

Council Meeting of  
March 14, 2023

Honorable Mayor and Members  
of the City Council  
City Hall  
Torrance, California

Members of the Council:

**SUBJECT: Community Development – Discuss and Consider Adopting ORDINANCE for A Mandatory Seismic Retrofit Program That Include Four At-Risk Building Types. Expenditure: None.**

### **RECOMMENDATION**

Recommendation of the Community Development Director that City Council:

- 1) Adopt an ORDINANCE adopting a mandatory seismic retrofit program; and
- 2) Approve an Ordinance Summary for publication.

### **FUNDING**

Not applicable.

### **BACKGROUND**

The probability of a major earthquake in the City of Torrance is high due to the proximity to earthquake faults in the region. Proactive measures taken today will reduce the risks to life safety associated with a future major earthquake incident especially with certain at-risk buildings whose structural systems are known to perform poorly. Therefore, developing a retrofit ordinance to begin to secure these at-risk buildings is advisable to reduce the loss of life, injury, and substantial property damage.

On May 15, 2018, an information item was taken before City Council to seek direction on the creation of a City of Torrance Building Seismic Retrofit Ordinance. The focus of the retrofit ordinance would be existing buildings with structural systems which have been identified as posing a high risk due to structural failure during a seismic event. As a result of that information item, and others that were presented after, City Council provided direction to staff to proceed in creating a retrofit ordinance. Council also directed staff to gather additional information and complete certain tasks prior to returning with the seismic retrofit ordinance for their consideration.

The direction by Council was that the proposed retrofit ordinance should focus on at-risk buildings types with the following types of structural systems and design features:

- Existing Wood Frame Buildings With Soft, Weak or Open-Front Walls.; and
- Wall Anchorage System of Existing Rigid-Wall-Flexible-Diaphragm Buildings (i.e. concrete/masonry wall with wood panelized roof buildings) with structural weak linkage at the roof to wall connection; and
- Non-Ductile Concrete Buildings with structural elements that would be prone to have brittle reaction during earthquake events; and
- Pre-Northridge Steel Moment Frame Buildings: Buildings with a lateral system consisting of steel moment frames with weak welded connections.

The additional information requested and tasks to complete prior to returning with a seismic ordinance for City Council consideration were:

1. Complete a survey of all buildings within the City of Torrance to identify the at-risk ones; and
2. Engage the community in public outreach campaign, especially impacted property owners; and
3. Create a City of Torrance Seismic Retrofit Ordinance; and
4. Information on possible approaches to implement the retrofit ordinance.

A Consulting Services Agreement was awarded to Degenkolb Engineers of Los Angeles on February 9, 2021 for services to assist City staff with the additional information requested and the assigned tasks. This Consulting Services Agreement was partially funded by a grant that was awarded to the City by the California Office of Emergency Services. The grant funding amount was \$150,000 and was applied to the overall consulting services agreement of \$424,770.

The City-wide survey of all existing buildings within the City was the first task that was completed. This survey identified all of the at-risk buildings that fell into one of the four focus categories and also provided the number of buildings in each category along with ownership information. This information helps in determining the magnitude of possible impacts to the building property owners and tenants that occupy those buildings.

City staff, with assistance from Degenkolb Engineers, has also completed the public outreach campaign. Two public meetings for each of the four at-risk building types were held and property owners that would be impacted by the proposed ordinance were invited to attend. For each building type, one in-person meeting and one virtual meeting was held. The proposed ordinance requirements were presented and comments from the public were collected.

The task of drafting a retrofit ordinance for the four types of existing at-risk buildings has also been completed. The proposed retrofit ordinance is based on the City of Los Angeles model, which is designed to address the weakest parts of the structural system for each of the four at-risk building types. The City of Los Angeles retrofit program was placed in effect in 2015 and most municipalities follow that model as a standard.

There is an on-going growing effort statewide to address existing buildings that were constructed in conformance with the requirements of older building codes, but that have at-risk structural systems that will poorly react during a seismic event. Several municipalities have adopted mandatory retrofit ordinances and several more, including our own City, are exploring adoption of such an ordinance.

City staff recently completed the tasks as directed with the actions of the City Council hearing of May 15, 2018. The tasks included the requested additional information, the community public outreach, and the preparation of a draft City of Torrance Building Seismic Retrofit Ordinance. The draft ordinance is now being brought to your Honorable Body for consideration.

## **ANALYSIS**

As directed by City Council, staff is returning with a proposed seismic retrofit ordinance along with the additional information requested and the assigned tasks completed. The proposed ordinance is proactive in developing and enforcing a program for the identification and subsequent evaluation and upgrade of potential seismically vulnerable buildings.

One of the key assigned tasks was a survey of all existing buildings within the City of Torrance which would help determine the magnitude of impact on property owners and tenants by any proposed ordinance. The following table shows the building types that were considered at-risk and the factors used in the survey to identify them.

<i>Potential Vulnerable Building Types</i>	<i>Address</i>	<i>Photo</i>	<i>Year of Construction</i>	<i>No. of Stories</i>	<i>No. of Units</i>	<i>Building Square Footage</i>	<i>Building Use</i>
Homes not Bolted to Foundation*	X	X	X				
Mobile Per-Manufactured Homes**	X	X	X				
Wood Soft Story Buildings	X	X	X	X	X	X	X
Concrete Tilt-up Buildings	X	X	X	X	X	X	X
Non-Ductile Concrete	X	X	X	X	X	X	X
Pre-Northridge Steel Moment Frames	X	X	X	X	X	X	X
* Cannot be visually confirmed. List based on Year of Construction ** Assuming Access to the Park is available							

Included in the survey were existing single family homes not bolted to their foundation and prefabricated homes within mobile home parks. The retrofitting of single family home is not included as a mandate in the ordinance and will continue to be on a voluntary basis. Mobile pre-manufactured homes were also included in the survey for identification purposes, but since these type of structures are regulated by the State of California, they were also not included in the ordinance.

On a voluntary basis, several hundred individual home owners have already proactively retrofitted their homes and anchored them to the foundations. These are mostly older one story single family homes built prior to the early 1950s. The State of California currently offers grants of up to three thousand dollars to perform the retrofit work of anchoring an existing house to its foundation, but only certain areas are eligible and they are defined by zip codes. The City of Torrance is not within one of those eligible areas yet, but potential maybe in the upcoming years. Staff will continue to monitor this grant program and once it does become available in the City of Torrance, will reach out to eligible property owners.

The completion of the survey of all existing buildings within the City of Torrance provided a clear picture on the number of at-risk building types. The survey identified the number and location of the four at-risk building types which are considered the most vulnerable. Following is a summary table indicating the type and the number of these types of buildings within the City:

<b>Vulnerable Building Type</b>	<b>Number Identified</b>
Homes Not Bolted to Foundation	26,614
Mobile Pre-manufactured Homes	1,093
Wood Soft Story	2,195
Concrete Tilt-up	582
Non-Ductile Concrete	75
Pre-Northridge Steel Moment Frame	135
Undetermined (Steel/Concrete)	82

As previously mentioned, the City of Torrance Seismic Retrofit Ordinance will address four of the at-risk building types that are considered the most vulnerable. Following is a description of each building type and a summary table of the ordinance requirements including key compliance dates:

- **Existing Wood Frame Buildings With Soft, Weak or Open-Front Walls**

A soft/weak story is characterized when a given floor has less stiffness and/or strength relative to the floors above it and is commonly the result of large openings or insufficient walls on the lower floors of a building. A lack of stiffness and/or strength for a given floor relative to the one above does not immediately constitute a soft/weak story deficiency; the key criteria for determining a soft/weak deficiency lies in the severity of the difference in stiffness/strength between adjacent floors. The building design standard ASCE 7-16, which is adopted by the 2019 California Building Code, defines a soft-story deficiency when a floor has less than 70% of the stiffness of the

floor above or when a floor has less than 80% of the average stiffness of the three floors above. Similarly, a weak-story deficiency is defined when a floor has less than 80% of the strength of the floor above. Soft, weak, or open front walls are a primary cause of soft/weak story deficiencies because of the lack of strength and stiffness in those wall lines. Soft, Weak or Open-Front (SWOF) wall lines typically occur in multi-family/commercial wood buildings with many tuck-under parking stalls or an open layout on the ground floor.

Of primary interest, a significant seismic collapse potential often found in multi-story wood apartment buildings, called soft and weak stories, was finally addressed by the codes in the 1970's and 1980's. Although not unique to wood structures, soft and weak stories is a structural irregularity that are most often created by tuck-under parking designs. This high-risk seismic deficiency was the cause of significant failures in the 1971 San Fernando Earthquake, 1985 Mexico City Earthquake, and the 1989 Loma Prieta Earthquake. The 1976 Uniform Building Code (UBC) became the first California building code to recognize structural irregularities in buildings structures. However, the 1988 UBC was the first to specifically address and prohibit this type of construction above two stories. Unfortunately, many governing agencies did not adopt these code provisions until the 1990's. Currently, the 2019 California Building Code (CBC) does not permit their construction in areas of high seismicity. The table below outlined the seismic risk reduction mitigation program for soft-story, multiple residential buildings with tuck under parking.

Proposed Ordinance	Expected No. Buildings	Phase 1: Engineering Report & Major Deficiency			
		Submit "Evaluation" or "Screening" Report	Submit Retrofit Plans	Obtain Building Permit	Complete Construction
SWOF	2,195	1 Year from Notice to Owner	2 Years from Notice to Owner	3 Years from Notice to Owner	5 Years from Notice to Owner

- **Wall Anchorage System of Existing Rigid-Wall-Flexible-Diaphragm Buildings (i.e. concrete/masonry wall with wood panelized roof buildings)**

Concrete tilt-up buildings are a subset of concrete buildings that are characterized by precast concrete panels that are tilt-up to form the exterior of the building with a roof diaphragm that is traditionally plywood, oriented strand board (OSB), or metal deck. This type of construction creates a rigid-wall-flexible-diaphragm condition that is historically susceptible to earthquakes, with the primary weakness being the anchorage between the walls and the roof.

Extensive damage was observed in the wall anchorage of many concrete tilt-up buildings after the 1971 San Fernando earthquake, which lead to the 1973 and 1976 UBC adopting provisions aimed at preventing wall anchorage failure. The 1973 UBC

prohibited the reliance on cross-grain bending in wood and required positive connection between the wall and diaphragm. Additionally, the concept of crossties was introduced and required to distribute the wall anchorage force across the entire length of diaphragm. The 1976 UBC expanded on this concept by permitted the use of sub-diaphragms and increased the wall anchorage design force by 50% in areas of high seismicity.

The 1984 Morgan Hill and 1989 Loma Prieta earthquakes exposed similar, but fewer, wall anchorage failures in tilt-up buildings, which led to an update in the 1991 UBC that increased the wall anchorage design force by an additional 50% in the center half of the diaphragm span for buildings within Seismic Zone 4.

The 1994 Northridge earthquake was the first true test of post-1976 UBC provisions under very strong shaking. While many pre-1973 UBC buildings experienced major damage, the structural engineering community was surprised at how many post-1976 UBC buildings were damaged. Given previous research and testing indicating that rooftop accelerations can be on the order of three to four times the ground acceleration, 1997 UBC was amended to increase the wall anchorage design forces to a level that was almost twice as high as the prior design force.

The latest provisions to address seismic deficiencies in concrete tilt-up buildings have largely remained unchanged since the 1997 UBC, which remain untested by a strong earthquake. The table below outlined the seismic risk reduction mitigation program for rigid wall with flexible diaphragm.

		Phase 1: Engineering Report & Major Deficiency			
Proposed Ordinance	Expected No. Buildings	Submit "Evaluation" or "Screening" Report	Submit Retrofit Plans	Obtain Building Permit	Complete Construction
Rigid Wall	582	1 Year from Notice to Owner	2 Years from Notice to Owner	3 Years from Notice to Owner	5 Years from Notice to Owner

- **Non-ductile concrete: Non-ductile concrete buildings with structural elements that would be prone to have a brittle reaction during earthquake event.**

Reinforced concrete was developed in the mid 1800's and continued its development through the 1900's. Structural systems utilizing concrete framing, flat/waffle slabs, joists and bearing walls became common by 1920. While the quality of construction and gravity design had improved immensely by 1930, the 1933 Long Beach earthquake devastated Southern California and highlighted the need for earthquake-resistant structures in high seismic regions. As a result, the first design code requirements for most building types were published and adopted by California in the mid-1930s.

