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2019 EDITION OF THE

LOS ANGELES REGIONAL
LARUCP
UNIFORM CODE PROGRAM

June 13, 2019

Truong Huynh, P.E., C.B.O.
Chair of Administration Committee

Gregory Bowser, S.E.
Chair of Structural Code Committee

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OVERVIEW

- Background
- Organization
- Recommended Amendments
- Resources
- Contact Information
- Questions/Answers

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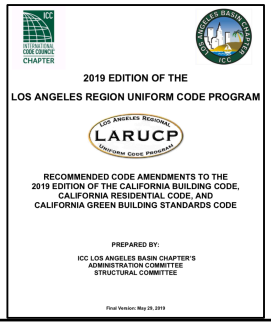
BACKGROUND



2019 EDITION OF THE

LOS ANGELES REGION UNIFORM CODE PROGRAM

LARUCP

RECOMMENDED CODE AMENDMENTS TO THE
2019 EDITION OF THE CALIFORNIA BUILDING CODE,
CALIFORNIA RESIDENTIAL CODE, AND
CALIFORNIA GREEN BUILDING STANDARDS CODE

PREPARED BY:

ICC LOS ANGELES BASIN CHAPTER'S
ADMINISTRATION COMMITTEE
STRUCTURAL COMMITTEE

Final Version: May 29, 2019

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BACKGROUND

WHO

- City of Los Angeles, Building and Safety Department
- County of Los Angeles, Building and Safety Division
- City of Glendale, Building and Safety Division

WHAT

- Develops uniform interpretations and handouts
- Creates uniformity of building codes and regulations
- Minimizes the number of local code amendments

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BACKGROUND

WHEN

- July 1999

WHY

- Serves the interest of code officials and the construction industry
- Construction cost savings

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BACKGROUND

HOW

- Coordination through chapter committees
- Widely circulated and discussed over the past several months
- Various jurisdictional members
- SEAOSC's technical committees
- Design professionals in the construction industry
- Other interested groups or individuals

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ORGANIZATION

THREE PARTS

- Part I – Amendments to the CBC
- Part II – Amendments to the CRC
- Part III – Amendments to the CGBSC

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ORGANIZATION

THREE PARTS

SUMMARY OF RECOMMENDED LARUCP AMENDMENTS TO THE 2019 CBC

(N) 2019 LARUCP NO.	TITLE/DESCRIPTION	STATUS[1]
15-01	Amend CBC Section 1507.3.1 Deck Requirements	E
16-01	Add CBC Sections 1613.4 and 1613.4.1 Amendments to ASCE 7	E
16-02	Add CBC Section 1613.4.2 Wood Diaphragms	E
16-03	Add CBC Section 1613.4.3 Structural Separation	E
16-04	Add CBC Section 1613.5 Seismic Design Provisions for Hillside Buildings	E
16-05	Add CBC Section 1613.6 Suspended Ceilings	E
17-01	Amend CBC Section 1704.6 Structural Observations	E
17-02	Amend CBC Section 1704.6.2 Structural Observations for Seismic Resistance	E
17-03	Amend CBC Section 1705.3 Concrete Construction	E
17-04	Amend CBC Section 1705.12 Special Inspections for Seismic Resistance	E
18-01	Amend CBC Section 1807.1.4 Permanent Wood Foundation System	E
18-02	Amend CBC Section 1807.1.6 Prescriptive Design of Concrete and Masonry Foundation Walls	E
18-03	Amend CBC Section 1807.2 Retaining Walls	N
18-04	Amend CBC Section 1807.3.1 Limitations	N
18-05	Amend CBC Section 1809.3 Stepped Footings	E
18-06	Amend CBC Section 1809.7 and Table 1809.7 Prescriptive Footings for Light-Frame Construction	E
18-07	Amend CBC Section 1809.12 Timber Footings	E
18-08	Amend CBC Section 1810.3.2.4 Timber	E

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FORMAT OF PROPOSED CODE AMENDMENT

- Express term language
- Rationale
- Findings

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FORMAT OF PROPOSED CODE AMENDMENT

2019 LARUCP 15-01. Section 1507.3.1 of the 2019 Edition of the California Building Code is amended to read as follows:

1507.3.1 Deck requirements. Concrete and clay tile shall be installed only over solid sheathing ~~or spaced structural sheathing boards~~.

