



Supplemental Plan Check List for Chapter 95:
Mandatory Earthquake Hazard Reduction in existing Non-Ductile
Concrete Buildings (2023 LABC)

Plan Check Submittal Date:
Plan Check / PCIS App #:
Job Address:
Applicant: Phone:
P.C. Engineer: (print first / last name) Phone: E-mail: firstname.lastname@lacity.org

Your feedback is important, please visit our website to complete a Customer Survey at
www.ladbs.org/LADBSWeb/customer-survey.jsf.

If you have any questions or need clarification on any plan check matters, please contact your plan
check engineer and/or his or her supervisor.

For instruction and other information, read the master plan check correction sheet attached.

A. APPLICATION

- 1. Provide a fully dimensioned plot plan to scale, in ink in 8 1/2" x 11" or on the application plot plan sheet provided.
2. Project's valuation is \$ ( ). Additional plan check fee needs to be paid. See attached permit application.
3. Complete the following application items:
4. Prior to the issuance of a building permit, the following is required from the agent of the owner or contractor:
a) Permits obtained by owner
An authorization letter from the owner to pull permit(s). Owner's signature must be verified by notarization or
personal identification, or
b) Permits obtained by contractor
The following is required from the contractor or his/her agent:
- Certificate of Workers Compensation Insurance made out to the Contractors State License Board.
- Copy of City of LA business tax registration certificate or a newly paid receipt for one.
- Copy of contractor's state license or pocket ID.
- Notarized letter of authorization for agents of contractor.
5. Alterations which involve 100 square feet or more of asbestos containing material require a copy of the written
notification to the South Coast Air Quality Management District (AQMD). The notice must be dated 10 days prior to
permit issuance. (H & S 19827.5)
6. Two sets of plans will be required when permit is issued. Plans shall be:

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of
disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

- a) Quality blue- or black-line drawings with uniform and **light background** color.
  - b) Max. 36" x 48" and min. 24" x 36" size with minimum **1/8" lettering**. (P/GI 2014-006)
  - c) Sticky-back details used must produce prints without contrasting shades of background color.
7. Provide documents to show that the building was designed under building codes in effect prior to January 13, 1976, or built with building permits issued prior to January 13, 1977. (9502)
9. An evaluation report by a CA licensed civil/structural engineer shall be submitted to the department for review and approval. The report shall include all observed structural conditions and necessary repair/upgrade recommendations. The report shall describe the existing lateral load resisting system of the building and its current conditions.

## **B. PLAN DETAILS**

1. Provide the following with each set of plans: (9509)
- a) Floor Framing  New  Existing
  - b) Floor plans (layouts)  New  Existing
  - c) Roof Framing  New  Existing
  - d) Foundation Plan  New  Existing
  - e) Diaphragm Construction  New  Existing
  - f) Elevations of Structural System  New  Existing
  - g) Wall sections  New  Existing
  - h) Schedules, sections and details showing reinforcement of walls, slabs, beams, joists, girders, columns and foundations, etc.
  - i) Sections and details showing attachments and joining of new and existing structures.
  - j) Specifications and/or general notes fully describing applicable demolition and shoring procedures, materials and methods of construction, testing and inspection requirements.
2. Floor and roof framing plans must show:
- a) Size of typical framing members and their direction of span.
  - b) Adequate dimensions and details.

## **C. CALCULATIONS**

1. Chapter 95 of the Los Angeles Building Code provides retrofit standards that, when fully followed, will substantially improve the seismic performance of these buildings but will not necessarily prevent all earthquake damage. (9501)
2. Provide a complete load path for resisting the effects of seismic loading.
3. The soil site class, shall be taken as Type D in the absence of a soil investigation.
4. The structure shall be analyzed using the dynamic lateral analysis procedures for having one or more of the features listed in Table 12.3-1 and Table 12.3-2 ASCE 7-16.
5. The building shall meet one of the following criteria: (9508.2)
- a) Strength of the lateral-force resisting system shall meet or exceed seventy-five percent (75%) of the base shear specified in the current Los Angeles Building Code seismic provisions. Elements not designated to be part of the lateral-force resisting system shall be adequate for gravity load effects and seismic displacement due to the full (100%) of the design story drift specified in the current Los Angeles Building Code seismic provisions.
  - b) Meet or exceed the requirements specified for "Basic Performance Objective for Existing Buildings" of ASCE 41, using a Tier 3 procedure and the two-level performance objective for existing buildings (BPOE) in Table 2-1 for

the applicable risk category, and using ground motions and procedures established by the Department.

c) Pursuant to LABC Section 104.2.6, other methods approved by the Department deemed to be equivalent to the standards set forth in Subdivisions 1. and 2. of this subsection.