From the mid-1930s to 1950, improvements in concrete design came to a halt due to the Great Depression. However, in the 1950s, the widespread adoption of pre-stressed concrete revolutionized concrete construction, which brought about a rapid

change in structural systems, design methods, and construction practices. Concrete shear wall construction saw significant developments in seismic design during this period.

Improvements in seismic design continued in the 1960s with the introduction of the Structural Engineers Association of California (SEAOC) Blue Book. During this period, lateral-force-resisting systems were given designations. Although the Blue Book introduced the concept of ductility, concrete ductile detailing was not adopted by codes at the time and a ductile frame was defined as a structural steel frame. Additionally, light-weight concrete recommendations were also introduced around this time.

The 1970s marked a period of rapid advancement for concrete seismic design. The 1971 San Fernando earthquake, also known as the Sylmar earthquake, proved that many concrete structures performed poorly and lacked the ductility to withstand a large magnitude seismic event. Non-ductile concrete was famously exposed in the collapse of the Olive View Hospital in northern Los Angeles. This tragic event proved that concrete buildings require special proportioning and detailing requirements. These requirements mostly included closely spaced rebar hoops in columns, beam/column joints and shear wall boundary elements. These changes were intended to minimize the likelihood of brittle failures as the building sways back and forth during a seismic event. As a result, great improvements in seismic concrete design were issued in the 1976 UBC ductile concrete provisions. Consequently, buildings designed prior to the 1976 UBC concrete provisions are of high risk in high seismic regions. The table below outlined the seismic risk reduction mitigation program for non-ductile concrete buildings.

Proposed Ordinance	Expected No. Buildings	Phase 1: Engineering Report & Major Deficiency				Phase 2: Complete Retrofit			Total Time
		Submit "Evaluation" or "Screening" Report	Submit Retrofit Plans	Obtain Building Permit	Complete Construction	Submit Retrofit Plans	Obtain Building Permit	Complete Construction	
NDC	210	3 Years from Notice to Owner	5 Years from Notice to Owner	7 Years from Notice to Owner	10 Years from Notice to Owner	13 Years from Notice to Owner	15 Years from Notice to Owner	20 Years from Notice to Owner	20 Years from Notice to Owner

- **Pre-Northridge Steel moment frame buildings: Buildings with a lateral system consisting of steel moment frames with weak welded connections.**

Steel frame construction became adopted in the 19<sup>th</sup> century as the need for maximum rentable space, while allowing for large wall openings, rendered bearing wall construction unfavorable. The earliest steel moment frames utilized riveted connections to connect the beam flanges to the columns. With the development of welding technology and high-strength bolts, riveted connections quickly fell out of favor by the 1950s. After tests on small depth members in the early 1970's, the welded flange-bolted web connection became one of the most used moment connection in the United States. In 1959 the SEAOC Blue Book first introduced the basic design requirements for ductile moment frames. However, moment

frame beam and column depths were not restricted. In addition, it was not until the 1980's that the code had enforced strict drift rules for steel moment frames and the pre-qualification of the welded flange-bolted web connection.

The welded flange-bolted web connection remained in use until the 1994 Northridge earthquake when it was revealed that the connection was highly susceptible to brittle failure. The extent of earthquake damage to steel moment frames varied in the height of the building, construction year, and geography. The damage extended from weld failures to fractures through the column flange and web. In mid-1994, the SAC Joint Venture was established to investigate the damage and develop recommendations for the evaluation and repair of existing moment frame connections and the design of new ones. The SAC Joint Venture's findings were documented in several FEMA documents. Between the 1994 Earthquake and the year 2000, damaged existing moment frame buildings were repaired with the intent to bring the building to its original condition. In addition, an emergency code change was issued to the 1994 UBC requiring that engineers demonstrate that connections could undergo inelastic rotations caused by a seismic event. As a result of this requirement new moment frames were rarely constructed between the 1994 Northridge earthquake and the year 2000. In 2000, recommendations for post-Northridge earthquake moment frames were issued under FEMA 350. These recommendations were the basis for current steel moment frame testing and design and were incorporated into the American Institute of Steel Construction (AISC) Steel Construction Manual and the AISC Seismic Design Manual. The table below outlined the seismic reduction mitigation program for Pre-Northridge Steel Moment Frame Buildings.

Proposed Ordinance	Expected No. Buildings	Phase 1: Engineering Report & Major Deficiency				Phase 2: Complete Retrofit			Total Time
		Submit "Evaluation" or "Screening" Report	Submit Retrofit Plans	Obtain Building Permit	Complete Construction	Submit Retrofit Plans	Obtain Building Permit	Complete Construction	
SMF	210	3 Years from Notice to Owner	5 Years from Notice to Owner	7 Years from Notice to Owner	10 Years from Notice to Owner	13 Years from Notice to Owner	15 Years from Notice to Owner	20 Years from Notice to Owner	20 Years from Notice to Owner

The proposed retrofit ordinance is based on the City of Los Angeles model. Since the City of Los Angeles retrofit model was completed and implemented in 2015, some areas were updated to account for recent developments. The proposed ordinance was also sent to the Structural Engineers Association of Southern California to obtain their feedback and input.

As directed by the City Council action of May 15, 2018, staff also completed the task of community public outreach. The public outreach consisted of a total six public meeting to present the proposed draft ordinance and to obtain feedback from potential impacted property owners and tenants. Each of the at-risk building types were presented twice, one in-person meeting and a virtual one. The public turnout to these meetings was low, but the most common question was if there was any financial assistance to perform the retrofit work and the construction costs.



City Council directed staff to explore available funding sources that could assist the property owners of the impacted building with construction costs. Unfortunately at this time no funding source is available to assist with construction costs. One potential source maybe through a California Senate Bill, SB-189, through which the State of California appropriated 250 million to assist property owners performing wood soft story retrofits on 2-20 unit apartment buildings. SB-189 funding is not yet available since the State is still working on regulations as to how to distribute, how the funds should be used, and who should be eligible to receive them. There is also a possibility that this funding source maybe recalled by the State and not distributed.

Other possibilities to assist the property owners with the retrofit work could be subsidies permit fees. This would be at the discretion of your Honorable Body and was utilized when the City implemented the State mandated program to retrofit un-reinforced masonry buildings in the late 1980

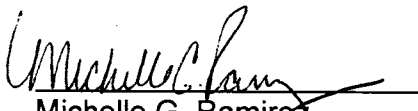
The Community Development Department recommends that City Council adopt the ordinance adopting a mandatory seismic retrofit program.

Respectfully submitted,

MICHELLE G. RAMIREZ  
COMMUNITY DEVELOPMENT DIRECTOR

CONCUR:

By   
Felipe Segovia  
Building Regulations Administrator

  
Michelle G. Ramirez  
Community Development Director

  
Aram Chaparyan  
City Manager

Attachments:

- A) Ordinance
- B) Ordinance summary
- C) Correspondence



**ORDINANCE \_\_\_\_\_**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF TORRANCE, CALIFORNIA, ADDING CHAPTER 15 ENTITLED "MANDATORY SEISMIC RETROFIT IN EXISTING BUILDINGS" TO DIVISION 8 OF THE TORRANCE MUNICIPAL CODE ENTITLED "BUILDING AND SAFETY"**

The City Council of the City of Torrance does ordain as follows:

**SECTION 1**

That Chapter 15 is hereby added to Division 8 of the Torrance Municipal Code, to read in its entirety as follows:

**"ARTICLE 1 MANDATORY SEISMIC STRENGTHENING PROVISIONS FOR EXISTING WOOD FRAME BUILDINGS WITH SOFT, WEAK OR OPEN-FRONT WALLS.**

**815.1.010 PURPOSE.**

The provisions of this Chapter are intended to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on existing wood-framed multi-story buildings with Soft, Weak or Open-Front Walls. Generally, this type of structure consists of partial tuck-under parking on the first-floor level with single or multifamily living space in the floors above. In past earthquakes, many of these types of structures have performed poorly and collapsed causing loss of life, personal injury, and substantial property damage.

This Chapter creates minimum standards intended to reduce the risk of collapse and improve the performance of these buildings during earthquakes and reduce, but not necessarily prevent, the loss of life, injury, or damage to property. The requirement for compliance with these standards does not preclude the utilization, at the Building Owner's option, of a more extensive strengthening method that might further prevent or limit loss of life, injury, or building damage.

**815.1.020 SCOPE AND APPLICABILITY.**

The provisions of this Chapter shall apply to all existing buildings of wood-frame construction, or wood-frame portions thereof, where:

- a) The existing building is determined by the Building Official to have been built under building code standards enacted before the 1976 Uniform Building Code with local amendments adopted on August 1, 1978, and,
- b) The Ground Floor or basement portion of the structure contains parking or other similar open floor space that causes Soft, Weak, Open-Front Wall Lines, or the majority of the Ground Floor or basement portion of the structure contains an open floor space, and there exists one or more stories above.

Exceptions:

- (1) The provisions of this chapter shall not apply to single family residences or multiple-family residential buildings containing three or less units.

Notwithstanding any provision of the Building Code, compliance with this Chapter shall not require existing electrical, plumbing, mechanical or fire-safety systems to be altered to comply with the current Building Code unless they constitute a hazard to life or property as determined by the Building Official.

Mitigation of existing geologic site hazards such as liquefiable soil, fault rupture, or landslide is not required for compliance with this Chapter.

**815.1.030 DEFINITIONS.**

Notwithstanding the applicable definitions, symbols, and notations in the Building Code, the following definitions shall apply for the purposes of this Chapter:

- a) Building Code is the current Building Code of the City of Torrance.
- b) Cripple Wall is a wood-framed stud wall extending from the top of the foundation wall to the underside of the lowest floor framing.
- c) Design Criteria is a document that outlines the design professional's alternative analysis or Retrofit approach and methodology to satisfy the design intent and performance objective of the Ordinance. This document is intended to be used when the code and seismic Ordinance language does not address the proposed analysis or Retrofit approach or methodology.
- d) Ground Floor is any floor within the wood-frame portion of a building whose elevation is immediately accessible from an adjacent grade by vehicles or pedestrians. The ground floor portion of the structure does not include any floor that is completely below adjacent grades.
- e) Historical Building is any building designated, or currently in the process of being designated, as a "qualified historical building" as defined in Part 8, Title 24 of the California Code of Regulations.
- f) Open-Front Wall Line is an exterior Wall Line, without vertical elements of the lateral force-resisting system, which requires tributary seismic forces to be resisted by diaphragm rotation or contains an excessive cantilever beyond parallel lines of shear walls. Diaphragms that cantilever more than 25 percent of the distance between lines of lateral force resisting elements from which the diaphragm cantilevers shall be considered excessive. Diaphragm cantilevers or exterior balconies of 6 feet or less in width shall not be considered excessive cantilevers.
- g) Owner or Building Owner is the individual(s), agent, firm, corporation, or entity having legal possession, equitable interest in the property, or rights to sanction evaluation or Retrofit of a building.
- h) Retrofit is an improvement of the lateral force resisting system by alteration of existing structural elements or addition of new structural elements.

- i) Seismic Design Guidelines are framework guidelines developed by the Building Official which are intended to calibrate, delineate, and detail technical requirements to be used for the retrofitting of buildings subject to this Chapter.
- j) Soft Wall Line is a deficiency in a Wall Line in which the lateral stiffness is less than what is required by story drift limitations and deformation compatibility requirements of this Chapter. In lieu of the engineering analysis required by this Chapter to determine whether a wall line's lateral stiffness is less than the aforementioned story drift limitations and deformation compatibility requirements, a Soft Wall Line deficiency may be defined as a Wall Line in a Story where the wall stiffness is less than 70 percent of the stiffness of the exterior wall above for the direction under consideration.
- k) Story is as defined in the Building Code, but includes any basement or under-floor space of a building with Cripple Walls exceeding four feet in height.
- l) Story Strength is the total strength of all seismic-resisting elements sharing the same Story shear in the direction under consideration.
- m) Wall Line is any length of a wall along a principal axis of the building used to provide resistance to lateral loads.
- n) Weak Wall Line is a deficiency of a Wall Line at the Ground Floor in which the wall strength is less than 80 percent of the strength of the wall above in the direction under consideration or is an exterior wall where the majority of the Ground Floor or basement portion of the structure contains an open floor space and the Ground Floor Story Strength is less than 80 percent of the Story Strength above.
- o) Substantial Evidence means more than a mere scintilla of evidence. Specifically, that there is such relevant evidence that a reasonable mind would accept it is adequate to support a conclusion, considering the totality of the evidence as a whole.
- p) Good Cause means adequate or substantial grounds or reason to take certain action, or fail to take certain action required by this Chapter. (For example, the inability to secure funding for seismic retrofit repairs within the required time period, despite substantial evidence that a building owner has made best efforts to do so; or the inability to secure a contractor to perform seismic retrofit repairs within the required time period, despite substantial evidence that a building owner has made best efforts to do so, or other similar circumstances.)

