



Fire Detection



Occupant Warning



Exit & Emergency Lighting



Fire Extinguishers



Fire Doors



Fire Hose Reels



Fire Hydrants



Fire Pumps



Gas Suppression



Sprinkler Systems



FIRE HYDRANTS



Fire Hydrants

What Is A Fire Hydrant?

A fire hydrant is an active fire protection system that acts as a connection point for firefighters to connect their fire hose to, in order to combat a fire. Water from the hydrant is then directed through the layflat fire hose to a nozzle which is then directed to the seat of a fire.

Fire hydrants are not first response appliances to be used by building occupants but are specifically for use by trained officers of the local fire brigade.

Fire hydrants may either be connected directly to the mains water supply or in larger sites will be connected to a pumpset giving greater water supply and pressure to the fire brigade. These devices boost the pressure when that of the mains is not enough.

During a fire the fire brigade may provide additional water and boost the water pressure to satisfy the demands of the fire hydrant system. This is carried out by connecting a fire appliance (truck) between an alternate water supply and the booster connection.

Why Do Buildings Have Fire Hydrants?

The Building Code of Australia volume 1 parts EP1.3 and E1.3, H3.9 and G4.8 detail the mandatory requirement for fire hydrants to be provided in various classes of buildings.

Where Should Fire Hydrants Be Located?

Australian Standard AS2419 specifies requirements for the design, installation and commissioning and testing of fire hydrant installations that are used for the protection of buildings, structures, storage yards, marinas and associated moored vessels, wharves and plant.

Where a street fire hydrant(s) is to be used in lieu of an on-site feed fire hydrant(s), the standard specifies requirements for its location, available pressure and flow as conditions for its inclusion in the designed fire hydrant installation.

The location of fire hydrants must consider accessibility, obstructions and proximity to the building being protected.

The position of hydrants is related to the length of a fire hose, which is 30 metres. All distances are calculated as the most direct, laid-flat-on-ground route that a fire hose could be laid to and inside the building. This includes a path up or down stairs or ramps.

Where Should Fire Hydrants Be Located?

External to the building

External hydrants may have two fire hoses connected to them which gives a total maximum length of 60 metres. In general, external hydrants must be positioned to allow:

- Pedestrian access to the building for the fire brigade.
- Access within 20 metres to a hard stand.
- All parts of the building to be within reach of a 10 metre spray from the fire hose nozzle (given the hose is 60 metre, laid on the ground).
- The hose to extend 1 metre into any room being protected by the fire system.
- 10 metre distance to the building it is protecting.
- 10 metre distance to high voltage electrical mains or combustible storage facilities.
- Good access and protection from vehicular damage.

External hydrants servicing multi-storey developments will generally only be able to access one storey below and one storey above the point of access given the 60 metre hose limit. Internal hydrants may be required on the other storeys.

Internal to the building

Internal hydrants are required to protect parts of the building that cannot be protected by an external hydrant. They will only cover the level on which they are installed.

- All parts of the building to be within reach of a 10 metre spray from the fire hose nozzle (given the hose is 30 metre, laid on the ground).
- The hose to extend 1 m into the area being protected by the fire system.

On the roof top

Enclosed roof top plant rooms (other than lift machine rooms) require a fire hydrant if they exceed 250 m².

Servicing an open yard or marina.

Hydrants must be located to protect all areas of an open yard and marinas following the same requirements as external fire hydrants.





Fire Hydrants

How Do I Operate A Fire Hydrant?

Generally, fire hydrant systems terminate with a hydrant valve. For the system to be utilised a hose must be connected to the hydrant valve. Some buildings have a dedicated hydrant cabinet with a valve and connected hose. The hose is run out to the fire and then the valve is opened. The water pressure from a hydrant system is significantly higher than that of a hose reel system. Fire hydrant systems should only be operated by qualified persons that have undertaken specialist training.

