



Memorandum

Engineering Services Division Office

**To:** Distribution  
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**Date:** March 15, 2022

**Subject: Determination of Alteration Level for various Fire Alarm Replacement and Installation**

**Background:** LANL performs various fire alarm control panel replacement projects in order to ensure the site wide fire alarm reporting service is compliant and modern. There are generally three categories of replacement projects:

1 – RIK projects replace an existing obsolete control panel with an equivalent replacement control panel. This type of project is selected if the building detection is generally compliant and only the control panel and devices are obsolete. There may be some additional related work performed to comply with modern code such as installing a smoke detector above the panel, adding an alternate power source or slightly relocating the panel next to the existing panel. Additionally the modern panels generally have additional capability over what the legacy panel had although this capability is not typically used. The deltas are considered either related work or incidental to the panel replacement and does not significantly improve capability or function over the existing panel. Record drawings may be improved as part of this process. No other additions to field devices or other detection upgrades are performed as part of a RIK project. Occupancy levels do not change as a result of the RIK scope.

2 – Fire alarm Full System Replacement Projects (FSRP) aim to replace the control panel and bring the rest of the building up to code compliance. This type of project is selected if the fire alarm system is incomplete or has legacy deficiencies in addition to being obsolete. This project will typically add significant functionality and capability to the system. Additional buildings within a complex may be added into the system. Typically the entire system will be replaced and upgraded and new record drawings will be produced. Occupancy levels do not change as a result of the FSRP scope alone. New fire alarm control panels would not be installed under this category where none existed before. This category includes substantial extensions to existing systems. Note: FSRP may be coordinated with other major renovations or be performed as a stand-alone project, in these cases the non-fire alarm scope will generally drive the alteration level.

3 – New fire alarm control panel and associated full system into an existing structure (NEW). This type of project installs a full fire alarm system where no previous fire alarm system existed. This may be a stand-alone project or coordinated with another modification project.

**Requirements Discussion:** IEBC 2015 has the following applicable definitions and requirements for determining alteration level and certificate of occupancy.

## Definitions:

**202 ALTERATION.** Any construction or renovation to an existing structure other than a *repair or addition*. Alterations are classified as Level 1, Level 2 and Level 3.

**202 CHANGE OF OCCUPANCY.** A change in the use of the building or a portion of a building. A change of occupancy shall include any change of occupancy classification, any change from one group to another group within an occupancy classification or any change in use within a group for a specific occupancy classification.

**202 REPAIR.** The reconstruction or renewal of any part of an *existing building* for the purpose of its maintenance or to correct damage.

## Requirements:

**503.1 Scope.** Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.

**504.1 Scope.** Level 2 *alterations* include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.

**505.1 Scope.** Level 3 *alterations* apply where the work area exceeds 50 percent of the *building area*.

**506.1 Scope.** *Change of occupancy* provisions apply where the activity is classified as a *change of occupancy* as defined in Chapter 2.

## Certificate of Occupancy:

**110.1 Altered area use and occupancy classification change.** Altered areas of a building and relocated buildings shall not be used or occupied, and change in the existing use or occupancy classification of a building or portion thereof shall not be made until the code official has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction.

**407.2 Certificate of occupancy.** A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.

**1001.2 Certificate of occupancy.** A change of occupancy or a change of occupancy within a space where there is a different fire protection system threshold requirement in Chapter 9 of the International Building Code shall not be made to any structure without the approval of the code official. A certificate of occupancy shall be issued where it has been determined that the requirements for the change of occupancy have been met.

LANL ESM Chapter 16 Sect. IBC-GEN-FM01 divides alterations into 3 tiers based on project scope:

**Level 1** alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. Most true like-for-like or replacement-in-kind is this category. Must follow IEBC Ch. 7.

**Level 2A** alterations: System reconfiguration, extension, additional equipment installation, or removal (except when 2B below). **Level 2B** includes possible egress aspects (workspace reconfiguration or door or window addition or elimination) and/or life safety or related systems affected. Must follow IEBC Ch. 7 and 8.

**Level 3** alterations apply when a major building renovation or reconfiguration work area exceeds 50 percent of the aggregate area of the building. Must follow IEBC Ch. 7-9.

**Conclusion:** Based on review of the requirements against the scope of the fire alarm projects the following categories are determined:

**RIK** – Based on the above criteria RIK projects are considered to be Alteration level 1 under both the IEBC and the LANL ESM. A new certificate of occupancy would not be required per the LANL ESM as a result of the RIK project scope being performed. In addition, the scope of a RIK project would not require a certificate of occupancy per the IEBC as the change does not affect the occupancy classification or change the intended use of the area/structure.

**FSRP** - Based on the above criteria FSRP are considered to be Alteration level 2 under IEBC and as a level 2a under the LANL ESM. A new certificate of occupancy would not be required per the LANL ESM as a result of the FSRP scope being performed. In addition, the scope of a FSRP project would not require a certificate of occupancy per the IEBC as the change does not affect the occupancy classification or change the intended use of the area/structure.

Note FSRP are commonly combined with other renovations or alterations, in these cases the full project scope should be considered by project engineering in determining the appropriate alteration level. Certificate of occupancy for the overall project including the FASP, if included, may be required in these cases.

**New** – New system installation often occurs as part of a larger renovation or alteration scope. The alteration level of new projects will be determined as part of the project engineering process.

This evaluation is limited strictly to alteration level and certificate of occupancy determination s. Significant other requirements such as full functional testing, AHJ approvals and other code and process requirements will apply as described in other documents.

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Jason B. Kemp LANL Fire Marshal Approval	Date
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Jason W. Apperson LANL Building Official Approval	Date
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