6. All existing and new concrete and masonry elements shall be included in the 3-D model of the physical structure to adequately represent the spatial distribution of mass and stiffness of the structure.
7. Analyze diaphragms per ASCE 7-16 Section 12.3.1.2 to determine if they can be considered as rigid diaphragms for cast-in-place reinforced concrete floors with span-to-depth ratios more than 3:1.
8. Floors shall be analyzed in conformance with ASCE 7-16 Section 12.3.1 to determine if they must be considered as semirigid diaphragms. The effective in-plane stiffness of the diaphragm, including effects of cracking and discontinuity between precast elements, shall be considered.
9. The effective stiffness of concrete and masonry elements or systems shall be calculated as the secant stiffness of the element or system with due consideration of the effects of tensile cracking and compression strain.
10. Provide as-built plans and clearly specify existing lateral and gravity system.
11. All existing and new lateral force resisting systems shall be included in the analysis model.
12. For vertical combinations in the same direction, the value of the response modification coefficient,  $R$ , used for design at any story shall not exceed the lowest value of  $R$  that is used at any story above that story. (ASCE 7, Sec.12.2.3.1)
13. For horizontal combinations in the same direction, the value of  $R$  used for design in that direction shall not be greater than the least value of  $R$  for any of the systems utilized in that direction. (ASCE 7, Sec. 12.2.3.1)
14. Design shall account for the most critical load effects due to direction of loading. For non-parallel LFRS elements, or where any column or wall that forms part of two or more intersection seismic force-resisting systems and is subjected to axial load due to seismic forces greater than or equal to 20% of the axial design strength of the column or wall, the structure shall be analyzed for 100% of the forces for one direction plus 30% of the forces for the perpendicular direction. (ASCE 7, Sec. 12.5)
15. The effective seismic weight,  $W$ , of a structure shall include the dead load, minimum 25% of the storage area floor live load, partition weight or a minimum of 10psf whichever is greater, permanent mechanical equipment, and weight of saturated and dry landscaping. (ASCE 7, Sec. 12.7.2)
16. Calculate seismic drift based on deflections of each level with  $C_d$  and  $I$  factors using strength level forces in accordance with Section ASCE 7 Sec.12.8.6.
17. Provide separation from property line per Eq.12.12-1 or provide separation from adjacent structure(s) on the same property per Eq.12.12-2. ASCE 7 Sec.12.12.3. Compare the calculated seismic drift with the allowable story drift per ASCE 7 Sec. 12.12.1.
18. Specify seismic base as defined per ASCE 7 Sec. 11.2
19. Elements not designated to be part of the lateral-force resisting system shall be adequate for gravity load effects and seismic displacement due to the full (100%) of the design story drift specified in the current Los Angeles Building Code seismic provisions.
20. Provide chord and drag/collector design.
21. The effective stiffness of an infill shall be determined from a nonlinear analysis of the infill and the confining frame.
22. The stiffness effects of the infill shall be included in the 3-D model of an infilled frame structure. The secant stiffness of the force-displacement relationship shall be used to determine the effective area of the diagonals.
23. Show how the effective stiffness of elements and systems are determined by an iteration method and how they are

used for calculating dynamic displacements.

24. At least participation of 90% of the combined modal mass of the structure shall be included in the calculation of response for each principal horizontal direction per ASCE 7-16 Section 12.9.1.1
25. All torsional effects including accidental torsional effects shall be considered in the 3-dimensional analysis. (ASCE 7-16 Sec.12.8.4.2)
26. Check diaphragm capacity specially at (stair)(elevator)( ) openings. Provide chord and drag calculations.
27. Provide calculations to show that the horizontal diaphragm at \_\_\_\_\_ level is adequate for transferring lateral force in the \_\_\_\_\_ direction from the upper lateral resisting elements to the lower elements due to an offset.
28. Specify existing material properties and provide material testing data per LADBS Information Bulletin P/BC 2020-153.
29. The compressive strain shall be determined for combined flexure and axial loading.
30. The required in-plane shear strength of all (columns) (piers) (shear walls) shall be the shear associated with the moments induced at the ends of (columns) (piers) and at the base of shear walls by the story displacements.
31. The building has a non-parallel lateral load resisting system(triangular)( ). (Three) ( ) separate analyses are required in which the input angle of design spectrum shall be parallel to each side of the (triangle) ( ).
32. Provide foundation analysis, design and details.

#### **D. NOTES ON PLANS**

1. Specify that the necessary permits from Public Works will be secured and the necessary barriers, protection fences and/or canopies will be erected along public ways prior to starting construction.(3306)
2. All structural plan sheets and index sheet of calculations (showing number of pages) must be signed by the same civil/structural **engineer or architect**, licensed by the State of California. (106.3.3.3)
3. Place this statement next to your seal on the first page of the plans (9509.2):
  - a) "I am responsible for designing this building's seismic strengthening in compliance with the minimum standards of Chapter 95 of the Los Angeles Building Code using the design criteria of (75% of ASCE 7 or ASCE 41)."
  - b) "The Registered Deputy Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704 of the Los Angeles Building Code."
  - c) "Structural Observation will be performed in accordance with the current Los Angeles Building Code."
4. Use of materials approved under a Los Angeles City Research Report shall conform to all the procedures, conditions, material specifications and installation stipulated in the report. The information shall be shown on the plan or a copy of the report shall be attached to the plan.
5. Deputy inspection is required for all epoxy bolts per L.A. Research Report.
6. Structural Observation by a CA state licensed Civil/Structural Engineer, as authorized by Section 1704.6, shall be required for the anchorage system wall anchors, anchor connectors, continuity ties and other elements that are part of the load path supporting the concrete/reinforced masonry walls. Complete the attached Structural Observation Form and incorporate it into plans.
7. Incorporate all comments marked on the checked set of plans, calculations, and this correction sheet. Bring originally checked plans & calculations with corrected plans to the verification appointment.
8. Void or delete all plans, details, and notes that do not pertain to this project.