Exception: Spaced lumber shall be permitted in Seismic Design Categories A, B, and C.

RATIONALE:

Section 1507.3.1 is amended to require concrete and clay tiles to be installed only over solid sheathing. The change is necessary because there were numerous observations of tile roofs pulling away from wood framed buildings following the 1994 Northridge Earthquake. The SEAOSC/LA City Post Northridge Earthquake committee findings indicated significant problems with tile roofs was due to inadequate design and/or construction. Therefore, the amendment is needed to minimize such occurrences in the event of future significant earthquakes.

FINDINGS:

Local Geological Conditions – The greater Los Angeles region is a densely populated area having buildings and structures constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the 1994 Northridge Earthquake, the 1987 Whittier Narrows Earthquake, the 1971 San Fernando Earthquake and the 1933 Long Beach Earthquake. This amendment will reduce the failure of concrete and clay tile roofs during a significant earthquake and is in accordance with the scope and objectives of the California Building Code.

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FINDINGS BASED ON LOCAL CONDITIONS

- Climatic – few are climatic (i.e., dry climate, winds, heavy rain events, environmental/sustainable, etc.)
- Geologic – majority are geologic (i.e., earthquakes, soil conditions, etc.)
- Topographic – some are topographic (i.e., hillside terrain, steep slope, etc.)

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CALIFORNIA BUILDING STANDARDS LAW

- Amendments to the building standards, CCR Title 24, including green building standards
- Exclude residential, historic or energy standards
- Must be reasonably necessary
- Based on local conditions
- More restrictive than CCR Title 24

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ORGANIZATION

STATE HOUSING LAW

- Amendments to the building standards, CCR Titles 24 or 25, including green building standards
- For residential occupancies
- Must be reasonably necessary
- Based on local conditions
- Equivalent or more restrictive than CCR Titles 24 or 25

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RECOMMENDED AMENDMENTS

ELECTRIC VEHICLES

- LARUCP G4-01, G4-02, G5-01 (pg. 104, 105, 106)
- CALGreen requires only EV spaces capable of supporting future EVSE, varies per building type
- Amendment will increase number of EV spaces and EVSCs for new multifamily, hotel/motel, and nonresidential buildings
- Reduces local air and noise pollution, combats climate change, improves health of community

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RECOMMENDED AMENDMENTS

ELECTRIC VEHICLES

- LARUCP G4-01, G4-02, G5-01 (pg. 104, 105, 106)

TABLE 5.106.5.3.3

TOTAL NUMBER OF ACTUAL PARKING SPACES	NUMBER OF REQUIRED EV CHARGING SPACES	NUMBER OF REQUIRED EVCS
0-9	0	0
10-25	~~1~~ 3	1
26-50	~~2~~ 7	2
51-75	~~4~~ 13	3
76-100	~~5~~ 19	4
101-150	~~7~~ 26	6
151-200	~~10~~ 38	8
201 and over	6 25 percent of total [1]	5 percent of total

~~1. Calculation for spaces shall be rounded up to the nearest whole number.~~

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RECOMMENDED AMENDMENTS

INTERMODAL SHIPPING CONTAINERS

- LARCUP 31-01 (pg. 57)
- Code does not provide clear direction
- Patchwork of inconsistent regulations
- Amendment based on a similar code provision recently adopted into the 2021 IBC
- Ensures minimum design and safety standards
- Reduces environmental impact of unused containers