#### **815.1.040 COMPLIANCE REQUIREMENTS.**

The Owner of each building within the scope of this Chapter shall cause an investigation of the existing construction and a structural analysis to be performed on the building by a Licensed Design Professional in the State of California. If the building does not meet the minimum standards specified in this Chapter, the Owner shall cause it to be structurally altered to conform to such standards.

Each building within the scope of this Chapter, which has been analyzed to demonstrate compliance or has been structurally altered to comply with the minimum

standards in this Chapter, shall be maintained in conformity with the requirements of this Chapter, in effect at the time of such analysis or structural alteration.

Notwithstanding any other provisions of this Code to the contrary, a building that is found to be within the scope of this Chapter and is not brought into compliance in the time frame indicated in Table A, may be declared unsafe and subject to the requirements of Section 116 of the California Building Code.

**815.1.050 TIME PERIOD FOR COMPLIANCE/PRIORITY DESIGNATION.**

- a) Screening Report. Within the time limits allowed in Table A, the Owner of any building subject to the provisions of this Chapter shall submit a screening report to the Building and Safety Division. The report shall demonstrate whether the structure conforms to the earthquake design provisions contained in this Chapter. Minimum form requirements shall be as specified by the Building Official.
- b) Plan, Permits and Construction. If the screening report concludes the structure does not comply with the provisions of this Chapter, the structure shall be strengthened to comply with the standards of this Chapter within the time periods shown in Table A. Minimum plan requirements shall be as specified by the Building Official.

**TABLE A  
TIME PERIOD FOR COMPLIANCE**

Required Action by Owner	Submit Screening Report	Submit Retrofit Plans	Obtain Permit	Commence Construction	Complete Construction
Milestone	1 year from notice to the Owner	2 years from notice to the Owner	3 years from notice to the Owner	4 years from notice to the Owner	5 years from notice to the Owner

- c) Priority Designations. The Building Official shall prioritize enforcement of this Chapter as defined in Table B

**TABLE B  
PRIORITY DESIGNATION**

Priority	Description
Priority I.	Buildings containing 3 or more stories
Priority II.	Buildings with 2 stories, containing 7 or more units

Priority III.	Buildings not falling within the definition of Priority I or II.
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### 815.060 ADMINISTRATION.

- a) Issuance of Order. The Building Official shall, in accordance with the priorities set forth in Table B, issue an order as provided in this Section to the Owner of each building that is expected to be within the scope of this Chapter.
- b) Contents of Order. The order shall be in writing and shall be served by certified or registered mail to the Owner as shown on the last equalized Los Angeles County assessment roll of the building. The order shall specify that the building has been determined by the Building Official to be within the scope of this Chapter and, therefore, is required to meet the standards of this Chapter.
- c) Service of Order. Proper service of a notice shall be by registered or certified mail. It shall be deemed a reasonable effort has been made to serve such notice when registered or certified letters have been mailed to the address of the interested party as shown on the official record. The designated period within which the Owner or person in charge is required to comply with such notice shall begin as of the date the Owner or person in charge receives such notice by personal service or certified mail.
- d) Failure to Receive Order. Failure of any Owner, party concerned or other person to receive such notice shall not affect the validity of any proceedings taken thereunder.
- e) Appeal from Order. The owner of any building may appeal any decision or order issued by the Building Official or his designee pursuant to this Chapter, including, but not limited to, the initial determination that a building is within the scope of the City of Torrance Seismic Retrofit Laws or the conclusion that a building must be retrofitted, to the City Manager or their designee. Any such appeal shall be filed with the City Manager within 30 days of the date of the Building Official's or their designee's order or decision. Any such appeal shall be decided by the City Manager no later than ninety days after filing. The filing of an appeal would stay the underlying order or decision and the associated time limits. Should the appeal be denied by the City Manager or their designee, the initial time limits shall be restored, unless the City Manager or their designee, authorizes alternate time limits. The City Manager's or their designee's decision shall be final except for judicial review.
- f) Extensions. The Building Owner may request an extension to the time period for compliance set forth in Table A of section 815.1.5. An application for extension may only be filed after the Owner has submitted a Screening Report to the City and the Retrofit Plans have been approved by the City. The Building Owner has the burden of proof to establish with substantial evidence that good cause for the extension exists. The Building Owner must also provide a new proposed schedule for compliance, and plan to comply with the provisions of this chapter during that timeframe. Upon good cause shown, the Building

Official may approve, approve with modifications, or deny a request for an extension, commensurate with the justification for the extension.

- g) Recordation. Once a building that was determined to be within the scope of this Article has failed to comply with the requirements of this Chapter within the time limits provided in Table A, the Building Official shall record in the office of the Los Angeles County recorder a certificate stating that the subject building is within the scope of this Article and requires seismic retrofit. The Certificate shall also state that the Owner thereof has been notified of the need to retrofit the building. Once the building has been retrofitted to comply with this Chapter, the Building Official shall record a Certificate indicating that the subject building no longer is in violation of this Chapter.
- h) The Building Official may promulgate implementing regulations and policies consistent with this Chapter.

#### **815.1.070 OCCUPANCY AND TENANT ADVISORY.**

Notification to Tenants and Occupants. The Owner shall notify in writing all current and prospective residential and non-residential tenants, subtenants, lessees, sublessees, or any other person(s) entitled to the use and/or occupancy of the building of a proposed project submitted pursuant to this Chapter. The notice shall include the information for the project, as determined by the City, including the scope of work, expected duration, and contact information for a representative of the contractor. The form of notice shall be supplied by the Community Development Department and Building and Safety Division.

#### **815.1.080 HISTORICAL BUILDINGS.**

Historical Buildings shall comply with the California Historical Building Code and the provisions of this Chapter. Modifications to the standards set forth in this Chapter may be permitted when such modifications are consistent with the provision of the California Historical Building Code. Such modifications shall be clearly specified in the screening report.

#### **815.090 ENGINEERING ANALYSIS AND DESIGN.**

- a) Scope of Analysis. This Chapter requires the alteration, repair, replacement or addition of structural elements and their connections to meet the strength and stiffness in conformance with the Building Code except as modified herein. The lateral-load-path analysis shall include the resisting elements and connections from the wood diaphragm immediately above any Soft, Weak or Open—Front Wall lines to and including the foundation. Stories above the Weak Wall Line shall be considered in the analysis but need not be modified. The Engineer shall investigate existing conditions as applicable for the required analysis, including performing initial material testing and verification of existing conditions.
- b) Design Base Shear and Design Parameters. The design force in a given direction shall not be less than 75% of that derived from the Base Shear as determined from the seismic provisions of ASCE 7 and design provisions as specified by the current Seismic Design Guidelines. The structure shall be analyzed and/or strengthened in order to mitigate the Weak and/or Soft Wall Line deficiencies defined in Section 815.1.3.



Exception: Alternatively, the structure may be retrofitted per Appendix A4 of the California Existing Building Code, provided the entire Story is analyzed and/or strengthened in order to mitigate the Weak and/or Soft Wall Line deficiencies defined in Section 815.1.3.

- c) Lateral Vertical Systems. Strengthening systems with concrete walls or masonry walls, or steel braced frames shall not be permitted unless a full building analysis considering diaphragm stiffness and torsional behavior is performed.
- d) Horizontal Structural Irregularities in Buildings with Three or More Stories. Structures with three or more stories having horizontal structural irregularities of either type 2, 3, 4, or 5 listed in ASCE 7, "Horizontal Structural Irregularities", shall be altered to meet the additional requirements of those sections referenced in the table for the Weak, Soft or Open-Front Wall lines being considered.
- e) Alternate Analysis, Base Shear and Design Parameters. The Building Official may approve alternate analysis and/or design methodologies that meet the same performance intent as those prescribed by this Chapter and that achieve the objectives established by this Chapter. A Design Criteria shall be submitted to the City for review and approval prior to submission of plans. Peer review shall be required when advanced systems, such as damped systems, are utilized.
- f) Additional Anchorage Requirements for Buildings on Hillsides. Where any portion of a building within the scope of this Chapter is constructed on or into a slope steeper than one-unit vertical in three units horizontal (33-percent slope), the lateral-force-resisting system, at and below the base level diaphragm, shall also be analyzed for the effects of concentrated lateral loads caused at the building base from the hillside conditions and comply with the provisions of the Building Code.
- g) Story Drift Limitations. The calculated story drift for each retrofitted Story shall meet the requirements of the current Seismic Design Guidelines.
- h) Deflection Compatibility. The design of the new retrofit elements shall be compatible with the existing structural elements.
- i) Ties, Continuity and Collectors. All parts of the structure included in the scope of analysis shall be interconnected and the connection shall be capable of resisting the seismic force created by the parts being connected as required per the Building Code.
- j) Foundations. Foundations shall be designed in accordance with the Seismic Design Guidelines. New foundation elements shall be capable of transferring the loads to the supporting soil without negatively impacting the existing foundations.
- k) Pole Foundations. The effects of rotation and soil stiffness shall be included in the analysis where lateral loads are resisted by vertical elements whose required depth of embedment is determined by pole formulas. The design of the pole foundations shall be based on an approved geotechnical

investigation conducted in accordance with approved geotechnical engineering reports.

#### **815.1.100 INFORMATION REQUIRED ON PLANS.**

- a) General. In addition to administrative items, the plans and specifications required by the Building Official shall be of sufficient clarity to indicate the nature, design methodology, and extent of the proposed work and to show in detail that it will conform to the provisions of this Chapter and the Building Code.
- b) Licensed Design Professional Statement. The Licensed Design Professional responsible for the design of the retrofit shall provide the following statements on the approved plans:

"I am responsible for designing this building's seismic strengthening in compliance with the minimum standards of the Mandatory Seismic Strengthening Provisions For Existing Wood Frame Buildings With Soft, Weak or Open-Front Walls (Division 8, Chapter 15, Article 1 of the Torrance Municipal Code)."

- c) Owner or Owner's Representative Statement. Unless the entire building has been retrofitted to meet the full intent of the current Building Code, the Owner shall provide and sign the following statement on the cover of the drawings:

"I\_\_\_\_\_ understand the seismic evaluation and strengthening performed under this project is limited to that specified in the Mandatory Seismic Strengthening Provisions For Existing Wood Frame Buildings With Soft, Weak or Open-Front Walls (Division 8, Chapter 15, Article 1 of the Torrance Municipal Code) which is intended to reduce the risk under a seismic event. I understand the full building has not been evaluated nor strengthened for other potential structural deficiencies that may cause a life safety concern, injury, or property damage risk under a seismic event."

- d) Quality Control and Assurance Requirements. General notes shall show the requirements for material testing, special inspection, structural observation and the proper installation of newly added materials.

#### **815.1.110 QUALITY ASSURANCE.**

- a) Structural Observation. Structural observation, in accordance with the *Building Code* is required, regardless of seismic design category, height or other conditions. Structural observation shall include visual observation of work for conformance to the *approved* construction documents and confirmation of existing conditions assumed during design.
- b) Testing and Inspection. Structural testing and inspection for new construction materials, submittals, reports, and certificates of compliance shall be in accordance with *Building Code* and the Seismic Design Guidelines.

**815.1.120 VIOLATION/PENALTY.**

- a) Violation. Notwithstanding any other provisions of this Code to the contrary, it shall be unlawful for any person, firm or corporation, to own , use, occupy or maintain any building or structure or portion thereof, or cause the same to be done, contrary to, or in violation of, any of the provisions of this code.
- b) Penalty:
  - (1) Any person who violates any provision of this Article is guilty of a misdemeanor unless the violation is cited or charged by the City or the City Attorney and/or reduced to an infraction.
  - (2) Each such person charged with a misdemeanor shall be guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than \$1,000, (one thousand dollars) or by imprisonment for not more than six months, or by both such fine and imprisonment. The provisions of this section are in addition to and independent of any other sanctions, penalties, or costs which are or may be imposed for a violation of any of the provisions of this code;
  - (3) Any violations of this Article may result in civil, criminal and/or administrative enforcement actions
- c) Recordation of violation.
  - (1) General. The Building Official may record a notice with the County Recorder's Office that a property, building or structure, or any part thereof, is in violation of any provision of this code provided that the provisions of this section are complied with. The remedy provided by this section is cumulative to any other enforcement actions permitted by this code.
  - (2) Recordation. If (A) the Building Official determines that any property, building, or structure, or any part thereof is in violation of any provision of this code; and if (B) the Building Official gives written notice as specified below of said violation; then the Building Official may have sole discretion to, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this code.
  - (3) Notice. The written notice given pursuant to this Section shall indicate:
    - a) The nature of the violation(s); and
    - b) That if the violation is not remedied to the satisfaction of the Building Official, the Building Official may, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this code. The notice shall be posted on the property

and shall be mailed to the Owner of the property as indicated on the last equalized County Assessment roll. The mailed notice may be by registered, certified, or first-class mail.

