

## **SUPPLEMENTARY PAPER ON TECHNICAL GUIDANCE NOTE 2 (TGN 2) FIRE PROTECTION WATER SUPPLY DURATION**

### **1. Background**

Fire protection water supply requirements has been discussed during the Technical Sub Committee (TSC) meeting where TSC has agreed an alternative solution alongside with the regulatory requirements to address the acceptable range of water supply duration. 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.

This paper is to address & provide an equivalency to the accepted solutions for acceptable sizing of water supply tanks for fire protection system.

### **2. Standard Requirement/s:**

BNBC requires 75 minutes of water supply based on sprinkler and standpipe demand. NFPA 13 requires between 60 – 90 minutes of water supply based on sprinkler and inside hose stream demand.

1. The minimum quantity of water for sprinkler and standpipe system use within the building (up to height 51m) is 75 minutes (for ordinary hazard) in accordance with the BNBC Part 4, Chapter 4 Section 4.2.1 and Table 4.4.1.
2. Hose stream allowance and water supply duration is minimum 60-90 minutes when the number of sprinklers in design area are up to 15 according to the NFPA 13, Table 21.4.1.
3. The minimum water supply for Class I, Class II and Class III Systems shall be capable of providing the system demand for at least 30 minutes in accordance with NFPA 14, Section 9.2 & 9.3.

### **3. Alternative Solution:**

Fire protection water supply tank sizing must provide a minimum of 60 minutes of combined sprinkler system and inside hose stream demand.

According to NFPA 13 Chapter 11, the fire protection water supply duration range for light hazard occupancy is 30- 60 minutes and for ordinary hazard occupancy which is 60- 90 minutes. Considering the fact of addressing the hazard classification, fire growth rate and propagation, compartmentation and intervention- response time of further Fire Service and Civil Defense; minimum 60 minutes fire protection water supply duration may serve the intended purpose the system has been designed and installed.



#### 4. Implementation Guidance:

1. The water capacity of the tank shall be measured in the number of U.S. gallons (cubic meters) available above the outlet opening (Tank drain).
2. The net water capacity shall be measured in the number of U.S. gallons (cubic meters) between the inlet of the overflow and the level of the vortex plate / pump suction (whichever is in higher position).
3. The tank shall include either one or two standard access manhole fittings with cover plates in the top surface. A vent pipe with a pressure relief cap shall be attached to each manhole fitting.
4. An overflow shall be provided and shall be sized larger than the fill connection. The overflow pipe shall not be included as vent area.
5. The tank shall be provided with a water-level gauge to monitor the water level/capacity in the tank.
6. Fire protection water supply tank design, construction, operation, and maintenance shall be in accordance with the NFPA 22.

#### 5. References:

- NFPA 13, Standard for the Installation of Sprinkler Systems.
- NFPA 14, Standard for the Installation of Standpipe and Hose Systems
- NFPA 22, Standard for Water Tanks for Private Fire Protection
- BNBC, Bangladesh National Building Code
- Technical Guidance Notes for Fire and Building Safety Remediation in Bangladesh

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