4.5. Installation and Spacing of Aspiration Type Air Sampling Smoke Detection System

4.5.1. The Installation and Spacing of Aspiration Type Air Sampling Smoke Detection and Alarm System shall comply with **Table 8.5.,** Smoke Detection Systems as per **Table 8.2.** and the General Requirements Fire Detection and Alarm System as per **Table 8.1.**

Table 8.5: Installation of Aspiration Type Air Sampling Smoke Detection Systems

ITEMS	REQUIREMENTS
1. INSTALLATION AND SPACING OF ASPIRATION TYPE AIR SAMPLING SMOKE DETECTION SYSTEM	i. Each sampling port of an air sampling–type smoke detector shall be treated as a spot-type detector for the purpose of location and spacing. ii. Sampling pipe networks shall be designed on the basis of, and shall be supported by, sound fluid dynamic principles to ensure required performance. iii. Manufacturer's listed design guideline and calculation software shall be followed. iv. Sampling pipe network design details shall include calculations showing the flow characteristics of the pipe network and each sample port. v. Air-sampling detectors shall give a trouble signal if the airflow is outside the manufacturer's specified range. vi. The sampling ports and in-line filter, if used, shall be kept clear in accordance with the manufacturer's published instructions. vii. Air-sampling network piping and fittings shall be airtight and permanently fixed. viii. Where practicable, pipe run lengths in a multiple-pipe system should be nearly equal, or the system should be otherwise pneumatically balanced. ix. The air sampling–type detector system should be able to withstand dusty environments by air filtering, electronic discrimination of particle size, or other listed methods or combinations thereof. x. The detector should be capable of providing optimal time delays of alarm outputs to eliminate nuisance alarms due to transient smoke conditions. xi. The detector should also provide facilities for the connection of monitoring equipment for the recording of background smoke level information necessary in setting alert and alarm levels and delays. xii. In cold room applications the detector unit shall be installed outside the sub zero temperature areas. Installation of piping shall be such that condensation does not occur inside the piping. xiii. Detector shall be able to connect in a Class A wiring method. xiv. In-line filter used on the pipe network shall be included in the listing for the air-sampling type smoke detector. xv. Sampling system piping shall be conspicuously identified as "SMOKE DETECTOR SAMPLING TUBE — DO NOT DISTURB," as follows: a. At changes in direction or branches of piping b. At each side of penetrations of walls, floors, or other barriers c. At intervals on piping that provide visibility within the space, but no greater than 6.1 m.
2. AIR SAMPLE TRANSPORT TIME	i. Maximum air sample transport time from the farthest sampling port to the detector shall not exceed 120 seconds.