- (4) Rescission. Any person who desires to have recorded a notice rescinding the notice of violation must first obtain the necessary approvals and permit(s) to correct the violation. Once the Building Official determines that the work covered by such permit(s) has been satisfactorily completed, the Building Official may record a notice rescinding the prior notice of violation.

Following the recordation of the notice of violation the Building Official is not required to make any inspection or review of the premises to determine the continued existence of the cited violation. It is the responsibility of the property Owner, occupant or other similarly interested private party to comply with the above provisions.

- d) Costs. Any person that has violated any provision of this code shall be responsible for the costs of any and all Code Enforcement actions taken by the Building Official in response to such violations. These costs shall be based on the amounts specified by the current fee schedule.

#### **815.1.130 APPLICABILITY.**

- a) Internal conflict. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different Sections of this Chapter specify different materials, methods of construction, or other requirements, the most restrictive shall govern.
- b) Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law.
- c) Codes and references. The provisions of the codes and standards referenced in this code shall be considered part of the requirements of this Chapter to the prescribed extent of each such reference. Where there are conflicts between the provisions of this Chapter and the provisions of any referenced code or standard, the provisions of this Chapter shall apply.

### **ARTICLE 2 MANDATORY SEISMIC STRENGTHENING PROVISIONS FOR WALL ANCHORAGE SYSTEM OF EXISTING RIGID-WALL-FLEXIBLE-DIAPHRAGM BUILDINGS.**

#### **815.2.010 PURPOSE.**

The provisions of this Chapter are intended to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on existing reinforced concrete or masonry wall buildings with flexible diaphragms typically referred to as Rigid-Wall-Flexible-Diaphragm. In past earthquakes many of these types of structures have performed poorly and collapsed causing loss of life, personal injury, and substantial property damage. One of the primary reasons for the buildings poor

seismic performance is the lack of adequate capacity of the Wall Anchorage System, which consists of out-of-plane seismic anchorage and associated load path elements.

This Chapter creates minimum standards for structural seismic resistance that are intended to improve the seismic performance of these buildings during earthquakes by strengthening the Wall Anchorage System, but not necessarily prevent the loss of life, injury, or damage to property. The requirement for compliance with these standards does not preclude the utilization, at the Building Owner's option, of more extensive strengthening method that might further prevent or limit loss of life or injury or building damage.

#### **815.2.020 SCOPE AND APPLICABILITY.**

The provisions of this Chapter shall apply to the Wall Anchorage System of all existing Rigid-Wall-Flexible-Diaphragm buildings where:

- a) The existing building is determined by the Building Official to have been built under building code standards enacted before the 1997 Uniform Building Code with local amendments adopted on June 1, 1999.

Notwithstanding any provision of the Building Code, compliance with this Chapter shall not require existing electrical, plumbing, mechanical, or fire-safety systems to be altered to comply with the current Building Code unless they constitute a hazard to life or property as determined by the Building Official.

#### **815.2.030 DEFINITIONS.**

Notwithstanding the applicable definitions, symbols and notations in the Building Code, the following definitions shall apply for the purposes of this Chapter:

- a) Building Code is the current Building Code of the City of Torrance.
- b) Continuity Connector is a component, typically a plate, rod, strap or hold-down, that ensures load path continuity along the full length of a crosstie or strut.
- c) Crosstie is a member or group of members continuous across the main diaphragm that connects opposite wall lines and transfers out-of-plane wall anchorage forces into the diaphragm.
- d) Design Criteria is a document that outlines the design professional's alternative analysis or Retrofit approach and methodology to satisfy the design intent and performance objective of the Ordinance. This document is intended to be used when the code and seismic Ordinance language does not address the proposed analysis or Retrofit approach or methodology.
- e) Flexible diaphragm is a roof or floor sheathed with plywood, wood decking (1-by or 2-by) or metal deck without a concrete topping slab.
- f) Historical Building is any building designated, or currently in the process of being designated, as a "qualified historical building" as defined in Part 8, Title 24 of the California Code of Regulations.

- g) Owner or Building Owner is the individual(s), agent, firm, corporation, or entity having legal possession, equitable interest in the property, or rights to sanction evaluation or Retrofit of a building.
- h) Retrofit is an improvement of the lateral force resisting system by alteration of existing structural elements or addition of new structural elements.
- i) Rigid-Wall-Flexible-Diaphragm is an existing building that contains reinforced concrete and/or reinforced masonry walls with flexible diaphragms.
- j) Seismic Design Guidelines are framework guidelines developed by the Building Official which are intended to calibrate, delineate, and detail technical requirements to be used for the retrofitting of buildings subject to this Chapter.
- k) Strut is a member or group of members continuous across a subdiaphragm that transfers out-of-plane wall anchorage forces into the subdiaphragm.
- l) Wall Anchorage System The components comprising a complete load path for out-of-plane wall forces from the wall to the main diaphragm, typically including anchors embedded in or fastened to the wall; rods, straps, hold-downs or other hardware; subdiaphragms and their chords; crossties; struts; and continuity connectors.
- m) Wall Segment is any length of structural wall with continuous horizontal reinforcing and not interrupted or intersected by a pilaster or vertical construction joint.

#### **815.2.040 COMPLIANCE REQUIREMENTS.**

The Owner of each building within the Scope of this Chapter shall cause an investigation of the existing construction and a structural analysis to be performed on the building by a Licensed Design Professional in the State of California. If the building does not meet the minimum standards specified in this Chapter, the Owner shall cause it to be structurally altered to conform to such standards.

Each building within the scope of this Chapter which has been analyzed to demonstrate compliance or has been structurally altered to comply with the minimum standards in this Chapter shall be maintained in conformity with the requirements of this Chapter in effect at the time of such analysis or structural alteration.

Notwithstanding any other provisions of this Chapter to the contrary, a building that is found to be within the scope of this Chapter and is not brought into compliance in the time frame indicated in Table A, may be declared unsafe and subject to the requirements of Section 116 of the Building Code.

#### **815.2.050 TIME PERIOD FOR COMPLIANCE/PRIORITY DESIGNATION.**

- a) Screening Report. Within the time limits allowed in Table A, the Owner of any building subject to the provisions of this Chapter shall submit a screening report to the Building and Safety Division. The report shall demonstrate whether the structure conforms to the earthquake design provisions contained

in this Chapter. Minimum form requirements shall be as specified by the Building Official.

- b) Plan, Permits, and Construction. If the screening report concludes the structure does not comply with the provisions of this Chapter, the structure shall be strengthened to comply with the standards of this Chapter within the time periods shown in Table A. Minimum plan requirements shall be as specified by the Building Official.

**TABLE A**  
**TIME PERIOD FOR COMPLIANCE**

Required Action by Owner	Submit Screening Report	Submit Retrofit Plans	Obtain Permit	Commence Construction	Complete Construction
Milestone	1 Year from notice to the Owner	2 Years from notice to the Owner	3 Years from notice to the Owner	4 Years from notice to the Owner	5 Years from notice to the Owner

- c) Priority Designations. The Building Official shall prioritize enforcement of this Chapter as defined in Table B.

**TABLE B**  
**PRIORITY DESIGNATION**

Priority	Description
Priority I	Buildings permitted prior to 1980 and containing more than 20,000 square feet.
Priority II	Buildings permitted prior to 1998 and containing more than 15,000 square feet.
Priority III	Buildings not falling within the definition of Priority I or II

#### **815.2.060 ADMINISTRATION.**

- a) Issuance of Order. The Building Official shall, in accordance with the priorities set forth in Table B, issue an order as provided in this Section to the Owner of each building that is expected to be within the scope of this Chapter.
- b) Contents of Order. The order shall be in writing and shall be served by certified or registered mail to the Owner as shown on the last equalized Los Angeles County assessment roll of the building. The order shall specify that the building has been determined by the Building Official to be within the scope of this Chapter and, therefore, is required to meet the standards of this Chapter.
- c) Service of Order. Proper service of a notice shall be by certified or registered mail. It shall be deemed a reasonable effort has been made to serve such notice when

certified or registered letters have been mailed to the address of the interested party as shown on the official record. The designated period within which the Owner or person in charge is required to comply with such notice shall begin as of the date the Owner or person in charge receives such notice by personal service or registered mail.

- d) Failure to Receive Order. Failure of any Owner, party concerned, or other person to receive such notice shall not affect the validity of any proceedings taken thereunder.
- e) Appeal from Order. The owner of any building may appeal any decision or order issued by the Building Official or his designee pursuant to this Chapter, including, but not limited to, the initial determination that a building is within the scope of the City of Torrance Seismic Retrofit Laws or the conclusion that a building must be retrofitted, to the City Manager or their designee. Any such appeal shall be filed with the City Manager within 30 days of the date of the Building Official's or their designee's order or decision. Any such appeal shall be decided by the City Manager no later than ninety days after filing. The filing of an appeal would stay the underlying order or decision and the associated time limits. Should the appeal be denied by the City Manager or their designee, the initial time limits shall be restored, unless the City Manager or their designee, authorizes alternate time limits. The City Manager's or their designee's decision shall be final except for judicial review.
- f) Extensions. The Building Owner may request an extension to the time period for compliance set forth in Table A of Section 815.2.5. An application for extension may only be filed after the Owner has submitted a Screening Report to the City and the Retrofit Plans have been approved by the City. The Building Owner has the burden of proof to establish with substantial evidence that good cause for the extension exists. The Building Owner must also provide a new proposed schedule for compliance, and plan to comply with the provisions of this Chapter during that timeframe. Upon good cause shown, the Building Official may approve, approve with modifications, or deny a request for an extension, commensurate with the justification for the extension.
- g) Recordation. Once a building that was determined to be within the scope of this Article has failed to comply with the requirements of this Chapter within the time limits provided in Table A, the Building Official shall record in the office of the Los Angeles County recorder a certificate stating that the subject building is within the scope of this Article and requires seismic retrofit. The Certificate shall also state that the Owner thereof has been notified of the need to retrofit the building. Once the building has been retrofitted to comply with this Chapter, the Building Official shall record a Certificate indicating that the subject building is no longer in violation of this Chapter.
- h) The Building Official may promulgate implementing regulations and policies consistent with this Chapter.

#### **815.2.070 OCCUPANCY AND TENANT ADVISORY.**

Notification to Tenants and Occupants. The Owner shall notify in writing all current and prospective residential and non-residential tenants, subtenants, lessees, sublessees, or any other person(s) entitled to the use and/or occupancy of the building of a proposed



project submitted pursuant to this Chapter. The notice shall include the information for the project, as determined by the City, including the scope of work, expected duration, and contact information for a representative of the contractor. The form of notice shall be supplied by the Community Development Department and Building and Safety Division.

### **815.2.080 HISTORICAL BUILDINGS.**

Historical Buildings shall comply with the California Historical Building Code and the provisions of this Chapter. Modifications to the standards set forth in this Chapter may be permitted when such modifications are consistent with the provision of the California Historical Building Code. Such modifications shall be clearly specified in the screening report.

### **815.2.090 ENGINEERING ANALYSIS AND DESIGN.**

- a) Wall Anchorage System for Rigid-Wall-Flexible-Diaphragm buildings shall be evaluated or strengthened in accordance with ASCE 7. The anchorage shall provide a direct connection capable of resisting 75% of the forces specified in ASCE 7 and the Seismic Design Guidelines.

Exceptions:

- (1) Existing walls need not be evaluated or retrofitted for bending between anchors.
- (2) Work required by this chapter need not consider shrinkage, thermal changes, or differential settlement.

As an alternate, Wall Anchorage System for Rigid-Wall-Flexible-Diaphragm buildings shall be evaluated or strengthened in accordance with ASCE 41 and the Seismic Design Guidelines for seismic performance levels and hazards, indicated in Table C.

