

[Existing Building Code - Concrete Building Inventory Assessment]

Ordinance amending the Existing Building Code to assess the City's inventory of seismically vulnerable Rigid-Wall-Flexible-Diaphragm and Concrete Buildings, and adopt voluntary seismic retrofit standards for such buildings; adopting findings of local conditions under the California Health and Safety Code; affirming the Planning Department's determination under the California Environmental Quality Act; and directing the Clerk of the Board of Supervisors to forward this Ordinance to the California Building Standards Commission upon final passage.

NOTE: **Unchanged Code text and uncodified text** are in plain Arial font.
Additions to Codes are in single-underline italics Times New Roman font.
Deletions to Codes are in ~~striketrough italics Times New Roman font~~.
Board amendment additions are in double-underlined Arial font.
Board amendment deletions are in ~~striketrough Arial font~~.
Asterisks (* * * *) indicate the omission of unchanged Code subsections or parts of tables.

Be it ordained by the People of the City and County of San Francisco:

Section 1. General Findings.

(a) The Planning Department has determined that the actions contemplated in this ordinance comply with the California Environmental Quality Act (California Public Resources Code Sections 21000 et seq.). Said determination is on file with the Clerk of the Board of Supervisors in File No. 250211 and is incorporated herein by reference. The Board affirms this determination.

(b) On April 16, 2025, the Building Inspection Commission considered this ordinance at a duly noticed public hearing pursuant to Charter Section 4.121 and Building Code Section 104A.2.11.1.1.

1 (c) San Francisco is located in an area of high seismic activity; earthquakes in the
2 future. A damaging earthquake of magnitude 6.7 or greater has a 72% chance of occurring in
3 the Bay Area before 2043, according to the United States Geological Survey (USGS).

4 (d) Older concrete and concrete tilt-up (rigid-wall-flexible-diaphragm) buildings can
5 experience damage and collapse during large earthquakes, according to San Francisco's
6 Community Action Plan for Seismic Safety (CAPSS). Older concrete buildings have suffered
7 catastrophic collapses in recent earthquakes in Mexico City, Christchurch, New Zealand, and
8 Turkey.

9 (e) Identifying concrete and rigid-wall-flexible-diaphragm buildings is a high priority
10 recommendation in the Earthquake Safety Implementation Program, San Francisco's 30-year
11 plan for improving seismic safety. CAPSS estimates that 50% of all structural casualties in a
12 magnitude 7.2 San Andreas fault earthquake would occur in concrete buildings.

13 (f) The City has developed a preliminary inventory of potential concrete buildings,
14 which builds on prior versions of an inventory developed by the Concrete Coalition and the
15 Structural Engineers Association of Northern California. To definitively determine whether a
16 building is concrete and contains vulnerabilities that put it at higher risk during an earthquake,
17 a qualified structural engineer needs to assess the building.

18 (g) The City is developing the Concrete Building Safety Program (CBSP) to identify
19 and address vulnerable concrete buildings in San Francisco, with the following goals: protect
20 life and public safety, preserve housing and critical uses, protect the economy, preserve City
21 vitality and character, and speed earthquake recovery.

22 (h) In an April 2024 report entitled "Stakeholder Engagement for the Concrete Building
23 Safety Program," a working group of internal and external stakeholders advised the City in the
24 development of the CBSP.

1 (i) On April 16, 2024, Mayor Breed issued Executive Directive 24-01, directing the
2 Office of Resilience and Capital Planning and Department of Building Inspection to draft an
3 ordinance mandating screening and publishing of retrofit standards in the San Francisco
4 Existing Building Code.

5
6 Section 2. Findings Regarding Local Conditions.

7 (a) California Health and Safety Code Sections 17958.7 and 18941.5 provide that local
8 jurisdictions may enact more restrictive building standards than those contained in the
9 California Building Code, provided that the local jurisdictions make express findings that each
10 change or modification is reasonably necessary because of local climate, geologic, or
11 topographic conditions and that the local jurisdictions file the local amendments and required
12 findings with the California Building Standards Commission before the local changes or
13 modifications can go into effect.

