

## RECORD OF REVISIONS

Rev	Date	Description	POC	RM
0	10/27/06	Initial issue. Requirements formerly in Ch 1 Section Z10.	Tobin Oruch, <i>CENG-OFF</i>	Kirk Christensen, <i>CENG-OFF</i>
1	6/19/07	Added NM Bldg Code. Org changes.	Tobin Oruch, <i>CENG-OFF</i>	Kirk Christensen, <i>CENG-OFF</i>
2	7/21/08	Update for 2006 IBC, other minor changes.	Tobin Oruch, <i>CENG-OFF</i>	Kirk Christensen, <i>CENG-OFF</i>
3	9/15/09	Excluded Supplements; added provisions for minor work similar to code of record under IEBC Ch 3 Prescriptive Compliance Method.	Tobin Oruch, <i>CENG-OFF</i>	Gary Read, <i>CENG-OFF</i>
4	8/25/10	Very minor clarifications.	Tobin Oruch, <i>CENG-OFF</i>	Larry Goen, <i>CENG-OFF</i>
5	6/20/11	2009 adoption.	Tobin Oruch, <i>CENG-OFF</i>	Larry Goen, <i>CENG-OFF</i>
6	9/24/13	Minor clarification on fixture count for Level 2.	Tobin Oruch, <i>ES-DO</i>	Larry Goen, <i>ES-DO</i>

## APPENDIX B LANL EXISTING BUILDING/SYSTEM CODE (LEBC) (PROGRAMMATIC AND FACILITY)

1. Purpose/Scope: This mandatory Appendix contains LANL amendments to the International Existing Building Code (IEBC), which addresses Repairs, Alterations, Changes of Occupancy, Additions, Historic Buildings, and Relocated Buildings. It also contains other requirements for non-building system repairs and alterations, including process and programmatic systems.
2. Adoption: Comply with the 2009 IEBC and its Appendices A and B.<sup>1</sup> Once issued, follow 2012 edition only if specifically listed in the LANS/DOE or project's contract; do not use 2012 only because another ESM chapter states or implies latest edition.<sup>2</sup> New Mexico amendments (NMAC [14.7.7](#)) which strengthen the IEBC are also required (see ESM Ch 1 Section Z10 Subsection Codes and Standards).
  - a. When making a building or system modification, follow the most stringent requirements of existing building requirements between IEBC, IFC, NFPA 101 Life Safety Code, and New Mexico and LANL (herein) amendments to same.
  - b. The IEBC requirements supersede the 50% value rule that may still exist in some ESM chapters (except for non-facility systems; see Para 5 below).

<sup>1</sup> IEBC was adopted by New Mexico effective July 1, 2004; State law is required to be followed by LANL; a LANL multi-disciplinary team determined that it was appropriate for LANL (ref EMRef-37 -- IEBC Meeting Minutes of 11-10-2004) (Note: EMRef refers to a Standards Program internal filing system for hard-to-find references.).

As of 2007, it had been adopted by 15 states and 18 jurisdictions per <http://www.iccsafe.org/government/stateadoptions.pdf>

<sup>2</sup> See ESM Chapter 1 Section Z10 for approach to State law.

- c. ICC-issued Supplements (ICC-published, approved changes between editions) are not mandatory. They may be consulted -- or followed where they do not lessen the requirements of the currently adopted edition.
3. *Interpretations (Approved): Those from the ICC are here:*  
[http://www2.iccsafe.org/cs/interps/Codes\\_List.cfm](http://www2.iccsafe.org/cs/interps/Codes_List.cfm)  
*Any LANL interpretations will be on the Chapter 16 or other relevant chapter webpage; they are incorporated into the ESM chapters upon next revision and removed from website.*
4. *The IEBC is online for LANL at <http://lib-www.lanl.gov/infores/stand/ih/index.htm> (NOTE: Many users will only need the first 13 chapters, not the long appendices, and can stop printing at about page 83 of the ~300-page file).*
5. **For systems outside the IEBC scope (e.g., certain process or programmatic equipment unlike traditional building systems),** bring existing such systems and subsystems into compliance with current codes and requirements in the ESM when renovation or other upgrade work includes major replacements, modifications, or rehabilitation that exceeds 50% of the estimated replacement value<sup>3</sup> of the existing structure, system or subsystem.<sup>4</sup> Consider upgrading whenever safety is an issue.
  - a. This requirement applies on a system or subsystem basis (e.g., a glovebox system, an HVAC train, a non-building structure, etc.). Systems and subsystems are characterized by ESM Chapter 1 Section 210.
6. The LANL Standards Discipline AHJ has the authority to require upgrade of any or all of a system to current code on a case-by-case basis (regardless of percentage) when safety is a concern.
7. Under certain circumstances, the “codes of record” can be applied to later modifications, replacements, or rehabilitation projects involving less than 50% of the estimated replacement value, when justifiable. (*Guidance: For complex situations, the justification should follow the methodology and documentation process in AP-341-515, System Adequacy Analysis*). See 101.5 and Chapter 3 discussion below.
8. Amendments to the IEBC for LANL are as follows (based on 2009 edition):