TABLE C: ASCE 41 Criteria

<b>Risk Category</b>	<b>Hazard</b>	<b>Structural Performance Level</b>
I and II	BSE-2E	Collapse Prevention (S-5)
III	BSE-2E	Limited Safety (S-4)
IV	BSE-1E	Immediate Occupancy (S-1)
	BSE-2E	Life Safety (S-3)

ASCE 41 and ASCE 7 criteria shall not be mixed.

- b) Geologic site hazards. Mitigation of existing geologic site hazards such as liquefiable soil, fault rupture or landslide is not required for compliance with this chapter.
- c) Additional requirements for wall anchorage systems. Requirements for wall anchorage systems, including but not limited to minimum spacing and combination of anchor types, shall be provided as specified by ASCE 7, or ASCE 41, and the Seismic Design Guidelines.

- d) Development of anchor forces into the diaphragm. Development of the required anchorage forces into roof and floor diaphragms shall be provided as specified by ASCE 7, or ASCE 41, and the Seismic Design Guidelines.
- e) Anchorage at pilasters. If pilasters are present, their anchorage shall comply with the requirements of ASCE 7, or ASCE 41, and the Seismic Design Guidelines.
- f) Anchorage at interior walls. Existing interior reinforced concrete or reinforced masonry walls that extend to the floor above or to the roof diaphragm shall be anchored for out-of-plane forces per ASCE 7, or ASCE 41, and the Seismic Design Guidelines.
- g) Mezzanines. Existing mezzanines relying on reinforced concrete or reinforced masonry walls for vertical or lateral support shall be anchored to the walls for the tributary mezzanine load.

Exception: Existing mezzanines that have independent lateral and vertical support need not be anchored to the walls.

### **815.2.100 MATERIALS OF CONSTRUCTION**

Materials permitted by the building code, including their appropriate strength or allowable stresses, shall be used to meet the requirements of this chapter.

### **815.2.110 INFORMATION REQUIRED ON PLANS.**

- a) General. The plans and specifications required by the Building Official shall be of sufficient clarity to indicate the nature, design methodology, and extent of the proposed work and to show in detail that it will conform to the provisions of this Chapter and the Building Code.
- b) Licensed Design Professional Statement. The responsible Licensed Design Professional shall provide the following statements on the approved plans:
  - “I am responsible for designing this building’s seismic strengthening in compliance with the minimum standards of the Mandatory Seismic Strengthening Provisions for Wall Anchorage System of Existing Rigid-Wall-Flexible-Diaphragm buildings (Division 8, Chapter 15, Article 2 of the Torrance Municipal Code).”
- c) Owner or Owner’s Representative Statement. Unless the entire building has been retrofitted to meet the full intent of the current Building Code, the Owner shall provide and sign the following statement on the cover of the drawings:
  - “I \_\_\_\_\_ understand the seismic evaluation and strengthening performed under this project is limited to that specified in the Mandatory Seismic Strengthening Provisions for Wall Anchorage System of Existing Rigid-Wall-Flexible-Diaphragm buildings (Division 8, Chapter 15, Article 2 of the Torrance Municipal Code) which is intended to reduce the risk under a seismic event. I understand the full building has not been evaluated nor

strengthened for other potential structural deficiencies that may cause a life safety concern, injury, or property damage risk under a seismic event.”

- d) Quality Control and Assurance Requirements. General notes shall show the requirements for material testing, special inspection, structural observation, and the proper installation of newly added materials.

#### **815.2.120 QUALITY ASSURANCE, OBSERVATION, INSPECTION, AND TESTING.**

- a) Structural Observation. Structural observation, in accordance with the *Building Code* is required, regardless of seismic design category, height or other conditions. Structural observation shall include visual observation of work for conformance to the *approved* construction documents and confirmation of existing conditions assumed during design.
- b) Additional Special Inspection. In addition to the requirements of the *Building Code*, special inspection shall be provided as specified by the Seismic Design Guidelines.
- c) Testing to Establish Adequacy of Existing Wall Anchors. Testing shall show that the existing anchors can sustain test loads as specified by the Seismic Design Guidelines.
- d) Testing and Inspection. Structural testing and inspection for new construction materials, submittals, reports, and certificates of compliance shall be in accordance with *Building Code* and the Seismic Design Guidelines.

#### **815.2.130 VIOLATION/PENALTY.**

- a) Violation. Notwithstanding any other provisions of this code to the contrary, it shall be unlawful for any person, firm or corporation, to own, use, occupy, or maintain any building or structure or portion thereof, or cause the same to be done, contrary to, or in violation of, any of the provisions of this code.
- b) Penalty:
- (1) Any person who violates any provision of this Article is guilty of a misdemeanor unless the violation is cited or charged by the City or the City Attorney and/or reduced to an infraction.
  - (2) Each such person charged with a misdemeanor shall be guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than \$1,000, (one thousand dollars) or by imprisonment for not more than six months, or by both such fine and imprisonment. The provisions of this section are in addition to and independent of any other sanctions, penalties, or costs which are or may be imposed for a violation of any of the provisions of this code;

- (3) Any violations of this Article may result in civil, criminal and/or administrative enforcement actions

c) Recordation of Violation.

- (1) General. The Building Official may record a notice with the County Recorder's Office that a property, building, or structure, or any part thereof, is in violation of any provision of this code provided that the provisions of this section are complied with. The remedy provided by this section is cumulative to any other enforcement actions permitted by this code.
- (2) Recordation. If (A) the Building Official determines that any property, building, or structure, or any part thereof, is in violation of any provision of this Chapter; and if (B) the Building Official gives written notice as specified below of said violation; then the Building Official may have sole discretion to, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this Chapter.
- (3) Notice. The written notice given pursuant to this Section shall indicate:
- a) The nature of the violations(s); and
  - b) That if the violation is not remedied to the satisfaction of the Building Official, the Building Official may, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this code. The notice shall be posted on the property and shall be mailed to the Owner of the property as indicated on the last equalized County Assessment roll. The mailed notice may be by certified, registered, or first-class mail.
- (4) Rescission. Any person who desires to have recorded a notice rescinding the notice of violation must first obtain the necessary approvals and permit(s) to correct the violation. Once the Building Official determines that the work covered by such permit(s) has been satisfactorily completed, the Building Official may record a notice rescinding the prior notice of violation.

Following the recordation of the notice of violation, the Building Official is not required to make any inspection or review of the premises to determine the continued existence of the cited violation. It is the responsibility of the property Owner, occupant, or other similarly interested private party to comply with the above provisions.

- d) Costs. Any person that has violated any provision of this Chapter shall be responsible for the costs of any and all Code Enforcement actions taken by the Building Official in response to such violations. These

costs shall be based on the amounts specified by the current fee schedule.

#### **811.5.140 APPLICABILITY.**

- a) Internal Conflict. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different Sections of this code specify different materials, methods of construction, or other requirements, the most restrictive shall govern.
- b) Other Laws. The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law.
- c) Codes and References. The provisions of the codes and standards referenced in this Chapter shall be considered part of the requirements of this Chapter to the prescribed extent of each such reference. Where there are conflicts between the provisions of this Chapter and the provisions of any referenced code or standard, the provisions of this Chapter shall apply.

### **ARTICLE 3: MANDATORY SEISMIC STRENGTHENING PROVISIONS FOR NON-DUCTILE CONCRETE STRUCTURES.**

#### **815.3.010 PURPOSE.**

The provisions of this Chapter are intended to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on older existing concrete buildings. In past earthquakes many of these types of structures have performed poorly and collapsed causing loss of life, personal injury, and substantial property damage. The poor performance of older concrete buildings is well documented and typically attributed to the non-ductile detailing of structural elements that render the building incapable of sustaining gravity loads when the building is subjected to earthquake-induced lateral displacements.

This Chapter creates minimum standards intended to improve the performance of these buildings during earthquakes and reduce, but not necessarily prevent, the loss of life, injury, or damage to property. The requirement for compliance with these standards does not preclude the utilization, at the Building Owner's option, of a more extensive strengthening method that might further prevent or limit loss of life, injury, or building damage.

#### **815.3.020 SCOPE AND APPLICABILITY.**

The provisions of this Chapter shall apply to any existing Concrete Building determined by the Building Official to have been built under building code standards enacted before the 1979 Uniform Building Code with local amendments adopted on April 28<sup>th</sup>, 1981.

#### **EXCEPTIONS:**

This Chapter shall not apply to the following structure types:

- (1) Concrete shear wall structures with flexible diaphragms.

- (2) Single story structures, unless the lateral system contains concrete moment frame elements.
- (3) Wood structures over concrete podium unless the podium contains a Major Deficiency as specified in section 815.3.5.a.
- (4) Buildings with a steel lateral resisting system encased in concrete.

Notwithstanding any provision of the Building Code, compliance with this Chapter shall not require existing electrical, plumbing, mechanical or fire-safety systems to be altered to comply with existing code unless they constitute a hazard to life or property as determined by Building Official.

### **815.3.030 DEFINITIONS.**

Notwithstanding the applicable definitions, symbols and notations in the Building Code, the following definitions shall apply for the purposes of this Chapter:

- a) Building Code is the current Building Code of the City of Torrance.
- b) Captive Column Deficiency occurs when there are columns at a level with height/depth ratios less than 50% of the nominal height/depth ratio of the typical columns at the level.
- c) Concrete Building is a building having concrete floors and/or roofs, either with or without beams, and a lateral resisting system composed of concrete walls and/or concrete frames with or without masonry infills, or any combination thereof . Lift-slab buildings shall be considered as part of the concrete buildings with or without a concrete lateral resisting system.
- d) Owner or Building Owner is the individual(s), agent, firm, corporation, or entity having legal possession, equitable interest in the property, or rights to sanction evaluation or retrofit of a building.
- e) Historical Building is any building designated, or currently in the process of being designated, as a "qualified historical building" as defined in Part 8, Title 24 of the California Code of Regulations.
- f) Load Path Deficiency occurs when a structure does not contain a complete, well defined lateral load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.
- g) Masonry Infill is the unreinforced or reinforced masonry wall construction within a reinforced concrete frame.
- h) Owner of Building Owner is the individual(s), agent, firm, corporation, or entity having legal possession, equitable interest in the property, or rights to sanction evaluation or Retrofit of a building.

- i) Retrofit is an improvement of the lateral force resisting system by alteration of existing structural elements or addition of new structural elements.
- j) Soft Story Deficiency occurs when the stiffness of the seismic-force-resisting system in any Story is less than 70% of the seismic-force-resisting system in an adjacent Story above or less than 80% of the average seismic-force system stiffness of the three stories above.
- k) Story is as defined in the Building Code, but includes any basement or underfloor space of a building with cripple walls exceeding four feet in height.
- l) Story Strength is the total strength of all seismic-resisting elements sharing the same story shear in the direction under consideration.
- m) Torsion Deficiency occurs when the estimated distance between the Story center of mass and the Story center of rigidity is more than 20% of the building width in either plan dimension.
- n) Vertical Irregularity Deficiency exists when one or more vertical elements in the seismic-force-resisting system are not continuous to the foundation.
- o) Weak Story Deficiency occurs when the sum of the shear strengths of the seismic-force-resisting system in any Story in each direction is less than 80% of the strength in the adjacent Story above.

#### **815.3.040 COMPLIANCE REQUIREMENTS.**

The Owner of each building within the scope of this Chapter shall cause an investigation of the existing construction and a structural analysis to be performed on the building by a Licensed Design Professional in the State of California. If the building does not meet the minimum standards specified in this Chapter, the Owner shall cause it to be structurally altered to conform to such standards.

Each building within the scope of this Chapter, which has been analyzed to demonstrate compliance or structurally altered to comply with the minimum standards in this Chapter, shall be maintained in conformity with the requirements of this Chapter, in effect at the time of such analysis or structural alteration.

Notwithstanding any other provisions of this Code to the contrary, a building that is found to be within the scope of this Chapter and is not brought into compliance in the time frame indicated in Table A, may be declared unsafe and subject to the requirements of Section 116 of the Building Code.

#### **815.3.050 TIME PERIOD FOR COMPLIANCE/PRIORITY DESIGNATION.**

- a) Retrofit Phases. The Owner of any building subject to the provisions of this Chapter shall meet the requirements as specified in the following two Phases:

Phase 1: Engineering Report and Major Deficiency Mitigation. The Owner shall submit an engineering report to the Building Official demonstrating whether the structure conforms to the design provisions contained in this Chapter and identify all structural deficiencies in accordance with ASCE 41. Minimum report requirements shall be as specified by the Building Official. Buildings identified to have any of the Major Deficiencies listed below shall be required to Retrofit the building in such a way to mitigate the identified Major Deficiency within the time limits allowed in Table A. Alternatively, the engineering report may show that the Major Deficiencies meet the requirements of ASCE 41 through advanced analysis.