14 (b) The Board of Supervisors hereby finds and declares that the following
15 amendments to the San Francisco Building Code are reasonably necessary because of local
16 climatic, topological, and geological conditions as discussed below.

17 (1) The topography of San Francisco creates increased risk of damage from
18 seismic events due to high density of buildings on very small lots, steep slopes, and high
19 population density. It is necessary and appropriate to adopt safety measures that assess and
20 reduce cumulative seismic risk from existing buildings across the City.

21 (2) San Francisco's geologic conditions produce increased risk for
22 earthquake-induced ground failure due to local hazardous seismic microzones, slide areas,
23 and local liquefaction hazards. It is necessary and appropriate to reduce seismic risk and
24 increase resiliency by assessing the inventory of vulnerable buildings and adopting voluntary
25 retrofit standards to mitigate seismic risk in existing buildings.

Section 3. Chapters 3 and 5 and the Appendices to the Existing Building Code are hereby amended by revising Section 304.4 (including Section 304.4.1) and adding Chapter 5G (consisting of Sections 501G.1, 501G.2, 501G.3, 501G.4, 502G.1, 502G.2, and 502G.3) and Appendix A, Chapter A6, to read as follows:

SECTION 304 – STRUCTURAL DESIGN LOADS AND EVALUATION AND DESIGN PROCEDURE

* * * *

304.4 Minimum Lateral Force for Existing Buildings.

304.4.1 General. This section is applicable to existing buildings when invoked by SFEBC Section 503. This section may be used as a standard for voluntary upgrades.

An existing building or structure which has been brought into compliance with the lateral force resistance requirements of the San Francisco Building Code in effect on or after the dates shown in Table 304.4.1 shall be deemed to comply with this section except when a vertical extension or other alterations are to be made which would increase the mass or reduce the seismic resistance capacity of the building or structure. Where multiple building types apply, the later applicable date shall be used. Where none of the building types apply, compliance shall be at the discretion of the Director. Building type definitions are given in ASCE 41, Table 3-1.

TABLE 304.4.1 – DATES REQUIRED TO DEMONSTRATE BUILDING COMPLIANCE

Building Type	<i>Date of Compliance</i>	<i>Model Code (for reference)</i>
* * * *		

Reinforced concrete moment-resisting frame (Type C1)	12/28/1995-7/1/1999	UBC 1994-1997
Reinforced concrete shear walls (Types C2 & C2a)	12/28/1995-7/1/1999	UBC 1994-1997
* * * *		

* * * *

CHAPTER 5G: BUILDING INVENTORY ASSESSMENT OF RIGID-WALL-FLEXIBLE-DIAPHRAGM AND OTHER CERTAIN CONCRETE BUILDINGS

501G.1 Intent. *This Chapter 5G is intended to advance public safety through a building inventory assessment and notification process regarding the seismic safety risks and retrofit options for Rigid-Wall-Flexible-Diaphragm ("RWFD") and certain Concrete Buildings ("CB") vulnerable to earthquake damage and collapse. The retrofit options for Concrete Buildings are intended to provide voluntary and practical pathways to reduce earthquake-related deaths and injuries and reduce the economic impacts of a damaging earthquake. There is no mandatory requirement to seismically retrofit Rigid-Wall-Flexible-Diaphragm or Concrete Buildings, except when triggered by addition, alteration, repair, change of occupancy, relocation, or other work regulated by the Existing Building Code. It is the intent of the Board of Supervisors that, absent a compelling public safety necessity, buildings that are exempted as a result of the inventory assessment of Section 501G.4 and buildings that are voluntarily retrofitted pursuant to Appendix A, Chapter A2 for Rigid-Wall-Flexible-Diaphragm buildings or Chapter A6 for Concrete Buildings, will be exempt from any local mandatory seismic retrofit requirements for 20 years after the effective date of the ordinance in Board File No. 250211. Such a building shall not be exempt from requirements associated with any addition, alteration, repair, change*

1 of occupancy, relocation, or other work regulated by this Code. All seismic retrofit work must
2 be duly permitted, completed, and inspected to qualify for the exemption.

