Attachment A
LANL Building Code (LBC)

This mandatory attachment lists the major LANL-adopted building codes and amendments to same. Comply with the codes and editions shown below.

Topic	Code *LANL access here*[1]	Adopted Edition	Date LANL Adopted	LANL Amendments	NMAC Amendments (follow any more stringent[2])
New buildings and work	IBC -- International Building Code	2015	3/30/15	IBC-GEN, this attachment, and various ESM chapters	14.7.2
Existing building work	IEBC -- International Existing Building Code			IBC-GEN and its Att B (LEBC)	14.7.7
Electrical	NEC -- NFPA 70 National Electrical Code	2017[3]	4/05/18	ESM Chapter 7	14.10.4
Energy	IECC -- Int'l Energy Conservation Code[4]	2018	2/04/21	ESM Chapter 14	14.7.6
Fire	IFC – Int'l Fire Code	2015[5]	3/30/15	ESM Chapter 2	10.25.5
Mechanical	UMC -- IAPMO Uniform Mechanical Code	2015[6]	7/10/18	ESM Chapter 6	14.9.2
Plumbing	UPC -- IAPMO Uniform Plumbing Code				14.8.2
Solar Energy	USEHC -- IAPMO Uniform Solar Energy and Hydronics Code			ESM Chapters 6 and 7[7]	14.9.6

Follow later editions of the above codes only if the newer edition dates themselves are specifically stated in the LANL/DOE contract or project's Subcontract; conversely, do not use later editions only because another ESM chapter states or implies latest edition.[8]

[1] Available to LANL through Research Library. Because newer may exist, uncheck "Most Recent" when searching on IHS service.
[2] ESM Chapter 1 Section Z10 addresses most stringent concept (*see Codes and Standards article)*. Where NM has not adopted the LANL-adopted edition, NMAC amendments will refer to older codes but shall nevertheless be effective when more stringent and applicable.
[3] NFPA 70-2017, The National Electrical Code, is incorporated by reference by 10CFR851 (issued 1/17/18, mandatory by 1/17/19). LANL adoption of future editions generally occurs after NM adoption. A later version may be adopted if the later version is referenced by the LANL Worker Safety and Health Plan, PD100. PD100 also references P101-13 for electrical safety. Regarding NFPA 70-2020, formal adoption would be through a reference in PD100, P101-13, and/or this document (had not occurred at time of writing). Electrical matters are IBC scope, made clear by the 2021 IBC: "2701.1 Scope. The provisions of this chapter and NFPA 70 shall govern the design, construction, erection and installation of the electrical components, appliances, equipment and systems used in buildings and structures covered by this code..." ICC staff opinion concurs.
[4] IECC Sect. C401.2.1 allows the use of ASHRAE 90.1 for compliance; however, 10CFR433 (a mandate, see ESM Ch 14), requires the use of specific ASHRAE 90.1 editions (e.g., 2013 for buildings which design for construction began on or after November 6, 2016). As such, IECC compliance means 90.1 compliance for new buildings. NM adopted on 9/25/2020 mandatory 4/1/2021.
[5] IFC: NMAC and St. FM Office (Enforcement tab) says 2015 at time of writing.
[6] For the UPC/UMC, NM required the 2015s beginning May 2018. For the USEHC, NM kept the 2012 while LANL adopted 2015 unilaterally in Rev. 11 (standards subscription drove this), but the 2012 USEC is also acceptable.
[7] For solar thermal, there were no Ch 6 D30HVAC amendments at time of writing of this document. For PV, Ch 7 D5090 includes requirements.
[8] Adoption of newer codes by NM becomes effective when this chapter (and normally ESM Chapter 5 also) is revised to reflect them. DOE O 420.1C (in LANL Contract) Contractor Requirements Document (1.c) requires the IBC (or possibly regional equivalent). See also ESM Chapter 1 Section Z10 regarding State code compliance and DOE NSEP direction on same.

Archive

Attachment A - LANL Building Code (LBC)
New Mexico code amendments (refs above) which strengthen the above codes are also required (see ESM Ch. 1 Section Z10 Codes and Standards Subsection) except where variance is granted by LANL Building Official (LBO).

