

CITY OF TORRANCE

FIRE DEPARTMENT

Fire Prevention Bureau

Plan Review Check List

Radio Communication System for Emergency Responders

Applicant's Name/Company:		
Job Site Address:		City of Torrance Permit #:
Inspector:	Date:	Status:
Inspector:	Date:	Status:
A-Approved; AC-Approved w/comments; I-Incomplete; D-Denied		

This checklist outlines general requirements that must be followed prior to the issuance of a permit and any system construction. Information contained herein applies to typical instances and may not address all circumstances.

Code Reference – 2016 California Fire Code (CFC) Chapter 5 – 510.4.2.2

Permit Required – City of Torrance development permit (no special fire permit). The following requirements are incorporated into the terms of the issued permit.

File Review

- Three (3) sets of scaled plans and specifications showing proposed radio system.
- Copy of contractor's license or certification to install proposed radio system.

Proposed System

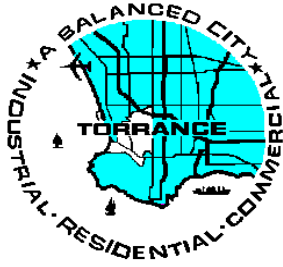
- Description of poor signal coverage within the proposed building or development
- Description of proposed radio communication system (i.e. BDA, booster)
- Technical specifications of proposed radio communication system
- Documentation that the proposed system will achieve adequate signal strength and coverage within building or development. See Appendix A.
- Documentation that the Torrance public safety dispatch center will receive the minimum required signal strength. See Appendix A.

System Design

- System is designed to operate on a P25, digital, trunked simulcast UHF frequencies. See Appendix A.
- Includes filters to reject frequencies outside of those use for emergency communications.
- Includes RF transmission and construction methods to support desired coverage (i.e. "leaking coax", fiber optics distribution).
- Includes generator and/or battery emergency power to provide 12 hours or more of emergency power.
- Includes a NEMA4 enclosure for all booster equipment.
- Includes a dedicated electrical circuit breaker

If the application is incomplete or denied, the application is returned with one retry allowed.

Attach: Appendix A



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Site Inspection Check List

Radio Communication System for Emergency Responders

Applicant's Name/Company:		
Job Site Address:		City of Torrance Permit #:
Inspector:	Date:	Status:
Inspector:	Date:	Status:
A-Approved; AC-Approved w/comments; I-Incomplete; D-Denied		

This checklist outlines general requirements that must be followed after construction and prior to the final sign-off on a permit. Information contained herein applies to typical instances and may not address all circumstances.

Code Reference – 2016 California Fire Code (CFC) Chapter 5 – 510.4.2.2

Permit Required – City of Torrance development permit (no special fire permit)

Pre-Inspection

- Three (3) corrected sets of scaled plans and specifications showing the installed radio system. If plans changed.
- Copy of contractor's license or certification to install proposed radio system. If not supplied earlier or contractor changed.
- Contractor's or consultant's certification that system meets requirements set forth in permit.

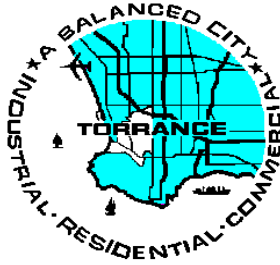
System Installation

- System is designed to operate on a P25, digital, trunked simulcast UHF frequencies. See Appendix A.
- Includes filters to reject frequencies outside of those use for emergency communications.
- Includes RF transmission and construction methods to support desired coverage (i.e. "leaking coax", fiber optics distribution).
- Includes generator and/or battery emergency power to provide 12 hours or more of emergency power.
- Includes a NEMA4 enclosure for all booster equipment.
- Includes a dedicated electrical circuit breaker
- Appropriate fire stopping at all applicable penetrations.

Acceptance Testing

- Acceptable two-way coverage throughout required areas of facility based on spot test(s) as described in Appendix A.
- If any spot test fails, the facility will be retested as described in Appendix A by City of Torrance personnel.

If spot testing fails, the system permit is denied with one inspection retry allowed.



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Appendix A – Technical System Requirements

Plan/Checklist Standards

- Includes an approved FCC booster registration (per FCC Section 90.2019(d)(5))
- Includes a 12 hour backup power source (i.e. battery, generator) and optional alarm (i.e. text message if commercial power down)
- Includes FCC Part 90 type, UL listed, etc. certified equipment only

Radio Frequencies

473/470.0375	473/470.8125	485/482.5000	509/506.0375
473/470.0125	474/471.1125	485/482.6000	509/506.1625
473/470.3125	474/471.3375	509/506.0125	509/506.5000

Qualifying Structures

- Exempt single family residences (R1 & R2) or wood frame structures 4 stories or less both without underground storage/parking
- Exempt all structures up to 30-ft or 3 stories high without underground storage/parking and all elevators
- Require radio coverage in only the underground storage and parking areas for structures that would otherwise be exempted.
- Require radio coverage in all new construction greater than 50,000 SF
- Require radio coverage in all existing structures over 50,000 SF when 1) its modifications or repairs exceed 50% of the structure's value, 2) usable floor space is expanded more than 50%, 3) the capacity for the structure's basement is greater than 50 persons, or 4) underground parking is greater than 10,000 SF.