3 **501G.2 Definitions.** In addition to the definitions in San Francisco Building Code
4 Chapter 2 and San Francisco Existing Building Code Chapter 2, the following shall apply for
5 purposes of this Chapter 5G:

6 **Rigid-Wall-Flexible-Diaphragm ("RWFD") Building.** A one-story building or building
7 portion, not counting mezzanines, with a seismic force-resisting system that would be
8 classified by the latest edition of ASCE 41 as either PC1, RM1, or C2a with flexible roof
9 diaphragm.

10 **Concrete Building ("CB").** A building where (1) vertical elements of concrete
11 construction, such as walls or columns, support gravity load from floors or roofs; and/or (2)
12 vertical elements of concrete construction are part of the lateral-force-resisting system.

13 **501G.32 Subject Buildings.** The building inventory assessment required by this Chapter
14 5G shall apply to the following, which are defined as Subject Buildings: This Chapter's
15 provisions shall apply to:

16 (a) Rigid-Wall-Flexible-Diaphragm buildings where the total footprint area of all RWFD
17 portions is larger than 3,000 square feet, and any RWFD portion was constructed or permitted for
18 construction before July 1, 1999 or designed based on a code adopted or amended before that date and
19 has not been retrofitted pursuant to Appendix A, Chapter A2; and

20 (b) Concrete Buildings not exempted below, where (1) vertical elements of concrete
21 construction, such as walls or columns, support gravity load from floors or roofs; and/or (2)
22 vertical elements of concrete construction are part of the lateral-force-resisting system.

23 (c) This Chapter refers to any such RWFD or CB as a subject building unless and until it is
24 found to not meet the requirements of Section 501G.3(a), or it is found to be exempt from the
25 inventory assessment pursuant to Section 501G.43 below. Any building for which the Department has

1 sent notification or screening instructions referring to this Chapter is also a subject building until it is
2 found to be exempt.

3 **501G.43 Exemptions for Certain Concrete Buildings.** Concrete Buildings for which one or
4 more of the following apply are not subject buildings, and will not be included in the building
5 assessment inventory upon submittal and as determined by Department approval of a Screening
6 Form as required by Section 502G.1:

7 (a) **Age.** The building complies with Section 304.4.1.

8 (b) **One-story.** The building has no more than one story above grade plane, as defined in
9 San Francisco Building Code Chapter 2, excluding mezzanines.

10 (c) **Two-story.** The building conforms to all the following:

11 • The building has no more than two stories above grade plane, excluding
12 mezzanines;

13 • The building does not include concrete columns or wall piers, as defined in
14 Section 501G.2; and

15 • The building includes a structural reinforced concrete diaphragm at the second
16 floor, the roof, or both.

17 (d) **Complete steel frame.** Steel columns support all the gravity floor load and roof load,
18 and steel columns are connected to steel beams.

19 (e) **Concrete used only for floors, roofs, foundations, or basements.** All concrete elements
20 that define the building as a Concrete Buildingssubject building extend less than four feet above
21 adjacent grade.

22 (f) **Previous retrofit.** There is building permit documentation that the building has been
23 seismically retrofitted to meet one of the following:

24 • Section 304.3 of the 2022 SFEBC

25 • Section 303.4 of the 2019 SFEBC

1 • Section 301.2 of the 2016 SFEBC

2 • Section 3401.10 of the 2013 SFBC

3 • Section 3401.8 of the 2010 SFBC

4 • Section 3403.5 of the 2007 SFBC

5 (g) **One- and two-family dwellings.** The building conforms to all the following:

6 • The building contains no more than two dwelling units.

7 • The building contains only Group R 3 occupancy and incidental Group U occupancy.

8 (h) **Light-frame over one-story concrete podium.** The building conforms to all the
9 following:

10 • All concrete elements that define the building as a **Concrete Building** subject building
11 extend no more than one story above grade plane.

12 • All stories above the concrete story consist of light-frame (wood or cold-formed steel)
13 construction.

14 **502G – Screening Process.** ~~The Department shall develop a screening process that~~
15 ~~notifies owners of potential subject buildings, provide them with a Screening Form to see if~~
16 ~~any exemptions apply, and educates them about the voluntary retrofit pathways available to~~
17 ~~reduce seismic vulnerability.~~

18 **502G.1 Screening Process.** The owner of each subject building shall comply with the
19 reporting requirements of this Section 501G.1.

