

NFPA 20-2010

Standard for the Installation of Stationary Pumps for Fire Protection

TIA Log No. 976

Reference: 5.8 (New)

Comment Closing Date: December 18, 2009

Submitter's: Technical Committee on Fire Pumps

1. Add a new 5.8 as follows:

5.8 Protection of Control Wiring for Pumps in Series.

5.8.1* Interconnect control wiring of pumps in series which are not located in the same room and which affects starting of the supply (lower zone) pump(s) shall be protected against fire and physical damage in the same manner as power conductors described in NFPA 70, Article 695.

A.5.8.1 The following methods should be considered acceptable:

(1) Be encased in a minimum 50 mm (2 in.) of concrete (2) Be protected by a fire-rated assembly listed to achieve a minimum fire rating of 2 hours and dedicated to the fire pump circuit(s) (3) Be a listed electrical circuit protective system with a minimum 2-hour fire rating (4) Be protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency alarm and/or control wiring circuits dedicated to fire pumps or emergency systems generators or legally required generators, and no power wiring circuits

5.8.2 The motor on the supply (lower zone) pump(s) shall start on the opening of the control circuit (remote start) loop.

5.8.3 The installed controllers shall meet the requirements of 10.5.2.5 and/or 12.7.2.4 as applicable.

Substantiation: As a result of the floor action at the NFPA Technical Session the paragraph that would have required all high-rise pumps in series to be located within the same fire pump room was returned to the Committee and therefore deleted from the Standard. The Technical Committee addressed the need for protection of control wire installations by requiring all series fire pumps in high-rises to be located within the same fire pump room. The Committee did not contemplate any additional needs for control wire protection. The Standard as it exists does not contain any requirements for the protection of this critical wiring. Failure of this wiring could prevent lower zone pumps from starting when needed to supply building fire protection systems. This could also result in failure of the higher zone pumps. The task group considered that each controller has an independent pressure switch, however there are certain conditions where the low zone pump pressure switch may be satisfied even though there may be an upper level water demand.

Also note that high zone pumps won't just cavitate in the absence of suction water; but, will run dry destroying them in short order and preventing any manual intervention. This will leave some high zones with out any fire protection, particularly those which are above the pumping ability of the local fire department. Since the building will already have a significant amount of 2 hour protected wiring already for the fire pump power supplies and for alarm and annunciator systems the added requirement to protect the controller wiring would not be difficult to achieve.

Emergency Nature: In accordance with the NFPA Regulations Governing Committee projects Section 5.2, this TIA is of an emergency nature because the document contains an omission that was a result of the floor action at the NFPA Technical Session. In addition the proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.