LEBC	<p><b>CHAPTER 1 SCOPE AND ADMINISTRATION</b></p> <p><b>101.1. Title.</b> These regulations shall be known as the LANL Existing Building Code.</p> <p><b>101.4.1 Buildings not previously occupied. Add:</b> Once there is occupancy (partial or full) or it has gone operational, then repairs, alterations, additions etc. follow the IEBC edition required by ESM.</p> <p><b>101.5 Compliance Methods.</b></p> <p><b>101.5.1 Prescriptive Compliance Method.</b> LANL Interpretation: Regarding IEBC Chapter 3, for any project, if fire code deficiencies relative to the current fire codes (IBC, IFC, and NFPA 101) will remain after project completion, as determined by the Fire Marshal, then Chapter 3 cannot be used and Chapters 4-12 for work area compliance method must be used.</p>
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<sup>3</sup> Replacement value determined using typical LANL cost estimating procedures.

<sup>4</sup> This is necessary to assure that significant renovations are more than just skin deep. Over time, this requirement will bring about safety, functionality, and efficiency upgrades to the underlying SSCs. This percentage was accepted by the TRB (now ESB) on 7/19/00. Fifty percent was also used in the 2001 Santa Fe County Urban Wildland Interface Code for use of fire resistant materials in renovations and for the total luminaire replacement requirement in ASHRAE/IESNA 90.1-2001, Section 4.1.2.2.5. Fifty percent of total square footage is also used for Level 3 alterations per Chapter 4 of the IEBC.

LEBC	<p><b>101.5.3</b> Performance compliance method and reference to same is deleted (see Ch 13 below).</p> <p><b>101.7 Appendices.</b> Delete and substitute: IEBC Appendices A and B are adopted.</p> <p><b>101.8 Correction of violations of other codes.</b> Deleted.</p> <p><b>102.5 Partial invalidity.</b> Deleted.</p> <p><b>103 - Department of building safety.</b> Deleted.</p> <p><b>104 - Duties and powers of the code official.</b> Also see this chapter.</p> <p><b>105 - Permits.</b> See this chapter.</p> <p><b>106 - Construction documents.</b> Also see App A of IBC-GEN</p> <p><b>107 - Temporary structures and uses.</b> Also see IBC-GEN.</p> <p><b>108 - Fees.</b> Deleted.</p> <p><b>109 - Inspections.</b> Also see this ESM chapter.</p> <p><b>110 - Certificate of occupancy.</b> Also see IBC-GEN.</p> <p><b>111 - Service utilities.</b> See App A of IBC-GEN</p> <p><b>112 - Board of appeals.</b> See App A of IBC-GEN.</p> <p><b>113 - Violations.</b> See App A of IBC-GEN.</p> <p><b>114 - Stop work order.</b> See App A of IBC-GEN.</p> <p><b>115 - Unsafe buildings and equipment.</b> See App A of IBC-GEN.</p>
LEBC	<p><b>116 - Emergency measures.</b> Deleted.</p> <p><b>117 - Demolition.</b> Deleted.</p> <p><b>CHAPTER 2 DEFINITIONS</b></p> <p><b>202. General definitions.</b> IEBC terms shall be interpreted identically to the IBC amendments in IBC-GEN App. A. In addition, delete the definition for CHANGE OF OCCUPANCY and substitute: means a change in the use of an existing building such that the occupancy classification applicable to the new use is different from the occupancy classification of the former use.</p>
LEBC	<p><b>CHAPTER 3 PRESCRIPTIVE COMPLIANCE METHOD</b></p> <p><b>301.2.2. New and replacement materials.</b> LANL Interpretation: This applies to use of code of record materials for building components such as windows (used in commentary example), not systems. It also supports interpretation at 101.5.1 and below (“Overall Policy”), that structural and fire issues are the keys to IEBC-driven safety.</p> <p><b>307.5-9 on Electrical, Fuel Gas, Mechanical, Plumbing system installations.</b> LANL Interpretation: This is fairly consistent with 101.5 Exception. The LBO is the approver. Hazardous means the project may not increase the hazard (risk) to people. Furthermore, the LBO cannot let a hazard like a significant structural or fire code noncompliance go unresolved by a project. Beyond this, the LBO may allow certain alterations to only meet code of record.</p>
LEBC	<p><b><u>Overall LANL Policy on IEBC Provisions for Code of Record</u></b></p> <p>For any project, the LBO may allow use of code of record for any alteration except when more than “limited structural alteration as defined in Section 807.4.3” per 101.5 Exception is involved (Chapter 3 may only be used when building is substantially fire code compliant and when changes do not increase the hazard). Furthermore, the LBO cannot let a hazard like a significant structural or fire code noncompliance go unresolved by a project affecting that location. Beyond this, the LBO may allow certain alterations to only meet code of</p>

