

COMPLETED PROJECT

SITE:	Mandurah Forum Shopping Centre
LOCATION:	Mandurah WA
SCOPE OF WORK:	Fire Protection (Wet and Dry Fire)
COMPLETION DATE:	28 th January 2018 / Grand Opening 28 th March 2018



The redevelopment of the Mandurah Forum Shopping Centre will almost double the Centre's existing size from 38,535m² to approximately 63,000m² of retail floor space, with construction taking place in a live shopping centre environment. The project also includes the construction of a new multi-deck and shaded rooftop car park to increase the number of car bays to over 3,000.

The transformed Centre will offer more than 220 stores, including the introduction of the first 'next generation' David Jones store in WA and a Target store to complement the existing major retailers in the centre – Kmart, Big W, Coles and Woolworths.

It will also feature a range of food and dining options including a café and restaurant precinct with al fresco dining designed around a water oasis; a contemporary café terrace-style food court with outdoor seating; and a food market hall offering fresh food and convenience items. The centre will also feature children's play areas and improved access.

Refurbishment of the existing Centre will include new floor finishes, updated lighting, painting, toilet and amenity upgrades, updated signage, ceiling upgrades and new mall furniture.

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 & Hydrant System to AS2118.1
- A fully compliant Hose Reel System to AS2441
- A fully compliant Hydrant System to meet AS 2419
- Compliant Portable Extinguishers to AS2444
- A fully compliant Fire Detection system to AS1668.1 and Emergency Warning Intercommunication system to AS1670.4
- Fire Pumpset system to meet AS2941

Over 250m 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.

New Fire Sprinkler, Hydrant, Detection & Occupant warning systems have been provided throughout over 70,000 sq/m of the new shopping centre & refurbishment of a further 10,000sq/m of existing systems, some are at least 30 years old.

CHALLENGES & SOLUTIONS

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

- The location of the existing Fire Hydrant Water Supplies originally delayed the demolition of much of the existing retail, therefore resulting in a much later completion date.
- Firesafe purpose built, installed and commissioned to all regulatory authority's approval a temporary Pumpset system which provided ongoing protection to the remainder of the existing shopping centre via an existing underground ringmain. This would allow construction works to start earlier on Stage 2 allowing 80 specialty stores & the Target store to open months ahead of the original program.



- Much of the existing In-Ground Fire Service required to be operational throughout construction was Asbestos & up to 30 years old. Earthworks & Footing construction proved to be problematic with the weak pipework, causing in ground leaks and ruptures.
- Firesafe hydraulically calculated the system demands and were able to reduce the standing & operational pressures in the ringmain to reduce the risk of pipe ruptures.
- The existing shopping centre was extended from every elevation, early handover malls cut through the middle of ongoing construction zones & several temporary public access routes built to accommodate ongoing trade through the entirety of the project. Fire services were required to be operational in all public areas.
- Firesafe provided dedicated detection & Occupant warning cabling to early handover areas and commissioned specific zones allowing occupancy. Additional detection was provided between public & construction areas providing early warning from fire risks within the construction site.

- Full refurbishment of the existing Western mall was required whilst 30-40 adjoining tenancies, Big W & Woolworths maintained trading.
- Firesafe modified the existing fire services to accommodate nightly isolations to decommissioning old services & install new services allowing the new feature ceilings.
- The original sprinkler design required sprinklers within feature lozenges throughout the new mall. This design impeded the actual lozenge installation method and also took away from the aesthetic affect the client was trying to achieve.
- Firesafe drastically redesigned & recalculated the sprinkler system to select specific application sprinklers which would allow us to remove all sprinklers from the feature lozenges.
- The roof, being concrete slab proposes water sealing issues, especially around joint and cast in penetrations.
- To avoid the possibility of water ingress between steel sleeves for hydrant upstands and the concrete slab, Firesafe fabricated unique penetration sleeves to prevent water tracking down the sleeve to ceiling spaces below.
- From commencement of the project, Firesafe took on the scheduled maintenance & testing of the fire protection systems & intend on continuing past the DLP Period.

