Emergency Responder Radio Coverage System Worksheet

For projects in Kenmore & Lake Forest Park

Name_____

Date _____ Zone District _____

Additional Submittal Requirements

You must provide the following documents as a part of your permit application submittal in addition to the documents required by the Emergency Responder Radio Coverage checklist applicable to your project.

Plans, cut sheets or other required materials shall be submitted for approval to Shoreline Fire Department, before any equipment is installed or modified. Installing any equipment without a permit on site may result in fines.

Site Plan Requirements

The plan shall be drawn to 1/8" = 1' minimum scale.

- ☐ Location of signal booster shall be installed in a NEMA 4 waterproof cabinet
- ☐ Clearly indicate the 2-hour pathways for survivability
- ☐ Location of backup battery system, if being used
- ☐ Location of antennas
- ☐ Floor diagrams for each floor with current signal strengths

Installation Requirements

- ☐ The radio coverage system shall be designed and installed in accordance with Sections 510.4 and 510.5 of this code and with the provisions of NFPA 1221 (2019).
- ☐ Acceptance testing for emergency responder radio systems is required upon completion of installation. It is the building owner's responsibility to have the radio system tested by qualified personnel to ensure a minimum of 95% two-way coverage on each floor of the building.
- ☐ A report shall be submitted to the Fire Marshal's Office at the conclusion of acceptance testing. It shall contain a site plan, signal strengths at each location tested, and other relevant information. A floor plan shall be laminated and posted near the NEMA 4 cabinet.
- ☐ A Fire Code Official may oversee the acceptance test. Acceptance testing is also required whenever changes occur to the building that would materially change the original field performance test.
- ☐ Minimum signal strength of -95 dBm shall be available in 95% of all areas of the building and 99% in elevators (measured at the primary floor), stair shafts and fire command centers when transmitted from the closest regional 800 MHz radio system.
- ☐ The building shall be considered to have acceptable emergency responder communications enhancement system coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in IFC Sections 510.4.1.1 through 510.4.1.3

Standby Power Supply

- ☐ Emergency responder radio coverage systems shall be provided with dedicated standby batteries or provided with 2-hour standby batteries and connected to the facility generator power system in accordance with section 1203.
- ☐ The standby power supply shall be capable of operating the emergency responder radio coverage system at 100 percent of system capacity for a duration of not less than 12-hours.

Cabinet Signal Booster requirements (If used, signal boosters shall meet the following requirements):

- ☐ All signal booster components shall be contained in a National Electric Manufacturer's Association (NEMA) 4 IP66-type waterproof cabinet or equivalent. **Exception: Listed battery systems that are contained in integrated battery cabinets**
- ☐ Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet, IP65-type waterproof cabinet or equivalent.
- ☐ Equipment shall have FCC or other radio licensing authority certification and be suitable for public safety use prior to installation.
- ☐ Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20db greater than the system gain under all operating conditions.
- ☐ Bidirectional amplifiers (BDAs) used in emergency responder radio coverage systems shall be fitted with anti-oscillation circuitry and per-channel AGC.
- ☐ The installation of amplification systems or systems that operate on or provide the means to cause interference on any emergency responder radio coverage networks shall be coordinated and approved by the public safety radio system operator.
- ☐ Unless otherwise approved by the public safety radio system operator, only channelized signal booster shall be permitted.
    - Exceptions: Broadband BDAs may be utilized when specifically authorized in writing by the public safety radio system operator.
- ☐ A low voltage electrical permit is required, and shall be signed off by an electrical inspector, prior to requesting a fire department alarm final inspection.

Identification

- ☐ Doors into rooms or buildings containing emergency responder radio systems shall be provided with approved signs stating: "**Emergency Responder Radio System"**

Fire Alarm Monitoring

These conditions can all be grouped into one supervisory signal that is annunciated at the fire alarm panel and at central station. The signal shall be identified as an "emergency responder radio" supervisory signal. They will be tested by a Fire Code Official at the time of final fire inspection of this permit. The system shall be supervised by the building fire alarm system in accordance with NFPA 72 to provide automatic alarming for the following supervisory conditions:

- ☐ Loss of normal AC power supply
- ☐ System battery charge(s) failure
- ☐ Malfunction of the donor antenna(s)
- ☐ Failure of active RF-emitting device(s)
- ☐ Low-battery capacity at 70 percent reduction of operating capacity
- ☐ Active system component malfunction
- ☐ Malfunction of the communication link between the fire alarm system and the emergency responder radio enhancement system.

Please sign after verifying your plans comply with requirements.

Signature _____ Date _____