Responses to Questions Posed by AHSCA

(SLIDE 1) Under the terms of the PA 2016 and the PR 2017, referral to QFES for advice is required for any application for building work that involves a fire safety system. Section 22 (2)(b) of the Planning Regulation 2017 states that a referral agency are able to assess a building application against "the policies that are reasonably identifiable as policies applied by the referral agency". (SLIDE 2) These 'policies' are available as Guidelines on QFES' external website.

1. **How does the QFES review FPAA101D sprinkler and dry hydrant designs and is there a list of deviations/additional design requirements over and above the FPAA101D.**

Soon after the release of Technical Specification FPAA101D, QFES' Building Fire Safety Unit (BFSU) decided to develop an internal document that combined the Specification with AS2118.5-2008 (SLIDE 3) (which is constantly referenced within the Specification). This enabled QFES' Building Approval Officers to reference just one document when assessing a FPAA101D sprinkler system.

Further, QFES have developed a Guideline and an Interpretation for additional requirements if a FPAA101D sprinkler system is proposed to be installed in a building. These requirements are associated directly with QFES' operational procedures and considers the safety of firefighters attending a fire event in the subject building.

The QFES' required additional elements listed in the Guideline are:-

- **All dry hydrant systems shall be provided with a hydrant booster cabinet, recess or enclosure as per Clause 7.8 of AS 2419.1-2005 (except for the reference to Figure 7.4).**
- **Doors on all hydrant booster cabinets, recesses or enclosures shall have signage affixed as follows: - "DRY FIRE HYDRANT BOOSTER INLET" as per AS 2419.1-2005 Clause 7.10.2(a) and shall be 50 mm minimum lettering on a contrasting background.**
- **All dry hydrant systems shall have a Block Plan including details as per Clause 7.11 of AS 2419.1-2005 showing the location and distance of the primary feed hydrant within 60m of the booster inlet and to include any secondary hydrant. FPAA101D sprinkler floor isolation valve locations for each level to be included. All other details as per QFES' Guideline "Provision of Block Plans and Location Diagrams".**
- **Any label, sign or location plate required by AS 2118.5 as amended by FPAA101D to be etched, engraved or printed on plastic and clearly visible and readable at the expected viewing distance.**
- **Each hydrant valve shall have, in a prominent position adjacent to each hydrant valve (within 200mm), a permanently affixed and engraved sign clearly visible when facing the hydrant. Signs shall be in 25 mm minimum lettering on a contrasting background that reads "DRY FIRE HYDRANT SYSTEM MUST BE BOOSTED PRIOR TO ANY FIREFIGHTING".**
- **A Test facility is to be provided as per AS 2419.1-2005 at the most disadvantaged hydrant and in each pressure zone and/or tower of a united building.**
- **A completed Form 71 will be required at QFES inspection stage including Parts B, D, and E.**

This Guideline is now under review pending the release of the AFAC Guidelines (SLIDE 4) detailing Explanatory Notes, Design/Installation/Maintenance Requirements and Operational Considerations with a view of incorporating information contained in these documents into QFES' Guideline.

2. **How does the QFES approach combined flows for hydrant and sprinkler systems where AS2118.1-2017 exempts carpark sprinkler systems from inclusion in the hydraulic flow demand for hydrant systems.**

(SLIDE 5) Clause 4.3.1 (e) of AS2118.1 – 2017 states that "where only a car parking compartment of a building is provided with sprinkler protection, then the town main shall be capable of applying pressure and flow demands for the sprinkler system without considering simultaneous hydrant flows."

QFES highlight the 'comment' located immediately following this clause, namely C4.3.1 which states "Where a town main supplies a sprinkler system, it should be capable of providing simultaneously the required flow for fire hydrants. It is expected that the fire brigade would not isolate the sprinkler system until the fire is extinguished and may use hydrants to supplement sprinkler operation." QFES concur with this comment.

