Building newsflash number 408— revised edition

Fire hydrant installations – using on-site water storage tanks and pumpsets

Purpose

To advise of the requirements where a water storage tank is used to comply with AS 2419 — 2005 Fire hydrant installations Part 1: System design, installation and commissioning.

Background

As part of the Queensland Government's strategy to address the sustainability of our future water resources, water service providers were required to implement a range of initiatives to save 60 megalitres per day. To achieve this target many water service providers implemented mains pressure and leakage management programs to minimise water loss from leaking infrastructure.

As a result of reduced pressure and related flow rate reductions, in some areas on-site water storage tanks are likely to be used.

Industry has requested advice about interpretation of AS2419 with respect to:

- tank capacity
- required pumpsets.

The objective of AS2419 is to specify minimum requirements for the design, installation and commissioning of fire hydrant systems.

Legislation

Building Act 1975
Building Code of Australia
AS 2419 — 2005 Fire hydrant installations Part 1: System design, installation and commissioning.

Issues

Storage tanks must be installed where the water service provider has supplied pressure and flow data which indicates there may be insufficient capacity to maintain an effective fire fighting system to protect property.

The standard requires the capacity of the on-site storage tank to hold sufficient water to service four hours of supply for the fire fighting specifications of Tables 2.1, 2.2 and 2.3.

Where the reticulated water supply is capable of providing make up water to the on-site storage tank, the capacity of the storage tank can be based on the difference in the flow rates between the fire hydrant system required flow rate and the make-up flow rate.

Also, on-site pumpsets are required to achieve the hydrant flow and pressure requirements detailed in AS 2419.1 Pumpset Configurations Section 6.2 a), b) and c). This section details the type and number of pumpsets required where a storage tank is used for fire fighting purposes.

Pressure reduction—buildings under 25 metres in effective height

In areas where water service providers have reduced reticulated water pressure thereby causing related flow rate reductions, the water service provider may be able to boost the water supply and meet the minimum flow rates in the event of an emergency.

Where this occurs, a combined system of reticulated supply and water storage may be considered for particular buildings as an alternative solution under the *Building Act 1975* to address the initial time delay the water service provider may have between notifications and instigation of the boosted supply to meet the required flow rates.

This method will also provide a back up supply where the water service provider's main supply suffers an unexpected drop in capacity or pressure.

In addition, hydraulic designers need to carefully consider the location of the tank suction outlet as this needs to be positioned close to the mains hydrant suction outlet where its use can be quickly and safely accessed by the fire service vehicle.

In this instance, the installation of a single pump connected to the storage tank may be considered appropriate. The attached diagram shows an example of a combined installation which may be suitable for particular buildings.

Hazardous buildings

When deciding a building development approval for a large building greater than 36 000 square metres, the building certifier should also consider the discretions available to them under s.79 of the *Building Act 1975*. This provision allows the certifier to place conditions on a building development approval when the certifier considers special provisions should be made to restrict or combat the spread of fire. The certifier may only impose these conditions after consultation with the Queensland Fire and Rescue Services.

Please note this newsflash replaces the version published on 24 December 2009.

Contact for further information

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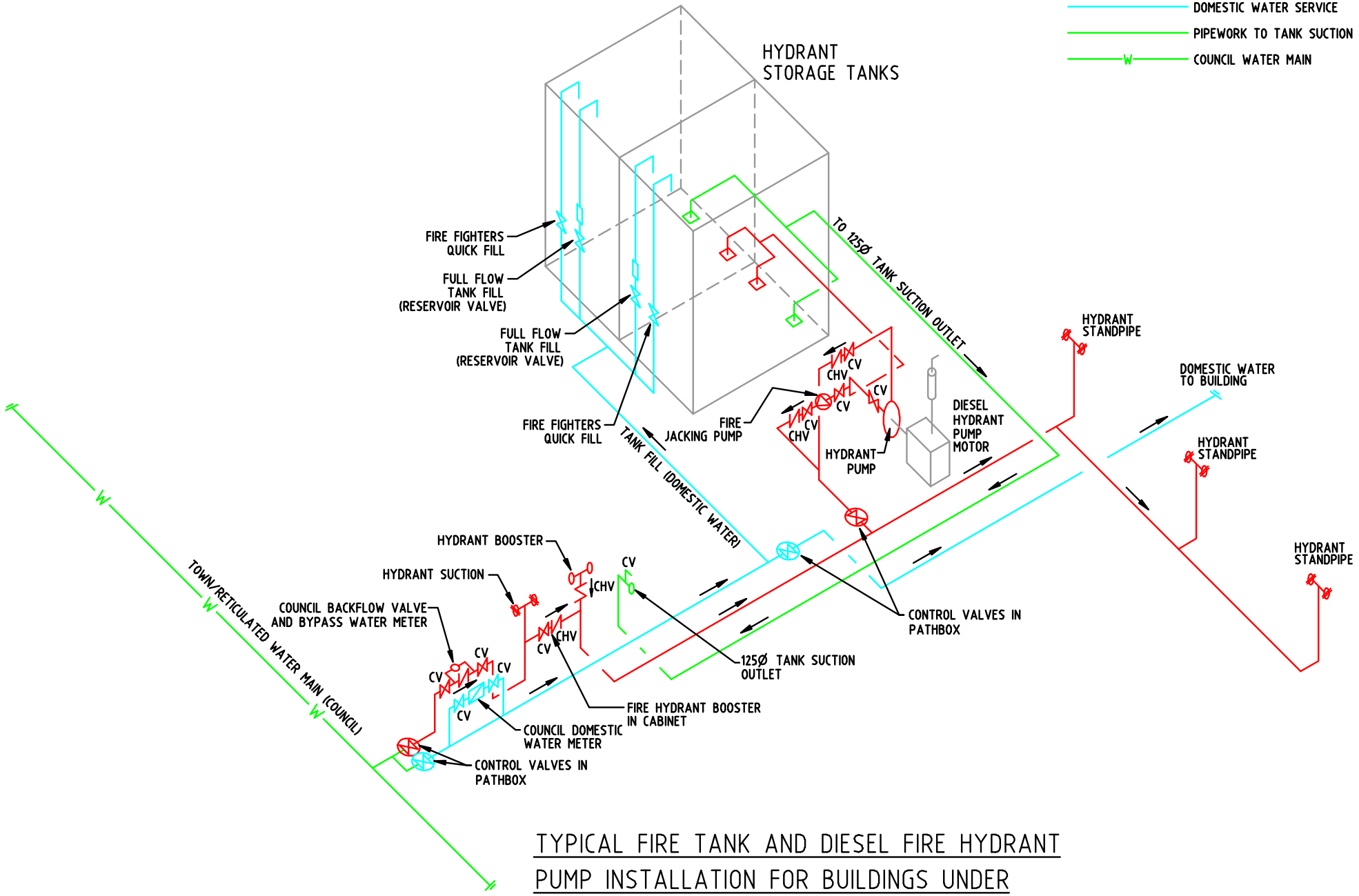

TYPICAL FIRE TANK AND DIESEL FIRE HYDRANT PUMP INSTALLATION FOR BUILDINGS UNDER 25 METRES IN EFFECTIVE HEIGHT

NOT TO SCALE