20 The Department shall notify owners of potential subject buildings that such buildings
21 may be included in the CB and RWFD building assessment inventory. The Department shall
22 provide owners with a Screening Form to confirm the existing structural systems and
23 determine whether exemptions apply.

24 The owner of each building who has been notified that their building is within the scope
25 of this Chapter 5G, as well as all other owners of buildings that may be subject to this

Chapter, shall submit to the Department within the time limits set forth in 502G.2 a properly completed Screening Form. Where required by the Screening Form, the owner shall engage an appropriately licensed design professional to complete the form.

If the owner believes exemptions apply, as specified in Section 501G.4, the owner and their design professional, where required, shall denote this on the completed Screening Form and shall return the form to the Department.

Additional information shall be provided to the owner informing the owner about the seismic retrofit requirements of Appendix A available to reduce seismic vulnerability.

502G.24 Screening Form. *Within six months of the effective date of the ordinance in Board File No. 250211 enacting Chapter 5G, the Department shall create a list of potential subject buildings and associated mailing list of owners, draft and issue Screening Forms to the mailing list potential owners that outline the applicable exemptions, identify the information necessary to confirm whether an exemption applies, and set an 18-month deadline to submit the completed Screening Form.*

502G.32 Concrete Building Website. *The Department shall maintain a webpage providing information about the screening process, the status of subject buildings, and links to the seismic voluntary retrofit pathways provisions of Appendix A, which owners may voluntarily choose to implement to have the building removed from the CB and RWFD inventory.*

APPENDIX A

SEISMIC RETROFIT PROVISIONS PROGRAM FOR CONCRETE BUILDINGS

CHAPTER A6

A6.1 Intent. *This Chapter A6 is intended to advance public safety and improve the ability of the City to recover from a major earthquake, by reducing the likelihood of collapse of*

1 certain concrete buildings. In furtherance of this purpose, this Chapter establishes voluntary
2 seismic retrofit provisions ~~requirements~~ intended to reduce the collapse risk of the most vulnerable
3 Concrete Buildings (CB), as defined in Chapter 5G. ~~It is the present intent of the Board of~~
4 ~~Supervisors that, absent a compelling public safety necessity, buildings retrofitted pursuant to~~
5 ~~this Appendix A, Chapter A6 or Chapter 304.4 will not be subject to future mandatory seismic~~
6 ~~retrofitting legislation adopted by the Board.~~

7 A6.2 Definitions

8 In addition to the definitions in San Francisco Building Code Chapter 2 and San Francisco
9 Existing Building Code Chapter 2, the following shall apply for purposes of this Chapter A6:

10 Wall pier. A vertical wall segment within a structural wall, bounded horizontally by two
11 openings or by an opening and an edge, with ratio of horizontal length to wall thickness less than or
12 equal to 6.0, and ratio of clear height to horizontal length greater than 2.0.

13 A6.3 Design Professionals. All evaluations and designwork intended to comply with this
14 Chapter shall be performed by or under the supervision of appropriately licensed individuals, and
15 all documents submitted for compliance shall be sealed by a California licensed civil or structural
16 engineer.

17 A6.4 Structural engineering criteria

18 A6.4.1 Engineering criteria. For a Concrete Building to comply with this Chapter, the
19 building ~~Each subject building that is required to comply by evaluation or retrofit shall satisfy~~
20 one of the Engineering Criteria Options per Table A6.4-1A6.4.1, by seismic evaluation or seismic
21 retrofit.

