

Chapter 19.38

SEISMIC HAZARD MITIGATION PROGRAM FOR UNREINFORCED MASONRY BUILDINGS

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Section 19.38.020 Definitions.

For the purpose of this section, the following terms shall be defined as follows:

- (a) **URM** means unreinforced masonry.
- (b) **Potentially hazardous URM building** means a building:
 1. That was constructed prior to 1956, with masonry bearing walls that contain seismic reinforcement at a level less than the minimum prescribed in the City of Berkeley "Standards for the Seismic Analysis of Unreinforced Masonry Buildings" (in the Program's Standards as set forth in this chapter), and is approved for commercial or mixed use occupancy; or
 2. That was constructed prior to 1956, with masonry bearing walls that contain seismic reinforcement at a level less than the minimum prescribed in City of Berkeley "Standards for the Seismic Analysis of Unreinforced Masonry Buildings," and contains five (5) or more living units; or
 3. That contains at least one brick in-fill wall and is located on a street in a high pedestrian traffic corridor; or
 4. That has a brick veneer ten (10) feet in height or greater (measured from the adjoining grade) and is located on a street in a high pedestrian traffic corridor;
 5. That has an unreinforced parapet that exceeds a one and one-half (1-1/2) height/depth ratio, and is located on a street in a high pedestrian traffic corridor.
- (c) **Vacant building** means any building that has remained vacant in whole or in part for six (6) or more months after the City of Berkeley has declared it unsafe, pursuant to any provision contained in Title 19 of the BMC, and ordered it secured to prevent unauthorized entry.
- (d) **Inventory** means the list of potentially hazardous unreinforced buildings in the City of Berkeley that have been identified by the building official as mandated by Government Code Section 8875.2(a). The inventory shall be maintained and revised as necessary by the building official. A copy shall be available for inspection in the office of the building official and in the office of the City Clerk.
- (e) **Masonry construction** means unit construction consisting of brick, concrete, block, tile, stone or similar material.
- (f) **Performance standard**, also referred to as the "technical standard," means the minimum acceptable seismic reinforcement level as set forth in Section 19.38.130.
- (g) **Prescriptive standard** means those predeveloped standard plans supplied by the City that comply with the performance standard that can be used to obtain a building permit and guide the retrofit of simple

buildings, or buildings with in-fill walls, tall veneers or parapets.

(h) **Occupancy load** shall be as defined in this code.

(i) **building official** means the City Manager of the City of Berkeley or his/her designee.

(j) **Simple building** means those buildings, one or two stories in height, with square or rectangular configuration, with side yard clearances on all sides.

(k) **Structural design professional** means the following persons licensed by the State of California: structural engineers, civil engineers with prior building design or construction experience, or architects.

(l) **High pedestrian traffic corridor** means those streets identified on the attached map (Exhibit A). (Ord. 6604-NS § 2, 2000)

Section 19.38.030 Standards for structural seismic adequacy.

(a) All seismic retrofit construction which is commenced after the effective date of this Section shall be constructed in accordance with the performance standard or with the most recent edition of the California Building Code adopted by the City, whichever is more stringent.

(b) Each person wishing to use the prescriptive standard must demonstrate to the satisfaction of the building official that the building for which the prescriptive standard will be used falls within the definition of a simple building. Forms of documentation may include plans or sketches of the existing building, or a written report from a structural or civil engineer or a licensed architect with building experience.

(c) Notwithstanding any provision of this chapter, seismic retrofit of any building qualifying as "historical property" as determined by an appropriate governmental agency under California Health and Safety Code Section 37602 shall be retrofitted in accordance with the State Historical Building Code, Health and Safety Code Sections 18950 et seq.

(d) Unless deemed unnecessary by the building official, the owner of a building with bearing walls shall be required to retain structural design professionals, testing laboratories and/or special inspectors during the project.

The structural design professional shall identify testing requirements of existing materials and conditions that may be necessary prior to completion of design. The structural design professional shall analyze the testing information and incorporate necessary special conditions into the design. The structural design professional shall identify the testing and special inspection requirements which are required during the retrofit systems installation in the field. The engineer of record shall provide periodic field inspections during seismic retrofit. (Ord. 6604-NS § 2, 2000)

Section 19.38.040 Mandatory seismic retrofit program.