Major Deficiencies:

1. Load Path
2. Weak or Soft Story
3. Vertical Irregularity
4. Torsion
5. Captive Column

Alterations made to the structure to mitigate the Major Deficiencies listed above shall not impact existing lateral load elements by increasing any demand-to-capacity ratio by more than 10 percent unless the existing elements are shown to be capable of resisting the increased demand. In addition, the mitigation of the Major Deficiencies shall not create additional deficiencies or make the existing deficiencies more severe.

Phase 2: Complete Retrofit. The Owner shall complete the Retrofit of the structure to meet the requirements specified in Section 815.3.9 and mitigate all remaining deficiencies within the time limits allowed in Table A.

TABLE A  
TIME PERIOD FOR COMPLIANCE

	Phase 1: Engineering Report & Major Deficiency Mitigation <sup>1, 2</sup>				Phase 2: Complete Retrofit <sup>4</sup>		
Phase	Submit Engineering Report & Determine All Structural Deficiencies	Submit Retrofit Plans for Major Deficiency Mitigation	Obtain Building Permit & Commence Construction	Complete Major Deficiency Mitigation Construction <sup>3</sup>	Submit Retrofit Plans	Obtain Building Permit & Commence Construction	Complete Construction
Milestone	3 Years from notice to the Owner	5 Years from notice to the Owner	7 Years from notice to the Owner	10 Years from notice to the Owner	13 Years from notice to the Owner	15 Years from notice to the Owner	20 Years from notice to the Owner



- 1) All buildings within the scope of this Chapter are required to submit an engineering report & determine all structural deficiencies. Buildings that do not contain any of the Major Deficiencies as defined in this Chapter are not required to submit Retrofit plans for Major Deficiency mitigation, commence construction, and complete construction in Phase 1, but shall provide Retrofit plans and complete construction within the time limits provided in Phase 2.
- 2) Phase 1 Retrofit plans must indicate preliminary Phase 2 Retrofit extents. Minimum Phase 2 scoping requirements shall be as specified by the Building Official.
- 3) Completion of Phase 1 may be extended by 3 years if retrofit plans in accordance with the scope of Phase 2 are designed, approved, permitted, and constructed within Phase 1.
- 4) The Building Code version governing Phase 1 shall be permitted to be utilized in Phase 2.

b) Priority Designations. The Department shall prioritize its enforcement of this Chapter as defined in Table B.

TABLE B  
PRIORITY DESIGNATION

Priority	Description
Priority I.	Buildings with 8 or more stories
Priority II.	Buildings with 3 to 7 stories
Priority III.	Buildings with 2 or less Stories

**815.3.060 ADMINISTRATION.**

- a) Issuance of Order. The Building Official shall, in accordance with the priorities set forth in Table B, issue an order as provided in this Section to the Owner of each building that is expected to be within the scope of this Chapter.
- b) Contents of Order. The order shall be in writing and shall be served by certified or registered mail to the Owner as shown on the last equalized Los Angeles County assessment roll of the building. The order shall specify that the building has been determined by the Building Official to be within the scope of this Chapter and, therefore, is required to meet the standards of this Chapter.
- c) Service of Order. Proper service of a notice shall be by registered or certified mail. It shall be deemed a reasonable effort has been made to serve such notice when registered or certified letters have been mailed to the address of the interested party as shown on the official record. The designated period within which the Owner or person in charge is required to comply with such notice shall begin as of the date the Owner or person in charge receives such notice by personal service or certified mail.
- d) Failure to Receive Order. Failure of any Owner, party concerned or other person to receive such notice shall not affect the validity of any proceedings taken thereunder.

- e) Appeal from Order. The owner of any building may appeal any decision or order issued by the Building Official or his designee pursuant to this Chapter, including, but not limited to, the initial determination that a building is within the scope of the City of Torrance Seismic Retrofit Laws or the conclusion that a building must be retrofitted, to the City Manager or their designee. Any such appeal shall be filed with the City Manager within 30 days of the date of the Building Official's or their designee's order or decision. Any such appeal shall be decided by the City Manager no later than ninety days after filing. The filing of an appeal would stay the underlying order or decision and the associated time limits. Should the appeal be denied by the City Manager or their designee, the initial time limits shall be restored, unless the City Manager or their designee, authorizes alternate time limits. The City Manager's or their designee's decision shall be final except for judicial review.
- f) Extensions. The Building owner may request an extension to the time period for compliance set forth in Table A of section 815.3.5. An application for extension may only be filed after the Owner has submitted an Engineering Report to the City with a determination of all deficiencies and the Retrofit Plans for major deficiency mitigation have been approved by the City. The Building Owner has the burden of proof to establish with substantial evidence that good cause for the extension exists. The Building Owner must also provide a new proposed schedule for compliance, and plan to comply with the provisions of this chapter during that timeframe. Upon good cause shown, the Building Official may approve, approve with modifications, or deny a request for an extension, commensurate with the justification for the extension.
- g) Recordation. Once a building that was determined to be within the scope of this Article has failed to comply with the requirements of this Chapter within the time limits provided in Table A, the Building Official shall record in the office of the Los Angeles County recorder a certificate stating that the subject building is within the scope of this Article and requires seismic retrofit. The Certificate shall also state that the Owner thereof has been notified of the need to retrofit the building. Once the building has been retrofitted to comply with this Chapter, the Building Official shall record a Certificate indicating that the subject building no longer is in violation of this Chapter.
- h) The Building Official may promulgate implementing regulations and policies consistent with this Chapter.

### **815.3.070 OCCUPANCY AND TENANT ADVISORY.**

Notification to Tenants and Occupants. The Owner shall notify in writing all current and prospective residential and non-residential tenants, subtenants, lessees, sublessees, or any other person(s) entitled to the use and/or occupancy of the building of a proposed project submitted pursuant to this Chapter. The notice shall include the information for the project, as determined by the City, including the scope of work, expected duration, and contact information for a representative of the contractor. The form of notice shall be supplied by the Community Development Department and Building Safety Division.

**815.3.080 HISTORICAL BUILDINGS.**

Historical Buildings shall comply with the California Historical Building Code and the provisions of this Chapter. Modifications to the standards set forth in this Chapter may be permitted when such modifications are consistent with the provision of the California Historical Building Code. Such modifications shall be clearly specified in the engineering report and Retrofit drawings.

**815.3.090 ENGINEERING ANALYSIS AND DESIGN**

- a) Scope of Analysis. This Chapter requires the evaluation, alteration, repair, replacement or addition of structural elements and their connections to meet the requirements of this section.
- b) Building Structural Analysis, Design and Evaluation. The building shall meet or exceed the structural performance level for the associate earthquake hazard levels as indicated in Table C based on the Risk Category as defined in ASCE 41:

Table C  
Seismic Performance Requirements by Risk Category

Risk Category	Hazard Level 1	Hazard Level 2
I & II	BSE-1E, S-3	BSE-2E, S-5
III & IV	BSE-1E, S-2	BSE-2E, S-5

- c) Material Testing and Condition Assessment. The engineer shall conduct material testing and condition assessment on the existing structure as specified by the Building Official.
- d) Alternate Analysis, Base Shear and Design Parameters. The Building Official may approve alternate design methodologies that meet the same performance intent as those prescribed by the Chapter and that achieve the objectives established by the Chapter. Design criteria shall be submitted to the Building Official for review and approval prior to submission of plans.

**815.3.100 INFORMATION REQUIRED ON PLANS.**

- a) General. In addition to administrative items, the plans and specifications required by the Building Official shall be of sufficient clarity to indicate the nature, design methodology, and extent of the proposed work and to show in detail that it will conform to the provisions of this Chapter and the Building Code.
- b) Phase 1 Licensed Design Professional Statement. Where engineering plans are required, the responsible Licensed Design Professional shall provide the following statements on the approved plans:

“I am responsible for designing this building’s Phase 1 seismic strengthening in compliance with the minimum standards of the Mandatory

Seismic Strengthening Provisions for non-Ductile Concrete structures  
(Division 8, Chapter 15, Article 3 of the Torrance Municipal Code).”

- c) Phase 2 Licensed Design Professional Statement. The responsible Licensed Design Professional shall provide the following statements on the approved plans:
- “I am responsible for designing this building’s Phase 2 seismic strengthening in compliance with the minimum standards of the Mandatory Seismic Strengthening Provisions for non-Ductile Concrete structures (Division 8, Chapter 15, Article 3 of the Torrance Municipal Code).”
- d) Phase 1 Owner or Owner’s Representative Statement. Unless the entire building has been retrofitted to meet the full intent of the current building code, the Owner shall provide and sign the following statement on the cover of the drawings:
- “I ----- understand the seismic evaluation and strengthening performed under this project is limited to a Deficiency only Mitigation under the Phase 1 requirements of the Mandatory Seismic Strengthening Provisions for non-Ductile Concrete structures (Division 8, Chapter 15, Article 3 of the Torrance Municipal Code) which is intended to limit the risk under a seismic event. I understand the full building has not been strengthened for other potential structural deficiencies that may cause a life safety concern, injury, or property damage risk under a seismic event.”
- e) Phase 2 Owner or Owner’s Representative Statement. The Owner shall provide and sign the following statement on the cover of the drawings:
- “I ----- understand the seismic evaluation and strengthening performed under this project is in conformance with the Mandatory Seismic Strengthening Provisions for non-Ductile Concrete structures (Division 8, Chapter 15, Article 3 of the Torrance Municipal Code) which is intended to limit the risk under a seismic event.”
- f) Quality Control and Assurance Requirements. General notes shall show the requirements for material testing, special inspection, structural observation, and the proper installation of newly added materials.

**815.3.110 QUALITY ASSURANCE.**

- a) Structural Observation. All structures regulated by this Chapter require structural observation during construction. The Owner shall employ the Engineer of Record responsible for the structural design, or another registered Engineer designated by the Engineer of Record to perform structural observation as defined in the Building Code.
- b) Special Inspection. Special inspections shall be provided as required by the Building Code. Additional inspections shall be noted on drawings as required by Building Official.

**815.3.120 VIOLATION/PENALTY.**

- a) Violation. Notwithstanding any other provisions of this Code to the contrary, it shall be unlawful for any person, firm or corporation, to own, use, occupy or maintain any building or structure or portion thereof, in the unincorporated portion of the County, or cause the same to be done, contrary to, or in violation of, any of the provisions of this Code.
- b) Penalty:
- (1) Any person who violates any provision of this Article is guilty of a misdemeanor unless the violation is cited or charged by the City or the City Attorney and/or reduced to an infraction.
  - (2) Each such person charged with a misdemeanor shall be guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than \$1,000, (one thousand dollars) or by imprisonment for not more than six months, or by both such fine and imprisonment. The provisions of this section are in addition to and independent of any other sanctions, penalties, or costs which are or may be imposed for a violation of any of the provisions of this code;
  - (3) Any violations of this Article may result in civil, criminal and/or administrative enforcement actions
- c) Recordation of violation.
- (1) General. The Building Official may record a notice with the County Recorder's Office that a property, building or structure, or any part thereof, is in violation of any provision of this Code provided that the provisions of this section are complied with. The remedy provided by this section is cumulative to any other enforcement actions permitted by this Code.
  - (2) Recordation. If (A) the Building Official determines that any property, building, or structure, or any part thereof is in violation of any provision of this Code; and if (B) the Building Official gives written notice as specified below of said violation; then the Building Official may have sole discretion to, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this Code.
  - (3) Notice. The written notice given pursuant to this Section shall indicate:
    - a) The nature of the violation(s); and
    - b) That if the violation is not remedied to the satisfaction of the Building Official, the Building Official may, at any time thereafter, record with the County Recorder's Office a notice that the

property and/or any building or structure located thereon is in violation of this Code. The notice shall be posted on the property and shall be mailed to the owner of the property as indicated on the last equalized County Assessment roll. The mailed notice may be by registered, certified, or first-class mail.

- (4) Rescission. Any person who desires to have recorded a notice rescinding the notice of violation must first obtain the necessary approvals and permit(s) to correct the violation. Once the Building Official determines that the work covered by such permit(s) has been satisfactorily completed, the Building Official may record a notice rescinding the prior notice of violation.