QFES sought advice from the Master Plumbers' Association of Queensland for the background resulting in this new Clause. MPAQ advised that this Clause was inserted primarily to help curve engineers and/or consultants from engineering sprinkler systems out of car parks entirely in order to save cost (primarily tanks and pumps). MPAQ also stated – 'If there is one town main supply supplying the sprinklers and hydrants then they need to test them both simultaneously. There has been cases in the Southern states where the site did not have enough water and when the sprinklers were isolated to provide the brigade with more water, the fire got out of hand and they had to reinstate the sprinklers and stop fire-fighting due to the lack of town main water supply'.

If QFES were assessing a building that contained a car park sprinkler system only and the simultaneous combined flow of the sprinkler system and the hydrant system could not achieve the required performance, QFES may mark the hydrant system assessment as 'Not Suitable' as it cannot achieve "specified performance" when the sprinkler system is operating and therefore does not suit QFES' operational procedures (AS2419.1-2005, Clause 2.1.1).

3. **It has been noted that QFES are issuing 'not suitable' notices for existing hydrant systems even though they may comply for unassisted flow and pressure the requirements of when the building was originally certified. We understand that these 'not suitable' notices are issues with systems that cannot be boosted by a brigade appliance. How should we as designers address the requirements of the QFES requirements with building approved before the adoption of the BCA in Queensland? This refers to the instances where the Building Act does not trigger an upgrade to current standards.**

(SLIDE 6) This QFES advice to the Assessment Manager on these older existing hydrant systems installed within buildings which received building development approval prior to November 1994 has been communicated to industry within the last six months.

This position was triggered by QFES' Building Approval Officers throughout the State receiving numerous 'fit-out' building applications which indicated that there was no proposal to ensure the performance of the existing internal hydrant system satisfied QFES' operational requirements. Historical performance requirements may have satisfied past fire brigade equipment and procedures but they may not satisfy current fire brigade equipment and procedures.

Clause 1.2 of AS2419.1-2005 states that a hydrant system design must be able to be used by trained firefighting personnel and be compatible with the local fire service's firefighting equipment. Further, Clause 2.1.1 of AS2419.1-2005 also states that the fire system designed in accordance with that Standard must be compatible with equipment and procedures employed by the attending fire brigade when fighting a fire in a building.

QFES deem that these statements summarise the intent of <u>any</u> installed fire hydrant system – regardless of when the hydrant system was installed. That is, it is inadequate to have a fire hydrant system installed that is incompatible with minimum flows, pressures and procedures used by the attending firefighters. Further, it is the responsibility of QFES' Building Approval Officers to ensure that any special fire service installed in a building is fit for purpose and is safe for firefighters to use during an emergency fire event.

Research was conducted by a Building Approval Officer located in Townsville on the minimum pressure requirements required by the branches (nozzles) attached to the end of a length of hose currently used by QFES. The outcome of the research revealed that the minimum required pressure at the hydrant valve outlet for a branch to effectively and efficiently extinguish a fire is 350kPa.

This result aligns to the current minimum unassisted pressure requirement under Table 2.2 of AS2419.1-2005 for an attack hydrant.

Therefore, QFES' position is that when assessing or inspecting hydrant systems for fit-outs in pre-November 1994 buildings, QFES will provide a 'Not Suitable' advice to the Assessment Manager for the hydrant system if the existing hydrant system:

- **Does not achieve current day performance requirements (in relation to flows and/or pressure); or**
- **Has hydrants that are located in such a position that the assessing BAO deems them unsuitable (e.g. greater than 4m from a required exit); or**
- **Has hydrant coverage which exceeds current day requirements**

The above performance issues do not meet QFES operational requirements.

This result is 'advice' only to the Assessment Manager, who must then determine if he/she chooses to require the Applicant to upgrade the hydrant system in line with QFES advice or ignore QFES' advice. If the Assessment Manager decides to ignore QFES' advice, QFES may review the decision and determine whether to appeal the decision at a Building Tribunal hearing.

Of course, if the Assessment Manager requires the Applicant to upgrade the hydrant system, QFES would recommend that the system be upgraded to the current AS2419.1. (SLIDE 7)