LANL-Approved Interpretations

Interpretations from the ICC are here: https://www.iccsafe.org/products-and-services/technical-opinions/committee-interpretations/

LANL interpretations and variances to this chapter may be listed on ESM Chapter page; they are incorporated into the ESM chapters upon next revision.

Access: The I-codes are online for LANL at https://idp.lanl.gov/idp/startSSO.ping?PartnerSpId=https://sam.ihsmarkit.com/sso/lanl&TargetResource=https://accounts.ihsmarkit.com/erc/login?prod=EWB1

The 2015 IBC is adopted as a mandatory with the following **LANL Amendments (in addition to those above):**

Archive

	CHAPTER 1 ADMINISTRATION
LBC	**SECTION 101 GENERAL** (substitutions apply to this section and throughout Code) **101.1 Title.** Substitute: These regulations shall be known as the LANL Building Code, hereinafter referred to as "this code." **101.4.1.** Substitute ESM Fire Chapter 2 for International Fuel Gas Code. **101.4.2.** Substitute ESM Mechanical Chapter 6 for International Mechanical Code. **101.4.3.** Substitute ESM Mechanical Chapter 6 for International Plumbing Code. **101.4.4.** For Int'l Property Maintenance Code, substitute LANL policies and procedures on facility maintenance (including O&Ms, PDs, Ps, APs, etc.). **101.4.5.** Follow ESM Fire Chapter 2. Follow the most stringent among fire and life-safety requirements of the IBC, New Mexico, and Los Alamos County amendments to these. Also follow IFC, NFPA 1, and NFPA 101-Life Safety Code editions listed above. Following NFPA 101 so shall be considered to have met the "life safety" requirements of OSHA (29 CFR 1910).[9] The LANL Fire Marshal is the Authority Having Jurisdiction for resolving issues surrounding "most stringent", and any mutually-exclusive conflicts among these documents. **101.4.6.** Follow ESM Sustainable Design Ch 14. **101.4.7.** Follow IBC-GEN Att B.
LBC	**SECTION 103 DEPARTMENT OF BUILDING SAFETY** **103.1 Creation of enforcement agency.** Substitute: The LANL Building Department (a virtual department) is hereby created and the official in charge thereof shall be known as the LANL Building Official (LBO). **103.2 Appointment.** Add: At LANL, the Lab Director-approved institutional policy document and its mandated LANL Engineering Standards process culminating in this ESM and Chapter reflecting the designation of Engineering Services Division Leader (or its successor) as LBO. **103.3 Deputies.** Add: The ES Division Engineering Project Delivery Group Leader is delegated as a Deputy to act in the LBO's absence. The LANL Fire Marshal is delegated as a Deputy acting for all fire and life-safety related matters. Others as delegated in writing by LBO. *A building department organization chart is maintained on the Chapter 16 webpage.*
LBC	**SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL** **104.1 General.** Where IBC states "The building official shall have the authority to render interpretations of this code and to adopt policies and procedures in order to clarify the application of its provisions," LANL shall use the LANL Engineering Standards clarification/interpretation/variance policy stated in ESM Chapter 1 Section Z10; this will involve the POC for this chapter, the Fire Marshal for fire/life safety matters, the Electrical AHJ for those matters, and the ESM POCs for affected disciplines (e.g., structural, architectural). In addition, the LBO shall approve any alternate method, variance, or exception that relates to the administrative aspects of this chapter (e.g., design/plan review, inspection, occupancy).

