VANCOUVER FIRE DEPARTMENT
Fire Code Interpretation

SUBJECT: **13D fire sprinkler systems**

INTERPRETATION DATE: April 30, 2014

Updated 9/16/2021

OWNER: Fire Marshal

INTENT:
To clarify what is approved for permit & acceptance test requirements identified in the International Fire Code, International Residential Code P2904 and NFPA 13D within the City of Vancouver.

AHJ REQUIRMENT:
A bucket test is not specifically required by the standard and is no longer required by Washington State Law. Instead, it is left to the Authority Having Jurisdiction to determine whether it is required. A forward flow test is required in the City of Vancouver because it confirms that the meter size and underground supply have not unexpectedly reduced the calculated flow.

1.0 CODES INTERPRETED

1.1 IFC 903.3.1.3 NFPA 13D sprinkler systems. Automatic sprinkler systems installed in one and two-family dwellings.

1.2 NFPA 13D. For protection against fire hazards in one- and two-family dwellings and manufactured homes.

1.3 IRC P2904 Dwelling Unit Fire Sprinkler Systems. P2904 shall be considered equivalent to NFPA 13D.

2.0 PERMIT SUBMITTAL REQUIRMENTS

2.1 One (1) set of electronic plans to scale to include:

- ☐ Scale drawings
- ☐ North indicator
- ☐ Elevation views where ceilings are not flat or unique features create potential spray obstructions.
- ☐ System riser and supply valve diagram.
- ☐ System meter size, underground domestic supply pipe and any backflow preventer details.
- ☐ Detail of required signage: “This signage shall be posted at the water shutoff valve location: “Warning, the water system for this home supplies fire sprinklers that require certain flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shut off the water to the fire sprinkler system, such as water softeners, filtration systems and automatic

shutoff valves, shall not be added to this system without a review of the fire sprinkler system by a fire protection specialist *and a permit from the City of Vancouver*. Do not remove this sign."

- ☐ For systems without a backflow prevention device, identify the flow through fixture locations.
- ☐ Sprinkler head locations.
- ☐ Identify the two most remote heads from the supply and state the minimum flow required during the acceptance test.
- ☐ Head listing sheets
- ☐ Head spacing allowed by the listing and the flow calculations.
- ☐ Report dated within the past 12 months of available fire flow in the City water main.
- ☐ Hydraulic calculations with reference nodes.
- ☐ Washington State level 1 or higher stamp.
- ☐ City of Vancouver Endorsement must be current for the company and designer.

3.0 PERMIT INSPECTION REQUIRMENTS

3.1 The permit inspection card and approved plans shall be on site together with adequate staff and equipment to perform the acceptance inspection.

3.1.1 First inspection:

- ☐ Above ground pipe cover to include pipe insulation tenting where applicable
- ☐ A 15-minute hydro acceptance test at system operating pressure.
- ☐ Flow test (aka "bucket test") from the two most hydraulically remote or demanding heads as shown on the approved plans.

NOTE: All test equipment; valves, test heads, containers etc. shall be furnished by the installing contractor. If an accurate determination of container capacity cannot be obtained by container markings, the following formula may be used for cylindrical containers with vertical sides: $(\pi r^2 H)/231$ = volume, where $\pi = 3.14$, r = radius in inches, H = depth of water in inches.

3.1.2 Second inspection if required for corrections.

3.1.3 Final inspection:

- ☐ Final fire inspection.