22 Table A6.4-1A6.4.1: Engineering Criteria Options

23 <u>Option (a)</u>	<u>Comply with all of the following:</u>
24	<u>1. ASCE 41 with a performance objective of Structural Collapse Prevention</u>
25	<u>(S-5) with the BSE-1E earthquake hazard level.</u>

	<p><u>2. For each seismic deficiency in Table A6.4-2A6.4.2, demonstrate that the deficiency is not present, or address it by retrofitting. In a bulletin, the Department shall specify requirements for identifying, evaluating, and retrofitting the seismic deficiencies listed in Table A6.4-2A6.4.2.</u></p> <p><u>3. For all unreinforced masonry elements, ASCE 41 with a performance objective of Nonstructural Life Safety (N C) with the BSE-1E earthquake hazard level.</u></p>
<u>Option (b)</u>	<p><u>Comply with all of the following:</u></p> <p><u>1. ASCE 41 with a performance objective of Structural Collapse Prevention (S-5) with the BSE-2E earthquake hazard level. The BSE-1E earthquake hazard level need not be evaluated, regardless of the Tier of evaluation.</u></p> <p><u>2. For all unreinforced masonry elements, ASCE 41 with a performance objective of Nonstructural Life Safety (N C) with the BSE-1E earthquake hazard level.</u></p>

Table A6.4-2: Seismic deficiencies to be addressed by Engineering Criteria

Option (a)

Weak story: The structure includes one or more stories having lateral strength less than the story above.

Lateral-force-resisting-element irregularity: The lateral force-resisting system includes one or more concrete walls or frames that are not continuous to the foundation.

Non-ductile moment frame: The main lateral-force-resisting-system includes concrete moment frames that do not satisfy strong-column-weak-beam requirements or that have shear-governed columns or beams.

Shear-governed concrete column or wall pier: The structure includes one or more concrete columns or wall piers that are shear-governed and susceptible to failure resulting in loss of gravity load support.

1 **Punching shear in concrete slab:** One or more concrete floor or roof slabs are
2 supported by one or more columns without beams framing into the column and is
3 susceptible to loss of gravity load support following punching shear failure.

4 **Weak connection of concrete wall to flexible diaphragm:** The structure includes
5 one or more concrete walls connected to one or more flexible diaphragms, where the wall is
6 not adequately anchored to the diaphragm.

7 **Inadequate length of bearing connection:** One or more concrete beams or slabs
8 are supported by a bearing connection with short bearing length.

9
10 A6.4.2 Nonstructural components. For either Engineering Criteria Option, unreinforced
11 masonry shall be removed or retrofitted to satisfy Non-structural Life Safety performance at
12 the BSE-1E level.

13 **A6.4.23 Building separation.** ~~Where buildings abut adjacent properties, The building~~
14 ~~separation limitations of (e.g. Section 7.2.13 of ASCE 41) need not be considered. For separation~~
15 ~~joints within the same property, the potential for pounding at the separation joints shall be~~
16 ~~considered in seismic evaluation and retrofit design.~~

17 **A6.4.34 Liquefaction or landslide risk.** *If the building is located in a zone of high or very high*
18 *risk of soil liquefaction or landslide, as indicated by the current State of California Seismic Hazard*
19 *Zones Map for San Francisco, the Owner's Engineer shall so notify the Owner in writing and provide*
20 *the owner with their professional opinion on voluntary measures or additional investigations*
21 *that could be taken to address the risk. Aside from such notification, Otherwise, soil*
22 *liquefaction, lateral spreading, and landslide are need not required to be addressed in the seismic*
23 *evaluation or retrofit design. This Chapter does not exempt the building from the requirements of the*
24 *Slope and Seismic Hazard Zone Protection Act (San Francisco Building Code 106A.4.1.4) where*
25 *applicable.*

1 **A6.4.45 Other retrofit triggers.** If the project involves a Substantial Structural Alteration as
2 defined in Section 503.11 or Non-structural Alteration as defined in Section 503.11.1, the building shall
3 meet the more restrictive of the provisions of this Chapter or those of Section 304.4 (Minimum lateral
4 force for existing buildings).

5 **A6.4.56 Masonry Infill.** For subject buildingsConcrete Buildings with masonry infill, the
6 seismic evaluation and retrofitting shall account for the effect of the infill considering ASCE 41
7 requirements, and for Tier 2 and Tier 3 evaluations shall take into accountconsider:

- 8 • The peak strength that the infill can achieve.
- 9 • The potential for strength degradation of the infill.
- 10 • The potential for a weak story or story concentration of deformation, because of the
11 locations of infill in the building, or because of potential concentrations of damage to infill.
- 12 • Plan torsion effects because of the location of infill in the building, or because of
13 potential concentrations of damage to infill.