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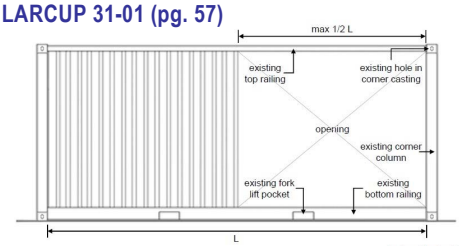
RECOMMENDED AMENDMENTS

INTERMODAL SHIPPING CONTAINERS

- LARCUP 31-01 (pg. 57)



L = length of wall

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RECOMMENDED AMENDMENTS

ASCE AMENDMENTS

- LARUCP 16-01, 16-02, 16-03 (pg. 11, 12, 13)
- Previous CBC amendments to the model code language were removed

2019 LARUCP 16-01. Sections 1613.4 and 1613.4.1 are added to Chapter 16 of the 2019 Edition of the California Building Code to read as follows:

1613.4 Amendments to ASCE 7. The provisions of Section 1613.4 shall be permitted as an amendment to the relevant provisions of ASCE 7.

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RECOMMENDED AMENDMENTS

ASCE AMENDMENTS

- Vertical combination of lateral system exception is limited to one- and two-story dwellings of light-frame construction under 3 stories (16-01)
- Requirements for wood diaphragms with masonry or concrete walls added in response to Northridge Limits spacing of continuous ties and shear (16-02)
- Increases structural separation at Risk Category 3 and 4 (16-03)

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RECOMMENDED AMENDMENTS

HILLSIDE CONSTRUCTION

- LARUCP 16-04, R3-02 (pg. 25, 26)
- Joint task force investigated performance of hillside building failures during Northridge EQ
- Limited access to hillside properties
- Amendment establish minimum structural design and detailing standards for seismic force resistance
- Reduces risk of injury or loss of life on steep hillside properties in the event of an EQ

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RECOMMENDED AMENDMENTS

STRUCTURAL OBSERVATIONS

- LARUCP 17-01, 17-02 (pg. 22, 24)
- Quality of observation or reporting was poor
- Amendment specifies EOR (or one appointed) to perform observation, most familiar with design intent
- Amendment limits exception to 1-story SFD or accessory structure in SDC D
- Reduces damage and improves quality of construction

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RECOMMENDED AMENDMENTS

SPECIAL INSPECTIONS

- LARUCP 17-03, 17-04 (pg. 25, 26)
- Damages experienced during Northridge EQ resulted from lack of quality control during construction
- Amendments modify exception for foundations equal to or less than 2500 psi and for one- and two-family dwellings that are not in SDC D, E, and F
- Reduces damage and improves quality of construction

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RECOMMENDED AMENDMENTS

WOOD FOUNDATIONS

- LARUCP 18-01, 18-03, 18-04, 18-07, 18-08, R4-01, R4-03 (pg. 28, 30, 31, 34, 35, 72, 75)
- Wood foundations have performed poorly and led to expensive repairs and slope failures
- Amendment prohibits the use of wood foundations and retaining walls in SDC D, E, and F, except for fences, golf course netting structures, etc.
- Improves quality of construction

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RECOMMENDED AMENDMENTS

PRESCRIPTIVE FOUNDATION FOOTING/WALL DESIGN

- LARUCP 18-02, 18-06 (pg. 29, 33)
- Higher seismic demands in the region necessitate precautionary steps to reduce or eliminate problems
- Amendment prohibits prescriptive foundation walls and limits wall footings supporting light-frame construction in SDC D, E, or F, except 1-story
- Prohibits use of plain concrete footings in R-3 occupancies

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RECOMMENDED AMENDMENTS

ACI AMENDMENTS

- LARUCP 18-05 (pg. 32)
- Poor performance of under-reinforced footings seen in Northridge EQ
- Amendment requires minimum top reinforcing in continuous footings
- Addresses performance of buildings during an EQ

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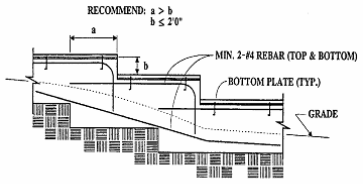
RECOMMENDED AMENDMENTS

