

SUPPLEMENTARY PAPER ON TECHNICAL GUIDANCE NOTE 4 (TGN 4) ADDRESSING ACCEPTABLE SUCTION PIPE ARRANGEMENT

1. Background

Acceptable suction piping arrangement for fire protection system has been discussed during the Technical Sub Committee (TSC) meeting where TSC has agreed an alternative solution alongside with the regulatory requirements. The RSC has developed an independent implementation guidance based on the outcome of the discussion, which may aid industry in completing their remediation plan in a timely manner.

2. Standard Requirement/s:

NFPA 20 requires a minimum straight run length of 10X the diameter of the suction pipe (10D) at the intake to a fire pump.

“4.14.6.3.1 Unless the requirements of 4.14.6.3.2 are met, elbows and tees with a centerline plane parallel to a horizontal split-case pump shaft shall not be permitted. (See Figure A.4.16.6.)”

“4.14.6.3.2 The requirements of 4.14.6.3.1 shall not apply to elbows and tees with a centerline plane parallel to a horizontal split-case pump shaft where the distance between the flanges of the pump suction intake and the elbow and tee is greater than 10 times the suction pipe diameter.”

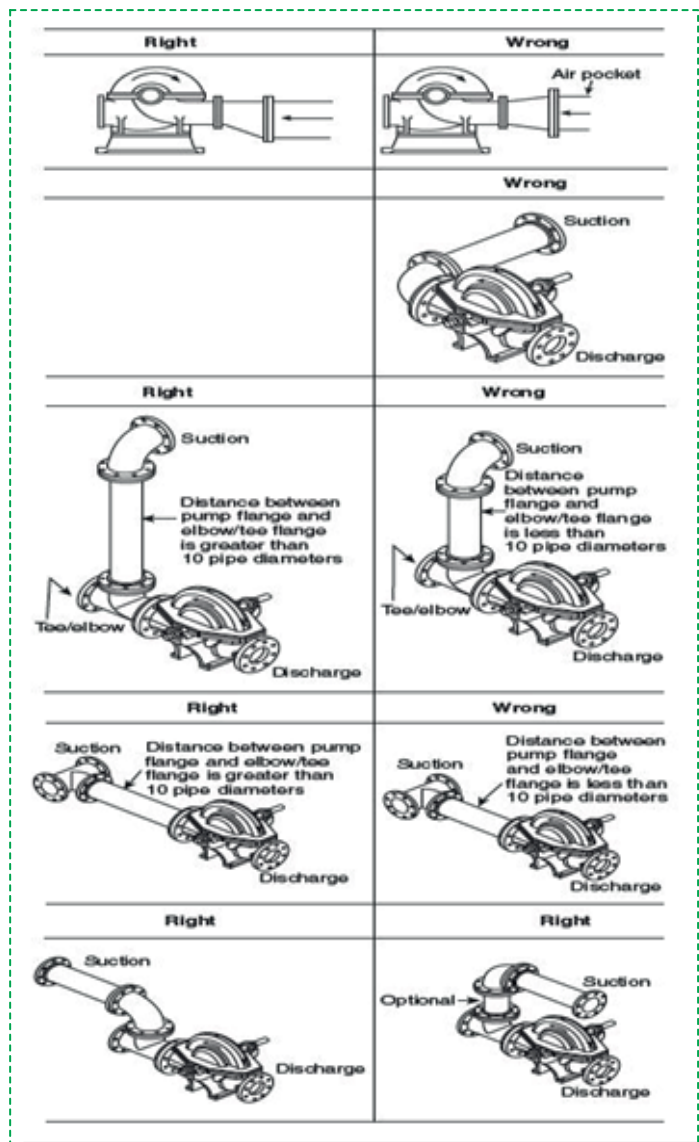


FIGURE A.4.16.6 Right and Wrong Pump Suctions.

Reference: NFPA 20 A.4.16.6



3. Alternative Solution:

In conditions of static (non-pressurized) intake suction arrangements, and where space is limited, a minimum of 2D is acceptable. All fire protection designs must be accepted prior to installation.

This alternative solution was developed by the Accord/BGMEA Technical Sub Committee in order to provide an equivalency to the Accord accepted solutions for the design of suction piping for fire pumps.

4. Implementation Guidance:

A. A proper assessment of suction piping arrangement for fire protection system needs to be performed to verify whether the installation has been done according to NFPA 20 requirement.

B. Suction piping arrangement not meeting- “a minimum straight run length of 10 X the diameter of the suction pipe (10D) at the intake to a fire pump”; such condition would not be accepted when there is adequate space available within the fire pump room to perform the modification work upon proper engineering analysis.

C. In case of space constraints within the fire pump room- “a minimum straight run length of 10 X the diameter of the suction pipe (10D) at the intake to a fire pump” will be replaced by- “in conditions of static (non-pressurized) intake suction arrangements, a minimum of 2D is acceptable.”

D. In addition, make sure that the straight run length as near as possible to 10D (if it is possible within the limitation) to make sure that the performance of the pumps meets manufacturer’s curve or at least the system demand complying with NFPA 20 other than that readjust the length to a higher length which meets the above-mentioned criteria”.

5. Recommendation:

Section 2, 3 and 4 within this supplementary paper provides guidance for suction pipe arrangement of fire protection system, which will assist the user with adequate guidance and knowledge on completing the remediation with acceptable requirement accordingly.

6. References:

NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection.
 Technical Guidance Notes for Fire and Building Safety Remediation in Bangladesh

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