Each owner of a potentially hazardous URM building which is listed on the URM inventory shall do the following:

(a) Within two years of the adoption by the City Council on November 15, 1991 of the mandatory seismic retrofit program:

1. Demonstrate to the building official that the building meets the criteria for use of the prescriptive standard; or

2. Submit a seismic engineering evaluation report on the building, prepared for the property by a structural or civil engineer with prior building design or construction experience or architect currently licensed to practice in the State of California.

The seismic evaluation report shall contain a detailed evaluation of the structural ability of the building to resist the seismic effects of earthquakes and to meet the standards for structural seismic adequacy set out in Section 19.38.130, as well as identify any hazardous exterior design elements. The report shall include a plan to bring the building into compliance with the said seismic standards and shall identify capability of existing materials.

(b) Apply for and obtain a building permit for seismic retrofitting within the time frame specified in the compliance schedule set out in this chapter.

(c) Provide written notice to all building tenants as provided in this chapter.

(d) Seismically upgrade each building, within the time frame specified in the compliance

schedule set out in this chapter, to the performance standard, the prescriptive standard if applicable, or an alternative standard which is in accordance with the City's Building Code and is accepted by the building official. (Ord. 6604-NS § 2, 2000)

Section 19.38.050 Removal of building from the inventory.

A building shall be removed from the inventory upon either (1) satisfactory completion of the seismic retrofit and appropriate inspections or (2) the successful appeal of the building's inclusion on the inventory. (Ord. 6604-NS § 2, 2000)

Section 19.38.060 Risk classification and compliance schedule.

(a) All potentially hazardous URM buildings are hereby classified, on the basis of risk to life safety, into the following categories:

1. Risk category I (highest risk):

Hospitals, fire and police offices/stations, emergency operation centers, buildings housing medical supplies, government administration offices, or any building with an occupancy load of one thousand (1,000) or more.

2. Risk category II:

Commercial buildings—Businesses, assembly buildings, educational and institutional occupancies with an occupancy load of three hundred (300) or more.

Residential buildings—Hotels, motels, apartments or condominiums containing more than one hundred (100) living units/bedrooms.

Mixed use occupancies—Any building with a combined occupancy load greater than three hundred (300).

3. Risk category III:

Commercial buildings—Businesses, assembly buildings, educational and institutional occupancies with an occupancy load of one hundred (100) or more.

Residential buildings—Hotels, motels, apartments or condominiums containing fifty (50) or more living units/bedrooms.

Mixed use occupancies—Any building with a combined occupancy load greater than one hundred (100).

4. Risk category IV:

Commercial buildings—Businesses, assembly buildings, educational and institutional occupancies with an occupancy load of fifty (50) or more.

Residential buildings—Hotels, motels, apartments or condominiums containing fewer than fifty (50) living units/bedrooms.

Mixed use occupancies—Any building with a combined occupancy load greater than fifty (50).

5. Risk category V:

Commercial buildings—Businesses, assembly buildings, educational and institutional occupancies with an occupancy load of fifty (50) or less.

Residential buildings—Hotels, motels, apartments or condominiums containing twenty (20) or fewer living units/bedrooms.

Mixed use occupancies—Any building with a combined occupancy load of fifty (50) or less.

6. Risk category VI (lowest risk):

Any nonresidential building that is used less than twenty (20) hours per week, or any building with a masonry veneer of at least ten (10) feet in height or with a masonry parapet exceeding a one and one-half (1-1/2) ratio or masonry in-fill that is located in a high pedestrian traffic corridor.

NOTE: Risk categories II through V apply to buildings with masonry bearing walls that contain seismic reinforcement less than the minimum prescribed in the City of Berkeley "Standards for the Seismic Analysis of Unreinforced Masonry Buildings."

(b) Compliance Schedule.

All owners of potentially hazardous URM buildings shall complete required retrofit work in accordance with this Section by the dates specified below:

1. Risk category I buildings – by March 1, 1997.

2. Risk category II buildings – by March 1, 1997.
3. Risk category III buildings – by June 30, 1997.
4. Risk category IV buildings – by December 31, 1997.
5. Risk category V buildings – by December 31, 1998.
6. Risk category VI buildings – by December 31, 2001.