System Components

Water Supply & Storage

A water supply for a fire hydrant system can be derived from a reliable source of water such as street mains, static water supply such as a tank or dam. Water storage must also include a facility for automatic replenishment.

Pipework & Valves

To direct the water from its point of origin (supply) to its destination (landing valve) requires a series of interconnected pipes at defined sizes. Control valves are used in combination with the pipework to control and direct the flow of water.

Fire Brigade Booster

The booster assembly provides a point of attachment for the fire brigade to provide additional water to a fire hydrant system in the event of an emergency.

Booster Pumpset

In some circumstances where the hydraulic analysis has determined that the water supply is insufficient for the building requirements, one or more booster pumpsets may be required. A pumpset may comprise a combination of electric or diesel motors.

Hydrant Valve

The end-point of a fire hydrant system is the Hydrant Valve strategically located throughout a building. Care must be taken to ensure each fire hydrant is readily accessible.

Layflat Fire Hose

Some buildings may also require as part of the approved design the installation of ancillary equipment such as a flexible layflat hose and nozzle that may be connected to a hydrant valve.

Block Plan

A fire hydrant system block plan is an indelible diagram mounted within the booster cabinet, pump room and fire control room.

Maintenance, Inspection & Testing











Western Australia's building legislation requires owners of Class 2 to Class 9 buildings (which includes residential apartments) to ensure the building's firefighting services and equipment are maintained. This is to ensure that safety systems remain capable of performing to a standard not less than they were originally required and commissioned to achieve.

There is a financial penalty for noncompliance with the building legislation.

The Building Commission considers the adoption of Australian Standard AS1851-2012 Routine service of fire protection systems and equipment as good practice and a means for owners to ensure fire safety measures are serviced at regular frequencies to demonstrate suitable operation, and rectified or repaired if necessary to meet their regulatory obligation on maintenance.

AS1851 requires fire hydrants to be inspected every six months. There is an additional inspection and test checklist required to be undertaken yearly and five yearly. Systems with pumpsets must be inspected monthly.

It is important to note that most boosted fire hydrant systems require an annual flow test utilising a fire truck pump. This is needed due to the general low pressure of municipal water supplies and other fluctuations. Undertaking the test with this method is the only way to determine each year if the original design criteria is being met and that the fire brigade (DFES) will have the water and pressure required to fight a fire.

ROUTINE SERVICE FREQUENCIES	Monthly	Three Monthly	Six Monthly	Yearly	Five Yearly	Ten Yearly	Twenty Five Yearly	Thirty Yearly
 Fire Detection	✓		✓	✓	✓			
 Occupant Warning	✓			✓	✓			
 Exit & Emergency Lighting			✓	✓				
 Fire Extinguishers			✓	✓	✓			
 Fire Doors		✓ <small>Horizontal Sliding Doors</small>	✓	✓				
 Fire Hose Reels			✓	✓				
 Fire Hydrants	✓ <small>Where Pumpsets Fitted</small>		✓	✓	✓			
 Fire Pumps	✓		✓	✓	✓			
 Gas Suppression	✓		✓	✓		✓		
 Sprinkler Systems	✓		✓	✓	✓	✓	✓	✓



Design

We design solutions, tailored to your building.



Installation

Our installation teams are focused on delivering on time and on budget projects.



Service & Maintenance

We offer regular servicing and maintenance to ensure that your systems are working at their optimum level.



Emergency Call Out

The Emergency Call Out Service ensures that you are covered 24 hours, 7 days a week for fault and emergency.



Fire Safety Training

We deliver training courses to ensure your team has the knowledge to act competently during an emergency.



The information provided in this document is general in nature, every installation is different and requires site specific professional guidance. Westside Fire Services assumes no responsibility or liability for any errors or omissions in the content of this document. The information contained in this document is provided on an 'as is' basis with no guarantees of completeness, accuracy, usefulness or timeliness.

FREE advice and site inspections.

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