 (2015) and 1668.1 (2015) plus Emergency Warning Intercommunication system to AS1670.4 (2015)

The Fire Sprinkler system scope included maintaining the 12-x existing OH3/OH2 sprinkler installations and Control Valve Sets. We also installed an additional 31 x new OH3/OH2 sprinkler installation within 5 valve room servicing the Car Park and Retail areas.

The fire sprinkler system installed at the Karrinyup Shopping Centre redevelopment is charged from onsite Sprinkler Duty Pump Sets, fire sprinkler control valves are installed in the below valve rooms:

- Fire Pump Room
- Valve Room1 – Basement 1 Loading Dock 7 (Eastern Multi-storey Carpark)
- Valve Room 2 – Existing Round House Valve Room
- Valve Room 3 – Ground Floor North-East
- Valve Room 4 – Ground Floor South-West
- Valve Room 5 – Ground Floor North-West



All areas of the redeveloped shopping centre are sprinkler protected, no alternate solutions have been applied to remove sprinklers from vast areas.

The fire hydrant system consists of both internal and external hydrants located throughout the complex. There are also feed hydrants in the Fire Services Booster cabinets located on Francis Avenue.

Over 100m of new underground Polyethylene Fire Service Mains have been installed around the new complex and existing shopping centre maintaining operating loading docks and public road crossings.

The installed Fire Hose Reel system is part of the combined Fire Sprinkler/Fire Hydrant system with hose reels installed within the car parks and major stores, being David Jones, Woolworths, Big W, Myer and Coles.

The Fire Pump sets installed are housed in the Pump Room located within Basement 2 of the multi-storey car park, closest to Francis Avenue and Karrinyup Road). The fire pumps consist of a combination of 1 x electric pump and 1 x diesel standby pump.



Fire Extinguishers have been installed in areas nominated within the FSER in lieu of Fire Hose Reels.

The Detection System consists of:

- A new 'MFIP' Fire Indicator Panel (located in the Fire Control Room adjacent security office)
- A New Fire Fan Control Panel for smoke Exhaust Fans
- New Fire Data Gathering Panels forming the New Fire Network (located throughout the centre)
- Several Mimic Panels (Security Office, CMO Secondary emergency centre, Big W, Myer, Hoyts)
- BMS Interface
- Photo Optical Smoke Detection
- Thermal Detection
- Duct Sampling Units located in Plant Rooms & Kitchen Exhausts
- WIPS @ Selected locations by AMP
- Input / Output Devices
- Zone Monitor Devices
- Roller shutter Emergency signage
- Monitoring equipment for pumps, sprinkler valves, solenoids, pressure switches and mechanical services

The Main Fire Indicator Panel (MFIP) is located in the Fire Control Room adjacent to the Security Office, this is a new system with modifications made to accommodate the New Data Gathering panels and Smoke Control systems. All the fire alarm signals are repeated on the Building Management system and the Mimic Panel in the Security Office.

The EWIS system was a new system with the MCEP located in the Fire Control Room and is interfaced to the several new EWIS Data Gathering panels located around the shopping centre.

CHALLENGES & SOLUTIONS

Throughout the project there were various challenges which we had to overcome:

- Throughout the 3+ year projects, Firesafe achieved completion of all 3 discipline scopes for a large number of individual separate handovers. Over the course of the project approximately 30 separate individual zones were handed back to the client to allow beneficial use of the newly constructed real-estate.
- Due to the significant demolition of the existing shopping centre's structure and fire system infrastructure over the term of the project, significant challenges reoccurred throughout the project, regarding identifying and understanding the existing systems and how to tie in, modify an upgrade the existing areas of the centre to allow further expansion.
- Over the three years, the shopping centre did not lose one day of trading. A significant challenge was constant and daily management of not only existing systems but placing systems into the commission phase onto existing platforms, as well as training of these new systems to shopping centre operation staff.
- This project was carried out through the peak of the resources shortfall in Western Australia due to the COVID-19 pandemic, Firesafe were able to identify and cross higher resources from within WA and out of state to ensure we completed our scope of work ahead of schedule for every hand over.
- Firesafe were able to undertake every tenant fit out throughout the entire shopping centre adding up to approximately 200 stores.