(c) **Acceleration of Compliance Schedule.** The building official of the City of Berkeley shall require the immediate seismic retrofit of a potentially hazardous URM building if any one or more of the following conditions exist:

1. The building official determines that the building or any major portion thereof will be reoccupied after being vacant for six (6) months or longer.
2. The building will undergo a remodel, alteration, addition or structural repairs, except for repairs found by the building official to be required for routine maintenance or emergency purposes.
3. Title to the building is transferred in whole or part or the building is sold to a new owner or owners, except that changes in title due to inheritances shall not require compliance with this part. Owners shall be required to obtain required permits and complete all required seismic retrofit work six months after transfer of title.
4. Additional financing is obtained which is secured by a deed of trust or mortgage recorded on the title to the building. Financing secured solely to refinance existing debt against the property shall not be considered as additional financing for the purposes of this section. Owners shall be required to obtain required permits and complete all required seismic retrofit work six (6) months after obtaining additional financing.
5. The use of the building changes such that Section 502 of the Berkeley Building Code (BMC Chapter 19.28) applies.
6. The building is identified by the building official as an Unsafe Building as defined in Section 203 of the Berkeley Building Code (BMC Chapter 19.28).

(d) **Hardship Exceptions.** The City Manager or the designee thereof may grant an exception to the requirements of this section to extend the deadline for completing all or a part of required seismic retrofit work. An exception may initially extend the deadline for performance of some or all of required retrofit work by up to six (6) months. The City Manager may grant up to two additional extensions of up to six (6) months each if a continued exception is justified in accordance with the requirements of this section.

Hardship exceptions shall be granted only where the owner submits a written plan to the City for proceeding with the retrofit work, with any exceptions granted, and agrees to fully cooperate with the City in seeking all available financing for the seismic retrofit work and any related relocation. Exceptions granted under this part shall not extend deadlines for correction of any other violations of any other ordinances.

An exception shall be granted only upon submission to the City Manager of a detailed written statement from the building owner requesting the exception, explaining why an exception should be granted and clearly documenting the reasons for the exception in accordance with the requirements of this part.

In order to grant an exception, the City Manager must find that:

1. The building does not present an imminent threat to life safety of occupants or the public, based on a report from a California licensed structural or civil engineer. The City Manager may require partial or interim seismic retrofit work in order to grant an exception;
2. The building owner has complied with all other applicable requirements of this section, including the requirements of Section 19.38.020 (a) and (c) and Section 19.38.050; and
3. The owner demonstrates one or more of the following conditions:
 - a. Financing is unavailable to pay for the required seismic retrofit work. The owner shall provide the following information as required to determine financial hardship:
 - (1) Contractors' bids or a professional cost estimate of the seismic retrofit;
 - (2) The owner's financial statement and credit report;
 - (3) Specific information on rents, operating expenses, existing debt against the building, projected rents on the retrofitted building and any other information needed to analyze the ability of the building to support additional debt; and
 - (4) Statements from lenders that they are unable to provide the needed financing. In determining financial hardship, owners shall be required to apply for any financing the City determines may be available

for the retrofit work.

b. Low income residential tenants and/or businesses targeted for retention will be displaced by the required seismic retrofit work and such displacement cannot be mitigated by temporary or permanent relocation and paid as a part of the seismic retrofit financing. For purposes of this part, low income residential tenants are tenants with incomes below 80 percent (80%) of area median income. For purposes of this part, a business is targeted for retention if the business provides needed goods or services which are scarce or unique in a neighborhood or the City at large, or if its displacement would involve a significant loss of jobs, revenues or environmental business. The Economic Development Director shall recommend retention guidelines to the City Manager for purposes of administering the chapter. An exception shall not be granted unless the City Manager determines that the exception will result in retention of the business.

c. There are unique and exceptional circumstances that have prevented or hindered retrofit. An example of such a circumstance may be a new owner who did not receive prior notice and could not have reasonably been aware of the requirements of this chapter. (Ord. 6604-NS § 2, 2000)

Section 19.38.070 Obligations to tenants.

All owners of potentially hazardous URM buildings, any portions of which are leased or rented to any residential or commercial tenant, shall do the following:

(a) Notify each tenant in writing that the building is included on the URM inventory within thirty (30) days of the effective date of this chapter and any amendment thereto, and notify each new tenant at a change of tenancy.

