

4.4. Installation and Spacing of Beam Type (Projected Beam) Smoke Detection System

- 4.4.1.** The Installation and Spacing of Beam Type Smoke Detection and Alarm System shall comply with **Table 8.4.**, Smoke Detection Systems as per **Table 8.2.** and the General Requirements of Fire Detection and Alarm System as per **Table 8.1.**

Table 8.4: Installation and Spacing of Beam Type Detection Systems

ITEMS	REQUIREMENTS
1. INSTALLATION AND SPACING OF BEAM TYPE SMOKE DETECTORS	<ul style="list-style-type: none"> i. Projected beam–type smoke detectors shall be located in accordance with the manufacturer’s published instructions. ii. The effects of stratification shall be evaluated when locating the detectors. iii. The beam length shall not exceed the maximum permitted by the equipment listing. iv. On smooth ceilings, a spacing of not more than 18.3 m between projected beams and not more than one-half that spacing between a projected beam and a sidewall (wall parallel to the beam travel) should be used as a guide. v. Other spacing should be determined based on ceiling height, airflow characteristics, and response requirements. In some cases, the light beam projector is mounted on one end wall, with the light beam receiver mounted on the opposite wall. However, it is also permitted to suspend the projector and receiver from the ceiling at a distance from the end walls not exceeding one-quarter the selected spacing (S). vi. If mirrors are used with projected beams, the mirrors shall be installed in accordance with the manufacturer’s published instructions. vii. A projected beam–type smoke detector shall be considered equivalent to a row of spot-type smoke detectors for level and sloping ceiling applications. viii. Projected beam–type detectors and mirrors shall be mounted on stable surfaces to prevent false or erratic operation due to movement. ix. The beam shall be designed so that small angular movements of the light source or receiver do not prevent operation due to smoke and do not cause nuisance or unintentional alarms. x. The light path of projected beam–type detectors shall be kept clear of opaque obstacles at all times.
2. VERIFICATION OF ALARM	<ul style="list-style-type: none"> i. Where the light path of a projected beam–type detector is abruptly interrupted or obscured, the unit should not initiate an alarm. It should give a trouble signal after verification of blockage.