ACI AMENDMENTS

- LARUCP 18-05 (pg. 32)



STEPPED FOUNDATIONS

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RECOMMENDED AMENDMENTS

ACI AMENDMENTS

- LARUCP 19-01 (pg. 36)
- Poor performance of under-reinforced footings and failure of reinforcement in thin topping slab seen in Northridge EQ
- Amendment limits plain concrete to fill and minor structures only and increase confinement in columns and walls

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RECOMMENDED AMENDMENTS

ACI AMENDMENTS

- LARUCP 19-02 (pg. 38)
- Propagates legacy code language (1997 UBC) added in response to Northridge EQ
- Prevents lateral wall elements supporting heavy gravity loads
- Amendment requires adequate coverage of reinforcing where buckling was observed in Northridge EQ

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RECOMMENDED AMENDMENTS

FASTENER REQUIREMENTS

- LARUCP 23-01, 23-05, 23-06, R6-01, R6-03 (pg. 40, 44, 46, 79, 82)
- Limited studies conducted showed noticeable failure of staples under cyclic loading
- Amendment prohibits use of staples to resist or transfer seismic forces in SDC C, D, or E unless substantiated by cyclic testing
- Addresses performance of buildings during an EQ

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RECOMMENDED AMENDMENTS

HOLD-DOWN CONNECTORS

- LARUCP 23-04 (pg. 43)
- Joint task force attributed some failure of shear walls to excessive deflection, original values were based on monotonic (static) testing (ICC-ES AC 155)
- Amendment reduces allowable value of hold-down connectors to 75% of published values unless substantiated by cyclic testing
- Addresses minimum performance of hold-downs

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RECOMMENDED AMENDMENTS

WOOD DIAPHRAGMS

- LARUCP 23-05, 15-01, R9-01 (pg. 26, 10, 44)
- Joint task force investigated failure of shear walls and diaphragms, original values were based on monotonic (static) testing
- Amendment prohibits use of staples in SDC C, D, or E unless substantiated by cyclic testing, ensures sheathing connects directly to framing members, requires solid sheathing at concrete/tile roofs

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RECOMMENDED AMENDMENTS

WOOD SHEAR WALLS

- LARUCP 23-06, 23-07, 23-08, 23-09, 23-11 (pg. 46, 48, 49, 51, 56)
- Poor performance of 3/8" (3-ply) plywood shear walls seen in Northridge EQ
- Amendment limits nominal unit shear capacity and stud spacing for walls with 3/8" plywood sheathing
- Imposes strict nailing edge distances for higher demand walls

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RECOMMENDED AMENDMENTS

WOOD SHEAR WALLS

- Prohibits use of single top plate
- Prohibits use of staples in SDC D, E, or F unless substantiated by cyclic testing
- 15/32" WSP required for all prescriptive designs
- Improves performance of buildings

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RECOMMENDED AMENDMENTS

CONVENTIONAL CONSTRUCTION REQUIREMENTS

- LARUCP R3-03, R4-02, R6-02, R6-04, R6-05, R6-06 (pg. 69, 73, 81, 83, 84, 87)
- Higher seismic demand in the region may lead to structural damage during an EQ
- Amendment imposes more restrictive requirements in SDC D_0, D_1, and D_2
- Requires continuous footings at all exterior walls and any braced walls

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RECOMMENDED AMENDMENTS

CONVENTIONAL CONSTRUCTION REQUIREMENTS

- Braced wall panel 48” minimum (24” minimum at PFH and CS-PF) and limitation on aspect ratios for other sheathing materials
- Prohibit certain types of braced wall panels
- All WSP braced wall panels require 15/32” sheathing
- Improves performance of buildings

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RESOURCES

Current and Past LARUCP
https://icclabc.org/administration

Tracking 2021 I-Code Changes – 2019 Group B
https://icclabc.org/code-coordination

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