(b) Notify each tenant in writing of the owner's planned schedule for engaging in seismic retrofit pursuant to this chapter, at least twenty-one (21) days in advance of the first planned construction, including notice of any reasonably anticipated major disruption or reduction in service provided to the tenants.

(c) Notify each tenant in writing of any relocation by the tenant which will be reasonably necessitated by mandatory seismic retrofit pursuant to this chapter, at least ninety (90) days in advance of such necessary relocation.

(d) Notify each tenant that he or she may be eligible for financial assistance to offset the cost for the relocation as provided for in the City of Berkeley Relocation Ordinance.

(e) Post and maintain until the building is removed from the URM inventory a clearly visible warning inside the main entrance of the building, stipulating as follows:

"This is an unreinforced masonry building which, under State of California law, constitutes a severe threat to life safety in the event of an earthquake of moderate to high magnitude."

(f) Mail a copy with proof of service of each notification in compliance with this section addressed to: URM Retrofit Coordinator, Building and Safety Division, 2120 Milvia Street, Berkeley, CA 94704. (Ord. 6604-NS § 2, 2000)

Section 19.38.080 Obligations of tenants.

Each tenant of a building on the inventory shall cooperate with the owner and the owner's agents, including but not limited to engineers, contractors, and inspectors, to accomplish the required seismic retrofit. In so doing, tenants shall allow reasonable access to the building and/or their unit or space as needed. (Ord. 6604-NS § 2, 2000)

Section 19.38.090 Recorded notice.

For each property on the list of potentially hazardous buildings, the building official shall prepare a notice of the effect of this chapter and submit it for recording on title by the county recorder. The notice shall include a statement of the potential or actual requirement that improvements must be made to comply with the requirements of this chapter and that transfer of title or additional financing secured by the property may require immediate compliance. The building official shall also submit for recording on title any notice of violation issued under Section 19.38.100. (Ord. 6604-NS § 2, 2000)

Section 19.38.100 Notice of violation and order to abate.

Each property not retrofitted in compliance with Section 19.38.040 or with orders of the building official is hereby declared to be a public nuisance. A notice of violation shall be sent to the owner of such building ordering abatement. (Ord. 6604-NS § 2, 2000)

Section 19.38.110 Fees.

The City Council may establish fees by resolution for administration of this chapter. (Ord. 6604-NS § 2, 2000)

Section 19.38.120 Effective date.

The effective date of this chapter shall be February 15, 2001. (Ord. 6604-NS § 2, 2000)

Section 19.38.130 Adoption of 1997 Uniform Code for Building Conservation Appendix Chapter 1, with certain amendments.

The 1997 Uniform Code for Building Conservation, Appendix Chapter 1, a copy of which is on file in the office of the City Clerk of the City of Berkeley, is hereby adopted and made a part of this chapter as though fully set forth herein, subject to the modifications thereto which are set forth in this chapter.

(a) Scope.

Section A102 – Scope is amended to read as follows: A102.1 General. The provisions of this chapter shall apply to all existing buildings covered under the City of Berkeley mandatory seismic retrofit program having at least one unreinforced masonry wall as defined in this chapter. The elements regulated by this chapter shall be determined in accordance with Table A-1-A. Except as provided herein, other structural provisions of the Building Code shall apply.

A102.2 Essential and Hazardous Facilities. Buildings or structures in Occupancy Categories 1 and 2 of Table 16-K, and covered under the City of Berkeley mandatory seismic retrofit program of the Building Code, shall be strengthened in accordance with the provisions of this chapter or requirements of the Building Code for new buildings, whichever is more restrictive.

(b) Definitions.

The definition of an unreinforced masonry bearing wall in Section A103 is amended to read as follows:

UNREINFORCED MASONRY (URM) WALL means any unreinforced masonry wall supporting its own weight when over six (6) feet in height, or any masonry wall that has all of the following characteristics:

1. Provides the vertical support for a floor or roof.
2. Has a total superimposed load of over 100 pounds per linear foot.

Has an area of reinforcing steel less than 50 percent by empirical methods or less than 25 percent by analysis of that required by the UBC.