14 **Table A6.4.2: Seismic deficiencies to be addressed by Engineering Criteria**

15 **Option (a)**

16 **Weak story:** The structure includes one or more stories having lateral strength less
17 than the story above.

18 **Lateral force-resisting element irregularity:** The lateral force-resisting system
19 includes one or more concrete walls or frames that are not continuous to the foundation.

20 **Non-ductile moment frame:** The main lateral force-resisting system includes
21 concrete moment frames that do not satisfy strong-column-weak-beam requirements or that
22 have shear-governed columns or beams.

23 **Shear-governed concrete column or wall pier:** The structure includes one or more
24 concrete columns or wall piers that are shear-governed and susceptible to failure resulting
25 in loss of gravity load support.

1 ~~**Punching shear in concrete slab:** One or more concrete floor or roof slabs are~~
2 supported by one or more columns without beams framing into the column and is
3 susceptible to loss of gravity load support following punching shear failure.

4 ~~**Weak connection of concrete wall to flexible diaphragm:** The structure includes~~
5 one or more concrete walls connected to one or more flexible diaphragms, where the wall is
6 not adequately anchored to the diaphragm.

7 ~~**Inadequate length of bearing connection:** One or more concrete beams or slabs~~
8 are supported by a bearing connection with short bearing length.

9
10 Section 4. Effective Date. This ordinance shall become effective 30 days after
11 enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor returns the
12 ordinance unsigned or does not sign the ordinance within ten days of receiving it, or the Board
13 of Supervisors overrides the Mayor's veto of the ordinance.

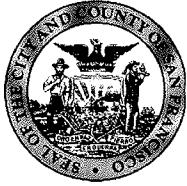
14
15 Section 5. Scope of Ordinance. In enacting this ordinance, the Board of Supervisors
16 intends to amend only those words, phrases, paragraphs, subsections, sections, articles,
17 numbers, punctuation marks, charts, diagrams, or any other constituent parts of the Municipal
18 Code that are explicitly shown in this ordinance as additions, deletions, Board amendment
19 additions, and Board amendment deletions in accordance with the "Note" that appears under
20 the official title of the ordinance.

21
22 Section 6. Directions to Clerk. Upon final passage of this ordinance, the Clerk of the
23 Board of Supervisors is hereby directed to transmit this ordinance to the California Building
24 Standards Commission pursuant to the applicable provisions of State law.

1 APPROVED AS TO FORM:
2 DAVID CHIU, City Attorney

3 By: /s/ Robb Kapla
4 ROBB KAPLA
Deputy City Attorney

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City and County of San Francisco
Tails
Ordinance

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 250211

Date Passed: May 06, 2025

Ordinance amending the Existing Building Code to assess the City's inventory of seismically vulnerable Rigid-Wall-Flexible-Diaphragm and Concrete Buildings, and adopt voluntary seismic retrofit standards for such buildings; adopting findings of local conditions under the California Health and Safety Code; affirming the Planning Department's determination under the California Environmental Quality Act; and directing the Clerk of the Board of Supervisors to forward this Ordinance to the California Building Standards Commission upon final passage.

April 21, 2025 Land Use and Transportation Committee - AMENDED, AN AMENDMENT OF THE WHOLE BEARING SAME TITLE

April 21, 2025 Land Use and Transportation Committee - RECOMMENDED AS AMENDED

April 29, 2025 Board of Supervisors - PASSED, ON FIRST READING

Ayes: 11 - Chan, Chen, Dorsey, Engardio, Fielder, Mahmood, Mandelman, Melgar, Sauter, Sherrill and Walton

May 06, 2025 Board of Supervisors - FINALLY PASSED

Ayes: 11 - Chan, Chen, Dorsey, Engardio, Fielder, Mahmood, Mandelman, Melgar, Sauter, Sherrill and Walton

File No. 250211

I hereby certify that the foregoing
Ordinance was **FINALLY PASSED** on
5/6/2025 by the Board of Supervisors of the
City and County of San Francisco.

f Angela Calvillo
Clerk of the Board

Daniel Lurie
Mayor

MAY 9, 2025

Date Approved