[9] Basis on OSHA: ESM Ch. 2

Archive

LBC	**104.2 Applications and permits.** Traditional permits are not used at LANL. Therefore, instead of the LBO issuing permits for the erection and alteration, demolition and moving of buildings and structures, LANL shall control building activities through the internal project management/initiation (SD 350) and PRID processes, and the LBO provides approval through the plan (design) review and permitting process described in IBC-GEN. Note: All other IBC references to permits (105, etc.) shall be taken to mean these LANL internal processes. **104.3 Notices and orders.** Substitute: The LBO shall issue all necessary notices and orders (including stop work orders) to ensure compliance with the IBC. **104.4 Inspections.** Add: This chapter supersedes any conflicting statements in ESM Ch 4 Section B-C_GEN. **104.5 Identification.** Delete.
LBC	**SECTION 107 SUBMITTAL DOCUMENTS** See IBC-GEN body, ESM Ch. 1 Section Z10, and other ESM chapters for additional requirements. **SECTION 108 TEMPORARY STRUCTURES AND USES** See also IBC-GEN body regarding definition of temporary and related requirements. **SECTION 109 FEES** Deleted. **SECTION 110 INSPECTIONS** See also this Chapter. **SECTION 111 CERTIFICATE OF OCCUPANCY** See this Chapter for amendments. **SECTION 112 SERVICE UTILITIES** Also see O&M Criterion 302 and 303 (*internal website, use Z # and WIN password*) and consult with LANL Utilities for utility connections and disconnections. Where those policies and the IBC conflict, the Utilities documents take precedence. **SECTION 113 BOARD OF APPEALS** Substitute: The LANL Site Chief Engineer will resolve conflicts when necessary.
LBC	**SECTION 114 VIOLATIONS** Substitute: Violations will result in Non-conformance Reports being issued with elevation to upper management as appropriate. Section IBC-GEN includes a form, LBO Notice of Violation, for this purpose. **SECTION 115 STOP WORK ORDER** Substitute: As with any LANL employee, whenever the LBO finds any work regulated by this code being performed in a manner dangerous or unsafe, the building official is authorized to issue a stop work order. Work contrary to this code will be treated as a violation (Section 114). **SECTION 116 UNSAFE STRUCTURES AND EQUIPMENT** Deleted. In general, this is the LANL Facility Operations Director responsibility; however,

Archive

the LBO or Fire Marshal may require actions to improve or vacate.

CHAPTER 2
DEFINITIONS

LBC

Adopted with the following amendments:

IBC Reference/Term	Take to mean
Building official	LBO
lot line	In the context of a construction project, the location of the physical barrier (e.g., fence or barrier) surrounding a site.
owner	The facility managing organization, typically Facility Operations Director
Unsafe Condition (IEBC 115.1, 202)	Further defined for electrical as not conforming to NFPA 70E, *Standard for Electrical Safety in the Workplace*.

CHAPTERS 3-15, 24-26, and 30-31

See ESM Fire Chapter 2 and Architectural Chapter 4 for amendments.

CHAPTERS 16 and 18-23

See ESM Structural Chapter 5 for amendments.

LBC

CHAPTER 17
STRUCTURAL TESTS AND SPECIAL INSPECTIONS

See this ESM Chapter for amendments. These include but are not limited to the following:

1704.2 Add: Special Inspection or shop approval is not required for burning and cutting of mild steel (e.g., steel to ASTM A36).[10]

1704.2.5.1 Fabricator Approval. Add: To clarify, a fabricator approved in accordance with this section eliminates the need for inspection of fabricators required by Section 1704.2.5, and use of an approved fabricator also eliminates the need for special inspections for seismic resistance required by Section 1705.12. Since the fabricator must be approved to perform seismic resistance work, the building official's approval should consider this.[11]

ALL OTHER MANDATORY (Not appendix) CHAPTERS NOT LISTED ABOVE

Follow as written except where amended by ESM.

LBC

APPENDIX A
EMPLOYEE QUALIFICATIONS

Adopted as a mandatory appendix with the following amendments:

[10] Removal of mild steel should not affect strength/quality in the same way as welding, so LANL takes exception for this activity.

[11] EMRef-52: ICC staff clarification dated 9/13/2006:

Q1. A fabricator approved in accordance with Section 1704.2.2 of the 2003 IBC eliminates the need for inspection of fabricators required by Section 1704.2. Does the use of an approved fabricator also eliminate the need for special inspections for seismic resistance required by Section 1707?
A1. Yes. Section 1704.2.2 states "Special inspections required by this ***code*** [emphasis added] are not required where the work is done on the premises of……" This indicates it applies to all special inspections. Since the fabricator must be approved to perform such work, the building official's approval should consider seismic resistance.

Archive

A101.1 Building official. No changes; national certification (e.g., ICC) remains optional. Same for Deputy LBOs.

A101.2 Chief inspector. A professional engineer's license or LBO judgment of suitability may substitute for the requirement to have a nationally recognized certification for the trade.