(c) Symbols and Notations.

New symbols are added to Section A104 – Symbols and Notations as follows: F_p = Design Seismic Forces on a part of the structure, based on working stress design methods. I = Importance Factor in accordance with Table A-1-H.

(d) Minimum Design Lateral Forces.

Section A110.1 Minimum Design Lateral Forces is amended to read as follows: Buildings shall be analyzed to resist minimum lateral forces assumed to act nonconcurrently in the direction of each of the main axes of the structure in accordance with the following:

$$V = .20 W \quad (A10-1-1)$$

for essential facilities; or

$$V = .166 W \quad (A10-1-2)$$

for buildings that are not essential facilities, but have an occupant load greater than 100; or

$$V = .133 W \quad (A10-1-3)$$

for all other buildings.

Exception: For qualified historical buildings, alternative criteria may be approved when implementation of the provisions of this section conflicts with the objectives of preserving the historical features of the building.

For buildings more than one story in height, the total force shall be distributed over the height of the building in accordance with the procedures of Chapter 16 of the Building Code.

For the purpose of this chapter, a dynamic analysis need not be performed for those buildings with irregularities, as defined in Tables 16-L and 16-M of the Building Code, which would otherwise require such analysis. All other design and analysis requirements of these tables shall apply.

(e) Lateral Forces on Elements of Structures.

Section A110.2 Lateral Forces on Elements of Structures is amended to read as follows: Parts of structures shall be analyzed and designed for lateral loads in accordance with procedures of Chapter 16 of the Building Code but not less than the following:

$$F_p = IC_p W_p \quad (A10-1-4)$$

The value of I shall be as set forth in Table A-1-H. The values of C_p shall be in accordance with the values set forth in Table A-1-J. The value of W_p shall be in accordance with the procedures of Chapter 16 of the Building Code.

Exception: 1. Unreinforced masonry walls for which height-to-thickness ratios do not exceed ratios set forth in Table A-1-B need not be analyzed for out-of-plane loading. Unreinforced masonry walls which exceed the allowable h/t ratios of Table A-1-B shall be braced according to Section A113.5. 2. Parapets complying with Section A113.6 need not be analyzed for out-of-plane loading.

(f) Chords.

Section A111.4.3 Chords is amended to read as follows: An analysis for diaphragm flexure is required and chords shall be provided.

(g) Chords.

A new paragraph is added to Section A113 – Detailed System Design Requirements as follows: A113.11. Chords. An analysis for diaphragm flexure is required and chords shall be provided to conform to Chapter 16 of the Building Code.

(h) Table A-1-H.

The 1997 Uniform Code for Building Conservation, Appendix Chapter 1, is amended to add the following:

TABLE A-1-H – I FACTOR

Type of Occupancy	I
Essential Facility	1.5
Occupant Load Greater than 100	1.25
All Other	1.00

(i) Table A-1-J.

The 1997 Uniform Code for Building Conservation, Appendix Chapter 1, is amended to add the following:

TABLE A-1-J – HORIZONTAL FORCE FACTOR, C_p , FOR PARTS OR PORTIONS OF BUILDINGS OR OTHER STRUCTURES¹

Part or Portion of Building	Direction of Force	Value of C_p
Cantilever parapet and other cantilever walls except retaining walls	Normal to flat surface	2.00
Exterior and interior ornamentation and appendages	Any Direction	1.00
Floors and roofs acting as diaphragms	In the plane of the diaphragm	0.12 ^{2,3}
Connections for exterior panels or elements	Any direction	2.00

¹ Applicable to the general procedures of Section A110.2 only.

² Floors and roofs acting as diaphragms shall be designed for a minimum force resulting from C_p of 0.12 applied to the W_p unless a greater force results from the distribution of lateral forces in accordance with Chapter 16 of the Building Code.

³ For determination of the capacity of the shear connections at the edges of wood diaphragms, the value of C_p shall be 0.2. However, the strength of the shear connections need not exceed the strength of the diaphragm as given in Table A-1-D and Table A-1-E.

(Ord. 6659-NS § 1, 2001; Ord. 6604-NS § 2, 2000)

EXHIBIT A - CHAPTER 19.38

HIGH PEDESTRIAN TRAFFIC CORRIDORS

Exhibit A

