Supply of water to commercial buildings for fire fighting purposes

Development Services – information sheet 77

Background

Buildings with greater than 500m^2 floor area are often required to have internal fire hydrants and sprinklers as part of their fire protection. These fire fighting requirements are contained within the Building Code of Australia (BCA) and Australian Standard 2419 - *Fire hydrant installations - System design, installation and commissioning*. Individual local governments, in their role as the building approval authority, are responsible for ensuring that the appropriate fire protection design requirements are included in the building.

The Water Corporation, and other water utilities across Australia, design their systems for domestic, commercial and industrial use. The Water Corporation's operating licence stipulates a minimum pressure of 15 metre head in the Perth metropolitan area and 13 metre head in country towns. The building's fire fighting systems are generally connected to the water main network.

The Water Corporation will only accept modifications and extensions to its water reticulation scheme to meet building firefighting demands , where it can be demonstrated that the works have minimal impact on the schemes operational and long term planning objectives.

The capacity of water supplies in regional WA towns are such that most significant commercial buildings are required to install tanks and pumps or other supplementary measures to meet the specific flow and pressure requirements required for fire system compliance with the BCA.

Key elements

The objective of the firefighting water supply provisions contained in the building and Australian Standard regulations are to ensure that there is sufficient water available for fire fighters to effectively control a fire in the building and assist in protecting building occupants, contents and the building itself. Higher risk buildings have a larger fire flow requirement that exceed the scheme capacity.

- Building design requirements are administered by the responsible local government. The Department of Fire and Emergency Services (DFES) is not the approving authority for these fire protection systems. DFES provides specialist advice on these systems to local government who are the building approval authority. DFES may also assist the local government in testing these systems in some instances.
- Larger diameter water mains may assist in fire systems achieving BCA requirements without supplementary measures. As water delivery characteristics in any location will vary over time a supplementary fire fighting water system may now be sufficient to meet BCA requirements.
- An addition to an existing building will require the premises to be re-assessed against current water delivery, which now could have reduced flows and pressures in the water main when the original building development was approved.

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- Land and building developers should be aware that prior to development the Water Corporation mains may not be capable of supplying water at the flows and pressures required to meet BCA design requirements. Information provided at the planning phase will assist the Water Corporation considering design reticulation design considerations that may alleviate later costs being borne by individual building developers.

Considerations

The default solution is the installation of a supplementary fire water supply system at the premises. This generally consists of a storage tank and pump to supply the fire fighting system water at the required flow and pressure to meet BCA requirements.

These arrangements will only be approved after certain conditions have been met. For further information refer to our Shared Fire Services information sheet and DFES'S Supplying Water to Hydrants on Water Utility Mains and Building Fire Services brochure.

In some cases where pressure is marginal, a developer could increase the size of a fire service to reduce the effect of pressure loss through the backflow prevention device that forms part of the fire service installation.

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