## Section IBC-GEN – IBC General Requirements

Rev. 6, 9/24/13

## Appendix B – LANL Existing Building/System Code (LEBC)

LEBC	<p>record within the restrictions set forth in the IIBC (also including concept that cannot weaken building or make building or system less conforming to code).</p> <p>The LBO may do this on an individual project basis, and has also designated the following scope as automatically approved – i.e., the following alterations are considered “minor” and automatically approved to follow code of record where and how allowed by the IIBC as noted above:<sup>5</sup></p> <p><u>Building Structural and Structures</u> As approved by LBO.</p> <p><u>Building Non-Structural</u> As approved by LBO. Add clarification at 301.2<sup>6</sup>: The <u>work shall not make the building less conforming</u> to the building, plumbing, mechanical, electrical or fire codes of the jurisdiction, or to alternative materials, design and methods of construction, or to any previously approved plans, modifications, alternative methods, or compliance alternatives, than it was before the repair was undertaken.</p> <p><u>Fire</u><sup>7</sup></p> <ol style="list-style-type: none"> <li>1. Work involving 5 or less fire alarm or detection devices when panel is current as determined by Fire Marshal</li> <li>2. Work involving 9 or less fire sprinkler heads. Note: Hydraulics, placement, and vertical load design must meet current NFPA 13; only sway bracing and flexible joints between new and existing may be omitted (if the remainder of the system lacks currently compliant protection provisions for earthquake, then there is no need to provide these for the mod area)</li> </ol> <p><u>Mechanical/Plumbing/Piping/Fuel Gas</u></p> <ol style="list-style-type: none"> <li>1. For existing mechanical components being modified but with no increase in weight or center-of-gravity and not being removed/re-anchored, structural anchorage need not meet current ESM Chapter 5 requirements.</li> <li>2. New piping/tubing shall meet all current requirements except for small additions to existing systems (on the order of 9 additional sprinkler heads worth of piping or less) that may omit sway bracing and flexible joints to existing system.</li> </ol>
LEBC	<p><u>Electrical</u></p> <ol style="list-style-type: none"> <li>1. For existing electrical components being modified but not removed/re-anchored, structural anchorage need not meet current ESM Chapter 5 requirements.</li> <li>2. For conduit, tray, and duct bank runs (must be under 100 amps<sup>8</sup>), sway bracing and flexible joints to existing system may be omitted.</li> </ol>

<sup>5</sup> Once LANL has more experience with code of record, we may allow that Code of Record be used when approved by the AHJ for the discipline (in consultation with a structural POC if applicable) (i.e., delegation by LBO)

<sup>6</sup> 2007 IIBC Supplement adds this para

<sup>7</sup> These are consistent with NM and ESM Ch 1 Z10 threshold for PE involvement in fire design. Beyond this limit, full ESM requirements must be met (e.g., sway bracing and flexible joints between new and old work).

<sup>8</sup> One trigger for when Electrical AHJ requires design, per ESM Ch 7 Section D5000 (r3 para 1.1E)

LEBC	<p><b>CHAPTER 6 ALTERATIONS – LEVEL 1</b></p> <p><b>605.2 Alterations affecting an area containing a primary function.</b> The second sentence is amended to provide: “The accessible route to the primary function area shall include toilet facilities <u>and</u> drinking fountains serving the area of primary function.”</p> <p><b>CHAPTER 13 PERFORMANCE COMPLIANCE METHODS</b></p> <p>Deleted, to be used only with prior approval of LBO and subsequent approval of calculations and outcome.<sup>9</sup></p> <p><b>CHAPTER 14 CONSTRUCTION SAFEGUARDS</b></p> <p>The methods described and others as specified by LANL are required for areas resembling urban or campus, including all of TA-3 and within the TA-55 fence. For other areas, including those resembling rural/industrial, requirements may be reduced by LANL ES&amp;H based on the analysis of construction hazards.</p>
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<sup>9</sup> Deletion recommended by ENG-DECS (now ES-DE) C/S/A Team 7/11/05; see EMRef-50