

## 4.11. Wireless or Radio Frequency based Fire Alarm Systems

**4.11.1.** The Design, Installation and Spacing of Wireless or Radio frequency based Fire Alarm System shall comply with **Table 8.11.**, and the relevant General Requirements Fire Detection and Alarm System as per **Table 8.1.**

**Table 8.11.: Design, Installation and Spacing of Wireless Systems**

ITEMS	REQUIREMENTS
<b>1. DESIGN, INSTALLATION AND SPACING OF WIRELESS FIRE ALARM SYSTEMS</b>	<ul style="list-style-type: none"> <li>i. Wireless Fire Alarm Systems shall be listed and approved by Civil Defence as a full system assembly including low power radio equipment, transmitters, receivers, Detectors, Control Units and accessories.</li> <li>ii. Wireless Fire Alarm Systems shall be addressable, pin-pointing exact device initiating alarm or in trouble condition or has battery failure.</li> <li>iii. The Control Unit shall be capable of interfacing with wired Analogue addressable Fire Alarm Systems.</li> </ul>
<b>2. POWER SUPPLIES</b>	<ul style="list-style-type: none"> <li>i. A primary battery(s) (dry cell) shall be permitted to be used as the sole power source for devices incorporating a low-power radio transmitter/transceiver where all of the following conditions are met: <ul style="list-style-type: none"> <li>a. Each transmitter/transceiver shall serve only one device and shall be individually identified at the system control unit.</li> <li>b. The battery(s) shall be capable of operating the low power radio transmitter/transceiver and its associated device for not less than 1 year before the battery depletion threshold is reached.</li> <li>c. A low battery signal shall be transmitted before the device is no longer capable of providing 15 days of trouble signal operation followed by the signaling of a single nontrouble response. The low battery signal shall be distinctive from alarm, supervisory, tamper, and trouble signals, shall visibly identify the affected low-power radio transmitter/transceiver, and, when silenced, shall automatically re-sound at least once every 4 hours.</li> <li>d. Catastrophic (open or short) battery failure shall cause a trouble signal identifying the affected low-power radio transmitter/transceiver at the system control unit. When silenced, the trouble signal shall automatically re-sound at least once every 4 hours.</li> <li>e. Any mode of failure of a primary battery in a low-power radio transmitter/transceiver shall not affect any other low-power radio transmitter/transceiver.</li> </ul> </li> </ul>
<b>3. ALARM SIGNAL</b>	<ul style="list-style-type: none"> <li>i. When a wireless initiating device is actuated, its low power radio transmitter/transceiver shall automatically transmit an alarm signal.</li> <li>ii. Response time shall occur within 10 seconds after the activation of an initiating device.</li> <li>iii. Each low-power radio transmitter/transceiver shall automatically repeat alarm transmissions at intervals not exceeding 60 seconds until the initiating device is returned to its non-alarm condition.</li> <li>iv. Fire alarm signals shall be distinctive, clearly recognizable, and shall be indicated as follows in descending order of priority, a. Signals associated with life safety. b. Signals associated with property protection. c. Trouble signals associated with life and/or property protection. d. All other signals</li> <li>v. A fire alarm signal from a low-power radio transmitter/transceiver shall latch at its system control unit until it is manually reset.</li> </ul>