A101.3 Inspector and plan examiner. Substitute:

1. Inspectors, including Special Inspectors, shall be qualified based on the guidelines set forth in Engineering Standards Manual Chapter 16, Section IBC-TIA, Att. B (may waive national certification).
2. Plans Examiners shall be engineers, architects, or designers selected by the LBO or Deputy and involved in the review of building designs and having at least 5 years experience. National certification not required.

A101.4 Termination of employment. Deleted.

APPENDIX B
BOARD OF APPEALS

Not adopted; appeals per ESM Chapter 1 Section Z10 on clarifications, etc.

APPENDIX C
GROUP U -- AGRICULTURAL BUILDINGS

Contact architectural POC for guidance if and when such buildings are to be constructed.

APPENDIX D
FIRE DISTRICTS

Not adopted; contact Fire Marshal with any questions on this matter.

APPENDIX E
SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS

Not adopted; addressed by ESM Chapter 4 Architectural.

APPENDIX F
RODENTPROOFING

Adopted.[12]

APPENDIX G
FLOOD-RESISTANT CONSTRUCTION

Not adopted.[13]

APPENDIX H
SIGNS

Adopted.

APPENDIX I
PATIO COVERS

Adopted, as it may also have applicability for awnings, bus shelters, muster areas, etc.

[12] Rodents in New Mexico can carry hanta virus, plague
[13] LANL building construction is likely to be on high ground

Archive

	APPENDIX J **GRADING** Adopted.[14] **APPENDIX K** **ADMINISTRATIVE PROVISIONS** Not adopted.[15] **APPENDIX L** **EARTHQUAKE RECORDING INSTRUMENTATION** Not adopted.[16] **APPENDIX M** **TSUNAMI-GENERATED FLOOD HAZARD** Not adopted.[17]

Archive

[14] Required by State of New Mexico
[15] Adequately addressed by this chapter and ESM Ch 7 Electrical
[16] Driven sufficiently by DOE O 420.1C (CRD IV.3.e)
[17] Not credible for LANL

RECORD OF REVISIONS

Rev	Date	Description	POC	RM
0	10/27/06	Initial issue. Requirements formerly in Ch 1 Section Z10.	Tobin Oruch, *CENG-OFF*	Kirk Christensen, *CENG-OFF*
1	6/19/07	Added NM Bldg Code; Ch. 34, App A. Org changes.	Tobin Oruch, *CENG-OFF*	Kirk Christensen, *CENG-OFF*
2	7/21/08	Update for 2006 IBC and its appendices, other minor changes.	Tobin Oruch, *CENG-OFF*	Kirk Christensen, *CENG-OFF*
3	9/15/09	Addressed editions to be used, optional Supplements, and reference editions.	Tobin Oruch, *CENG-OFF*	Gary Read, *CENG-OFF*
4	8/25/10	Added NEC, IECC. Newer code adoptions will be by revision of this document.	Tobin Oruch, *CENG-OFF*	Larry Goen, *CENG-OFF*
5	6/20/11	Adopted 2009 codes concurrent with NM.	Tobin Oruch, *CENG-OFF*	Larry Goen, *CENG-OFF*
6	9/24/13	Corrections regarding adopted NFPA editions and numbering of 107-116.	Tobin Oruch, *CENG-OFF*	Larry Goen, *CENG-OFF*
7	5/22/14	Clarified regarding adopted NEC edition. Became Att. versus App.	Tobin Oruch, *ES-DO*	Mel Burnett, *ES-DO*
8	3/30/15	Update for 2015 I-Codes and other adoptions. Eliminated exception on structural labelling for code compliance (was 1703.5)	Tobin Oruch, *ES-DO*	Larry Goen, *ES-DO*
9	7/29/15	Adopted 2012 Uniform codes including USEC.	Tobin Oruch, *ES-DO*	Larry Goen, *ES-DO*
10	4/05/2018	Minor updates following NM adoption of 2015 IBC/IEBC and NFPA 70-2017; changed NFPA 101.	Tobin Oruch, *ES-FE*	Larry Goen, *ES-DO*
11	7/10/2018	Minor updates following NM adoption of 2015 UPC and UMC.	Tobin Oruch, *ES-FE*	Larry Goen, *ES-DO*
12	2/5/2021	IECC became 2018, NFPA editions per Ch. 2 Att. 1, added date-adopted column.	Tobin Oruch, *ES-FE*	Jim Streit, *ES-DO*

Archive