Following the recordation of the notice of violation the Building Official is not required to make any inspection or review of the premises to determine the continued existence of the cited violation. It is the responsibility of the property owner, occupant or other similarly interested private party to comply with the above provisions.

- d) Costs. Any person that has violated any provision of this Code shall be responsible for the costs of any and all Code Enforcement actions taken by the Building Official in response to such violations. These costs shall be based on the amounts specified by the current fee schedule.

### **815.3.130 APPLICABILITY**

- a) Internal conflict. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different Sections of this Code specify different materials, methods of construction, or other requirements, the most restrictive shall govern.
- b) Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law.
- c) Codes and references. The provisions of the codes and standards referenced in this Code shall be considered part of the requirements of this Code to the prescribed extent of each such reference. Where there are conflicts between the provisions of this Code and the provisions of any referenced code or standard, the provisions of this Code shall apply.

## **ARTICLE 4 MANDATORY SEISMIC STRENGTHENING PROVISIONS FOR PRE-NORTHRIDGE STEEL MOMENT FRAME BUILDINGS.**

### **815.4.010 PURPOSE.**

The provisions of this Chapter are intended to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on existing Pre-Northridge Steel Moment Frame Buildings. In past earthquakes many of these types of structures have performed poorly and collapsed causing loss of life, personal injury, and substantial property damage. The poor performance of these

buildings is well documented and typically attributed to deficiencies in the lateral force resisting system beam-column connections that render the building incapable of performing as intended when subject to large Earthquake ground motions.

This Chapter creates minimum standards intended to reduce the risk of collapse and improve the performance of these buildings during earthquakes and reduce, but not necessarily prevent, the loss of life, injury or damage to property. The requirement for compliance with these standards does not preclude the utilization, at the Building Owner's option, of more extensive strengthening method that might further prevent or limit loss of life or injury or building damage.

#### **815.4.020 SCOPE AND APPLICABILITY.**

- a) The provisions of this Chapter shall apply to all existing buildings utilizing a Steel Moment Frames that are determined by the Building Official to have been built under building code standards enacted before the 1997 Uniform Building Code with local amendments adopted on June 1, 1999.

Exceptions:

- (1) Unreinforced Masonry Buildings previously strengthened with Steel Moment Frames.
- (2) Single and Multi-Family Residential Wood-Framed Buildings utilizing Steel Moment Frames.

Notwithstanding any provision of the Building Code, compliance with this Chapter shall not require existing electrical, plumbing, mechanical or fire-safety systems to be altered to comply with existing code unless they constitute a hazard to life or property as determined by the Building Official.

#### **815.4.030 DEFINITIONS.**

Notwithstanding the applicable definitions, symbols and notations in the Building Code, the following definitions shall apply for the purposes of this Chapter:

- a) Building Code is the current Building Code of the City of Torrance.
- b) Historical Building is any building designated, or currently in the process of being designated, as a "qualified historical building" as defined in Part 8, Title 24 of the California Code of Regulations.
- c) Load Path Deficiency occurs when a structure does not contain a complete, well defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.
- d) Owner or Building Owner is the individual(s), agent, firm, corporation, or entity having legal possession, equitable interest in the property, or rights to sanction evaluation or retrofit of a building.

- e) Retrofit is an improvement of the lateral force resisting system by alteration of existing structural elements or addition of new structural elements.
- f) Soft Story Deficiency occurs when the stiffness of the seismic-force-resisting system in any Story is less than 70% of the seismic-force-resisting system in an adjacent Story above or less than 80% of the average seismic-force system stiffness of the three stories above.
- g) Steel Moment Frame is a frame capable of resisting horizontal forces caused by the steel members (beams and column) and joints resisting forces primarily by flexure.
- h) Story is as defined in the Building Code, but includes any basement or underfloor space of a building with cripple walls exceeding four feet in height.
- i) Torsion Deficiency occurs when the estimated distance between the Story center of mass and the Story center of rigidity is more than 20% of the building width in either plan dimension.
- j) Vertical Irregularity Deficiency exists when one or more vertical elements in the seismic-force-resisting system are not continuous to the foundation.
- k) Weak Story Deficiency occurs when the sum of the shear strengths of the seismic-force-resisting system in any Story in each direction is less than 80% of the strength in the adjacent Story above.

#### **815.4.040 COMPLIANCE REQUIREMENTS.**

The Owner of each building within the scope of this Chapter shall cause an investigation of the existing construction and a structural analysis to be performed on the building by a Licensed Design Professional in the State of California. If the building does not meet the minimum standards specified in this Chapter, the Owner shall cause it to be structurally altered to conform to such standards.

Each building within the scope of this Chapter, which has been analyzed to demonstrate compliance or has been structurally altered to comply with the minimum earthquake standards in this Chapter, shall be maintained in conformity with the requirements of this Chapter in effect at the time of such analysis or structural alteration.

Notwithstanding any other provisions of this Chapter to the contrary, a building that is found to be within the scope of this Chapter and is not brought into compliance with this Chapter in the time frame indicated in Table A, shall be declared unsafe and subject to the requirements of Section 116 of the California Building Code.

#### **815.4.050 TIME PERIOD FOR COMPLIANCE/PRIORITY DESIGNATION.**

- a) Retrofit Phases. The Owner of any building subject to the provisions of this Chapter shall meet the requirements as specified in the following two Phases:



Phase 1: Engineering Report and Major Deficiency Mitigation. The Owner shall submit an engineering report to the Building Official whether the structure conforms to the design provisions contained in this Chapter and identify all structural deficiencies in accordance with ASCE 41. Minimum report requirements shall be as specified by the Building Official. Buildings identified to have any of the Major Deficiencies listed below shall be required to Retrofit the building in such a way to mitigate the identified Major Deficiency within the time limits allowed in Table A. Alternatively, the engineering report may show that the Major Deficiencies meet the requirements of ASCE 41 through advanced analysis.

Major Deficiencies:

1. Load Path
2. Weak or Soft Story
3. Vertical Irregularity
4. Torsion

Alterations made to the structure to mitigate the Major Deficiencies listed above shall not impact existing lateral load elements by increasing any demand-to-capacity ratio by more than 10 percent unless the existing elements are shown to be capable of resisting the increased demand. In addition, the mitigation of the Major Deficiencies shall not create additional deficiencies or make the existing deficiencies more severe.

Phase 2: Complete Retrofit. The Owner shall complete the Retrofit of the structure to meet the requirements specified in Section 815.4.9 and mitigate all remaining deficiencies within the time limits allowed in Table A.

TABLE A  
TIME PERIOD FOR COMPLIANCE

	Phase 1: Engineering Report & Major Deficiency Mitigation <sup>1, 2</sup>				Phase 2: Complete Retrofit <sup>4</sup>		
Phase	Submit Engineering Report & Determine All Deficiencies	Submit Retrofit Plans for Major Deficiency Mitigation	Obtain Building Permit & Commence Construction	Complete Major Deficiency Mitigation Construction <sup>3</sup>	Submit Retrofit Plans	Obtain Building Permit & Commence Construction	Complete Construction
Milestone	3 Years from notice to the Owner	5 Years from notice to the Owner	7 Years from notice to the Owner	10 Years from notice to the Owner	13 Years from notice to the Owner	15 Years from notice to the Owner	20 Years from notice to the Owner

1) All buildings within the scope of this Chapter are required to submit an engineering report & determine all structural deficiencies. Buildings that do not contain any of the Major Deficiencies as defined in this Chapter are not required to submit retrofit plans for Major Deficiency mitigation, commence construction, and complete construction in Phase 1, but shall provide retrofit plans and complete construction within the time limits provided in Phase 2.

2) Phase 1 retrofit plans must indicate preliminary Phase 2 retrofit extents. Minimum Phase 2 scoping requirements shall be as specified by the Building Official.

3) Completion of Phase 1 may be extended by 3 years if retrofit plans in accordance with the scope of Phase 2 are designed, approved, permitted and constructed within Phase 1.

4) The Code version governing Phase 1 shall be permitted to be utilized in Phase 2.

b) Priority Designations. The Department shall prioritize its enforcement of this Chapter as defined in Table B.

TABLE B  
PRIORITY DESIGNATION

Priority	Description
Priority I.	Buildings with 8 or more stories
Priority II.	Buildings with 3 to 7 stories
Priority III.	Buildings with 2 or less Stories

**815.4.060 ADMINISTRATION.**

- a) Issuance of Order. The Building Official shall, in accordance with the priorities set forth in Table B, issue an order as provided in this Section to the owner of each building within the scope of this Chapter.
- b) Contents of Order. The order shall be in writing and shall be served by certified or registered mail upon the owner as shown on the last equalized Los Angeles County assessment roll of the building. The order shall specify that the building has been determined by the Building Official to be within the scope of this Chapter and, therefore, is required to meet the standards of this Chapter.
- c) Service of Order. Proper service of a notice shall be by registered or certified mail upon every party concerned. It shall be deemed a reasonable effort has been made to serve such notice when registered or certified letters have been mailed to the address of the interested party as shown on the official record. The designated period within which the owner or person in charge is required to comply with such notice shall begin as of the date the owner or person in charge receives such notice by personal service or certified mail.
- d) Failure to Receive Order. Failure of any owner, party concerned or other person to receive such notice shall not affect the validity of any proceedings taken thereunder.
- e) Appeal from Order. The owner of any building may appeal any decision or order issued by the Building Official or his designee pursuant to this Chapter, including, but not limited to, the initial determination that a building is within the scope of the City of Torrance Seismic Retrofit Laws or the conclusion that a building must be retrofitted, to the City Manager or their designee. Any such appeal shall be filed with the City Manager within 30 days of the date of the Building Official's or their designee's order or decision. Any such appeal shall be decided by the City Manager no later than ninety days after filing. The filing of an appeal would stay the underlying order or decision and the associated time limits. Should the appeal be denied by the City Manager or their designee, the initial time limits shall be restored, unless the City Manager or their designee, authorizes alternate time limits. The City Manager's or their designee's decision shall be final except for judicial review.
- f) Extensions. The Building owner may request an extension to the time period for compliance set forth in Table A of section 815.4.5. An application for extension may only be filed after the Owner has submitted an Engineering Report to the City with a determination of all deficiencies and the Retrofit Plans for major deficiency mitigation have been approved by the City. The Building Owner has the burden of proof to establish with substantial evidence that good cause for the extension exists. The Building Owner must also provide a new proposed schedule for compliance, and plan to comply with the provisions of this chapter during that timeframe. Upon good cause shown, the Building Official may approve, approve with modifications, or deny a request for an extension, commensurate with the justification for the extension.

- g) Recordation. Once a building that was determined to be within the scope of this Article has failed to comply with the requirements of this Chapter within the time limits provided in Table A, the Building Official shall record in the office of the Los Angeles County recorder a certificate stating that the subject building is within the scope of this Article and requires seismic retrofit. The Certificate shall also state that the Owner thereof has been notified of the need to retrofit the building. Once the building has been retrofitted to comply with this Chapter, the Building Official shall record a Certificate indicating that the subject building no longer is in violation of this Chapter.

The Building Official may promulgate implementing regulations and policies consistent with this Chapter

#### **815.4.070 OCCUPANCY AND TENANT ADVISORY.**

Notification to Tenants and Occupants. The Owner shall advise all current and prospective residential and non-residential tenants, subtenants, lessees, sublessees, or any other person(s) entitled to the use and/or occupancy of the building of a proposed project submitted pursuant to this Chapter. The notice shall include the information for the project, as determined by the City, including the scope of work, expected duration, and contact information for a representative of the contractor.

#### **815.4.080 HISTORICAL BUILDINGS.**

Historical Buildings shall comply with the California Historical Building Code and the provisions of this Chapter. Modifications to the standards set forth in this Chapter may be permitted when such modifications are consistent with the provision of the California Historical Building Code. Such modifications shall be clearly specified in the engineering report and Retrofit drawings.

#### **815.4.090 ENGINEERING ANALYSIS AND DESIGN.**

- a) Scope of Analysis. This Chapter requires the evaluation, alteration, repair, replacement or addition of structural elements and their connections to meet the following requirements in this section.
- b) Building Structural Analysis, Design and Evaluation. The building shall meet or exceed the structural performance level for the associate earthquake hazard levels as indicated in Table C based on the Risk Category as defined in ASCE 41:

Table C  
Seismic Performance Requirements by Risk Category

Risk Category	Hazard Level 1	Hazard Level 2
I & II	BSE-1E, S-3	BSE-2E, S-5
III & IV	BSE-1E, S-2	BSE-2E, S-5

- c) **Material Testing and Condition Assessment.** The engineer shall conduct material testing and condition assessment on the existing structure as specified by the Building Official.
- d) **Alternate Analysis, Base Shear and Design Parameters.** The Building Official may approve alternate design methodologies that meet the same performance intent as those prescribed by the Chapter and that achieve the objectives established by the Chapter. Design criteria shall be submitted to the Building Official for review and approval prior to submission of plans.