System Performance

- Must provide a minimum Delivered Audio Quality (DAQ) of 3.0 or better, as defined by the National Telecommunications and Information Administration (NTIA) when:
 - Received in 95% of areas requiring coverage from Torrance dispatch and
 - Received by Torrance dispatch from 95% of the areas requiring coverage
- Must provide typically -95dBm signal strength throughout the area requiring coverage with 90% reliability and a DAQ of 3.0
- Must pass a "Spot Test" if deemed necessary by City staff (i.e. site inspection, troubleshoot interference) in areas of special interest within the area requiring coverage, with 90% reliability and minimum DAQ of 3.0

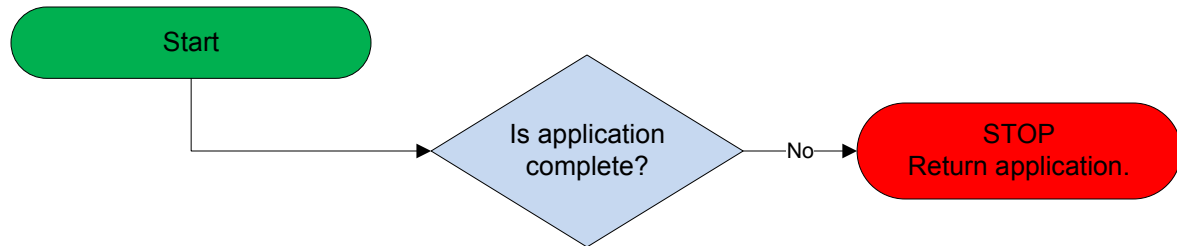
Testing & Enforcement

- Pre-testing optionally performed by owner at their cost; system installation at their cost.
- Initial system compliance testing by City approved vendor (new construction) as per permit
- Recurring system compliance testing performed concurrent with fire inspections (existing construction)(i.e. Spot Test)
- Withhold occupancy certificate if system doesn't pass in new construction
- Fail fire inspection if system doesn't pass in existing structure
- Require existing structures to be compliant within 6 months of citation.

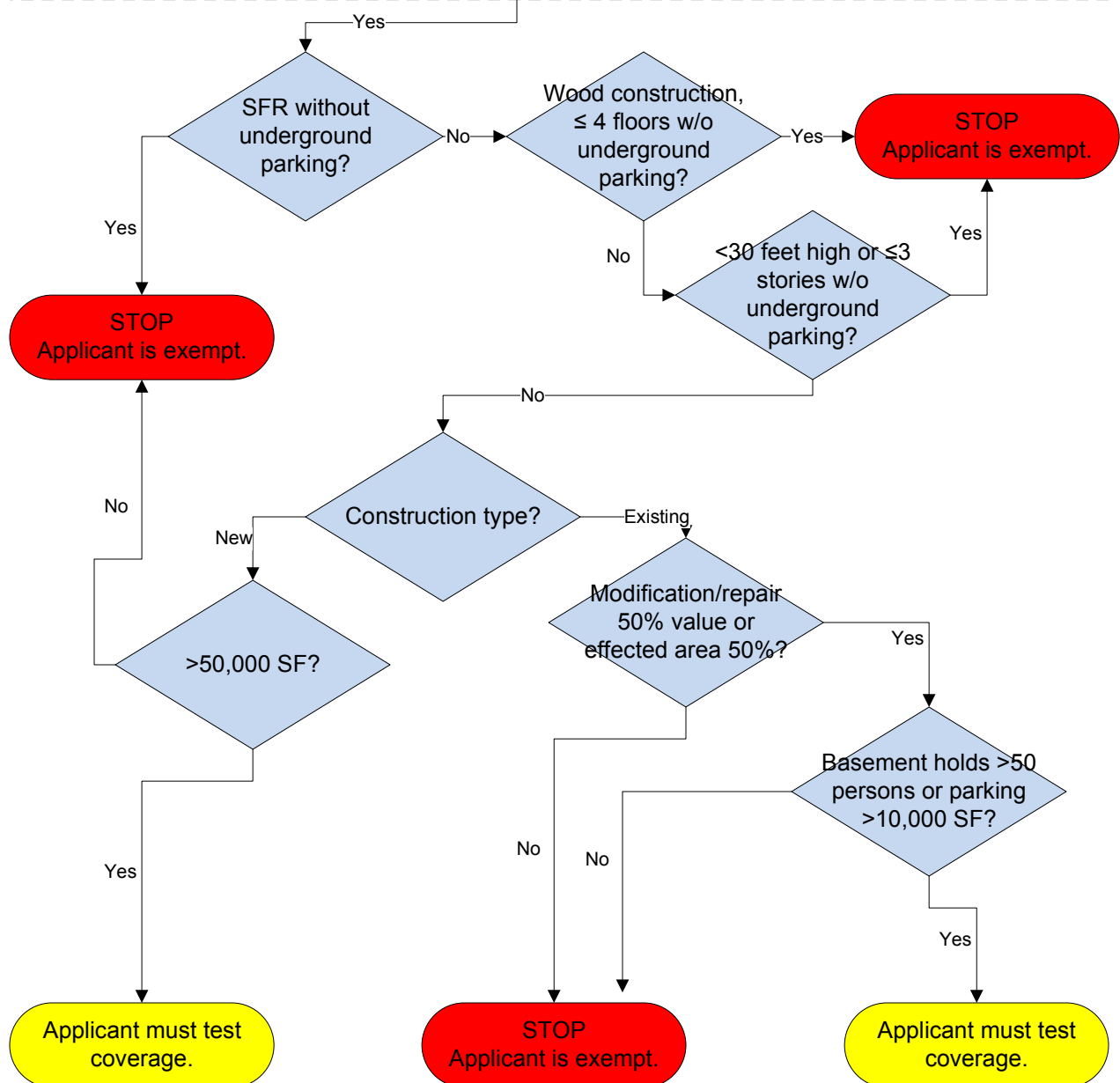
Torrance Fire Department

Radio Communications Bi-Directional Amplifier Application & Qualifying Workflow

Application Phase



Qualifying Phase



Torrance Fire Department

Radio Communications Bi-Directional Amplifier Site Inspection Workflow

Acceptance Phase