#### **815.4.100 INFORMATION REQUIRED ON PLANS.**

- a) **General.** In addition to administrative items, the plans and specifications required by the Building Official shall be of sufficient clarity to indicate the nature, design methodology, and extent of the proposed work and to show in detail that it will conform to the provisions of this division and the Building Code.
- b) **Phase 1 Licensed Design Professional Statement.** Where engineers plans are required, the Licensed Design Professional shall provide the following statements on the approved plans:

“I am responsible for designing this building’s Phase 1 seismic strengthening in compliance with the minimum standards of the Mandatory Seismic Strengthening Provisions for Pre-Northridge Steel Moment Frame Buildings (Division 8, Chapter 15, Article 4 of the Torrance Municipal Code).”

- c) **Phase 2 Licensed Design Professional Statement.** The responsible Licensed Design Professional shall provide the following statements on the approved plans:

“I am responsible for designing this building’s Phase 2 seismic strengthening in compliance with the minimum standards of the Mandatory Seismic Strengthening Provisions for Pre-Northridge Steel Moment Frame Buildings (Division 8, Chapter 15, Article 4 of the Torrance Municipal Code).”

- d) **Phase 1 Owner or Owner’s Representative Statement.** Unless the entire building has been retrofitted to meet the full intent of the current building code. The Owner shall provide and sign the following statement on the cover of the drawings:

“I ----- understand the seismic evaluation and strengthening performed under this project is limited to a Deficiency only Mitigation under the Phase 1 requirements of the Mandatory Seismic Strengthening Provisions for Pre-Northridge Steel Moment Frame Buildings (Division 8, Chapter 15, Article 4

of the Torrance Municipal Code) which is intended to limit the risk under a seismic event. I understand the full building has not been strengthened for other potential structural deficiencies that may cause a life safety concern, injury, or property damage risk under a seismic event.”

- e) Phase 2 Owner or Owner’s Representative Statement. The Owner shall provide and sign the following statement on the cover of the drawings:

“I ----- understand the seismic evaluation and strengthening performed under this project is in conformance with the Mandatory Seismic Strengthening Provisions for Pre-Northridge Steel Moment Frame Buildings (Division 8, Chapter 15, Article 4 of the Torrance Municipal Code) which is intended to limit the risk under a seismic event.”

- f) Quality Control and Assurance Requirements. General notes shall show the requirements for material testing, special inspection, structural observation, and the proper installation of newly added materials.

#### **815.4.110 QUALITY ASSURANCE.**

- a) Structural Observation. All structures regulated by this Chapter require structural observation during construction. The Owner shall employ the Engineer of Record responsible for the structural design, or another registered Engineer designated by the Engineer of Record to perform structural observation as defined in the Building Code.
- b) Special Inspection. Special inspections shall be provided as required by the Building Code. Additional inspections shall be noted on drawings as required by Building Official.

#### **815.4.120 VIOLATION/PENALTY.**

- a) Violation. Notwithstanding any other provisions of this Code to the contrary, it shall be unlawful for any person, firm or corporation, to own, use, occupy or maintain any building or structure or portion thereof, in the unincorporated portion of the County, or cause the same to be done, contrary to, or in violation of, any of the provisions of this Code.
- b) Penalty:
- (1) Any person who violates any provision of this Article is guilty of a misdemeanor unless the violation is cited or charged by the City or the City Attorney and/or reduced to an infraction.
  - (2) Each such person charged with a misdemeanor shall be guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than \$1,000, (one thousand dollars) or by imprisonment for not more than six months, or by both such fine and imprisonment. The provisions of this section are

in addition to and independent of any other sanctions, penalties, or costs which are or may be imposed for a violation of any of the provisions of this code;

- (3) Any violations of this Article may result in civil, criminal and/or administrative enforcement actions

c) Recordation of violation.

- (1) General. The Building Official may record a notice with the County Recorder's Office that a property, building or structure, or any part thereof, is in violation of any provision of this Code provided that the provisions of this section are complied with. The remedy provided by this section is cumulative to any other enforcement actions permitted by this Code.

- (2) Recordation. If (A) the Building Official determines that any property, building, or structure, or any part thereof is in violation of any provision of this Code; and if (B) the Building Official gives written notice as specified below of said violation; then the Building Official may have sole discretion to, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this Code.

- (3) Notice. The written notice given pursuant to this Section shall indicate:

- a) The nature of the violation(s); and
- b) That if the violation is not remedied to the satisfaction of the Building Official, the Building Official may, at any time thereafter, record with the County Recorder's Office a notice that the property and/or any building or structure located thereon is in violation of this Code. The notice shall be posted on the property and shall be mailed to the owner of the property as indicated on the last equalized County Assessment roll. The mailed notice may be by registered, certified, or first-class mail.

- (4) Rescission. Any person who desires to have recorded a notice rescinding the notice of violation must first obtain the necessary approvals and permit(s) to correct the violation. Once the Building Official determines that the work covered by such permit(s) has been satisfactorily completed, the Building Official may record a notice rescinding the prior notice of violation.

Following the recordation of the notice of violation the Building Official is not required to make any inspection or review of the premises to determine the continued existence of the cited violation. It is the responsibility of the property owner, occupant or other similarly interested private party to comply with the above provisions.

- (d) Costs. Any person that has violated any provision of this Code shall be responsible for the costs of any and all Code Enforcement actions taken by the Building Official in response to such violations. These costs shall be based on the amounts specified by the current fee schedule.

**815.4.130 APPLICABILITY.**

- a) Internal conflict. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different Sections of this Code specify different materials, methods of construction, or other requirements, the most restrictive shall govern.
- b) Other laws. The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law.
- c) Codes and references. The provisions of the codes and standards referenced in this Code shall be considered part of the requirements of this Code to the prescribed extent of each such reference. Where there are conflicts between the provisions of this Code and the provisions of any referenced code or standard, the provisions of this Code shall apply.”

**SECTION 2**

Any provisions of the Torrance Municipal Code, or appendices thereto, or any other ordinances of the City inconsistent herewith to the extent of such inconsistencies and no further, are hereby repealed.

**SECTION 3**

If any section, subsection, sentence, clause, or phrase of this ordinance is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the ordinance. The City Council hereby declares that it would have passed this ordinance and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases be declared invalid or unconstitutional.

**SECTION 4**

Penalty:

- (1) Any person who violates any provision of this ordinance is guilty of a misdemeanor unless the violation is cited or charged by the City or the City Attorney and/or reduced to an infraction.
- (2) Each such person charged with a misdemeanor shall be guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than \$1,000, (one thousand dollars) or by imprisonment for not more than six months, or by both such fine and imprisonment. The provisions of this section are in addition to and independent of any other sanctions, penalties, or costs which are or may be imposed for a violation of any of the provisions of this code;



(3) Any violations of this Article may result in civil, criminal and/or administrative enforcement actions

**SECTION 5**

This ordinance will take effect 30 days after the date of its adoption. Within 15 days following adoption, this ordinance, or a summary of this ordinance, if authorized by the City Council, will be published at least once in the Daily Breeze, a newspaper of general circulation, published and circulated in the City of Torrance.

**INTRODUCED** and **APPROVED** this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

**ADOPTED** and **PASSED** this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
George K. Chen  
City of Torrance

ATTEST:

\_\_\_\_\_  
Rebecca Poirier, City Clerk

APPROVED AS TO FORM:

By: \_\_\_\_\_  
Patrick Q. Sullivan  
City Attorney



**ORDINANCE NO. \_\_\_\_\_****SUMMARY**

This ordinance provides as follows:

1. Adopts mandatory seismic retrofit in existing buildings (Existing Wood Frame Buildings With Soft, Weak or Open-Front Walls; Wall Anchorage System of Existing Rigid-Wall-Flexible-Diaphragm buildings; Non-Ductile Concrete Structures; and Pre-Northridge Steel Moment Frame Buildings).
2. Definitions and regulations related mandatory seismic retrofit in existing buildings, such as purpose, scope and applicability, compliance requirements, time period for compliance/priority designation, administration, engineering analysis and design, information required on plans, quality assurance, violation/penalty and applicability.
3. All violations of the adopted ordinance are misdemeanors.



**Keo, Uykheang**

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**From:** Segovia, Felipe  
**Sent:** Wednesday, February 15, 2023 5:27 PM  
**To:** [REDACTED]  
**Cc:** Ramirez, Michelle; Keo, Uykheang  
**Subject:** FW: Concerns over seismic safety

Hello Ms. Fox

Thank you for your email message and expressing your concern regarding older apartment buildings that exist in the City of Torrance. The City shares this same concern that you have with some of the existing older apartment buildings and has been proactively exploring ways in which the life safety risk at these type of buildings can be lessen.

Since 2018, City staff has been working on the development of a seismic retrofit program that would mandate structural retrofits to these types of at-risk buildings. A draft of the seismic retrofit program was recently completed and it is scheduled to be presented to the City Council for their consideration at the council meeting of March 14, 2023.

The program will recommend that structural retrofits be mandated for four types of at-risk buildings. The mandated retrofits are intended to lessen the risk of complete structural failure and provide a higher life safety level at this existing older buildings during a seismic event. The program will mandated structural retrofits for the following four at-risk building types:

1. Soft Story Apartment Buildings pre 1978.
2. Concrete Tilt-up Buildings with weak roof to wall connections pre 1999.
3. Buildings with Non-Ductile Concrete Frames for the lateral system pre 1981.
4. Buildings with Steel Moment Frames for the lateral system pre 1999.

In the preparation of the seismic retrofit program, the City conducted a survey of all existing buildings within the City and also presented the draft ordinance to the community at six public meeting. The survey conducted identified the at-risk buildings that exist in the City along with their location and the public meetings were held to obtain feedback from the property owners and tenants that the ordinance would impact.

Your email message will be included in the staff report that will go along with the ordinance when it is presented to City Council to ensure your voice is heard. Any questions please feel free to reach out to me.

Thanks.

Felipe

**Felipe Segovia**

Building Regulations Administrator – Community Development Department  
 City of Torrance | 3031 Torrance Boulevard | Torrance CA 90503 | 310.781.7633 | 310.618.2846 fax | [FSegovia@TorranceCa.gov](mailto:FSegovia@TorranceCa.gov) |  
[www.TorranceCA.Gov](http://www.TorranceCA.Gov) | [www.TorranceCA.Gov/SocialMedia](http://www.TorranceCA.Gov/SocialMedia) | [www.TorranceCA.Gov/COVID19](http://www.TorranceCA.Gov/COVID19) |

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**From:** Theresa Fox <[REDACTED]>  
**Sent:** Friday, February 10, 2023 8:26:52 AM  
**To:** CityCouncil <CityCouncil@torranceca.gov>  
**Subject:** Concerns over seismic safety

**WARNING: External e-mail**

Please verify sender before opening attachments or clicking on links.

Dear Torrance City Council Members,

We are long-time residents of Torrance- moved here in 1981 and have raised our two kids here. Our adult children both still currently reside in Torrance. They each live in apartment buildings constructed in the 1960's. I read a lot about the dangers of older buildings that have not been retrofitted to withstand earthquakes. Of course this issue has been highlighted recently with the horrible loss of lives in the powerful Turkey earthquake. Today the L.A. Times ran a very informative article regarding the risk that concrete frame and soft- story construction methods pose, as they are very likely to collapse "pancake style" in a strong quake. I am quite certain that Torrance is chock- full of apartment buildings that were constructed in this style. Is there any plan to mandate retrofitting of these older buildings in Torrance? There is no way that any building owner will undertake such a task without being mandated to do so. You should be very concerned about the safety of MANY Torrance residents in regards to this, and not just cater to the ones with money. Keep our citizens, and my children, safe. Here is the link to the L.A. Times article:



A deadly building flaw common in California brings destruction and misery to Turkey, Syria

[L.A. Times](#)

Thank you for any initiative you take in making our community safe for everyone.

Sincerely,  
Theresa Fox  
Torrance Resident

Sent from my iPad