

CITY COUNCIL
LEGISLATIVE

AUGUST 15, 2016

SUBJECT: **ORDINANCE ESTABLISHING SEISMIC STRENGTHENING
REQUIREMENTS FOR FOUR CATEGORIES OF EXISTING
BUILDINGS IN THE CITY AND AMENDING THE WEST
HOLLYWOOD MUNICIPAL CODE.**

PREPARED BY: **COMMUNITY DEVELOPMENT DEPARTMENT**
(Stephanie DeWolfe, Community Development Director)
(Steven C. Bailey, Building Official)
(Cynthia Zabala, Senior Plan Check Engineer)

STATEMENT ON THE SUBJECT:

The City Council shall consider a draft ordinance amending the West Hollywood Municipal Code to introduce new seismic retrofit provisions for the strengthening of existing buildings.

RECOMMENDATIONS:

1. Introduce on first reading:

**ORDINANCE NO. 16-____: AN ORDINANCE OF THE CITY OF WEST
HOLLYWOOD ESTABLISHING SEISMIC STRENGTHENING
REQUIREMENTS FOR FOUR CATEGORIES OF EXISTING BUILDINGS
IN THE CITY AND AMENDING THE WEST HOLLYWOOD MUNICIPAL
CODE.**

2. Ordinance shall be effective beginning July 1, 2017.

BACKGROUND / ANALYSIS:

On May 18, 2015, the City Council directed staff to address the structural seismic safety issues of the City's existing building stock and develop a framework for a seismic retrofit program. In November, the City Council authorized a contract to work with Degenkolb Engineers, a top structural engineering company specializing in seismic strengthening solutions, to conduct a comprehensive survey of the City's buildings and develop a seismic retrofit plan.

Every building in the City, approximately 4600, were surveyed and categorized. As a result, staff is presenting in this report an ordinance tailored for the City of West

Hollywood to address the vulnerabilities of the city's existing building stock.

The ordinances were developed with the assistance of a Technical Advisory Group made up of local community members. The Advisory Group consisted of six members from the community including two building owners, a Planning Commissioner, a Historic Preservation Commissioner, an Architect, and an Engineer. The Group unanimously recommended the final ordinance offered tonight.

Staff also reached out to the Structural Engineers Association of Southern California (SEAOSC) for input with regard to the technical aspects, analysis and design criteria contained within each ordinance. SEAOSC is a highly respected organization in the field of structural engineering and is a nationally influential participant in structural code development. They were also advisors for the recent City of Los Angeles seismic retrofit ordinances as well as the City of Santa Monica's ordinances. A Task Group was created from within SEAOSC consisting of five structural engineers with expertise in this field who reviewed the technical aspects and provided comments and recommendations which were incorporated into the ordinance.

Other cities that have adopted ordinances similar to those proposed include Los Angeles, San Francisco, and Berkeley. The ordinance proposed here however, is more comprehensive in that it pertains to four building types rather than just one or two building types. Other cities such as Santa Monica, Beverly Hills, Oakland, and Palo Alto are developing seismic programs but have not adopted ordinances to date. (See Attachment B)

Effective Date

Staff is recommending that the effective date of the ordinance be July of 2017 to allow approximately one year for further outreach and education of building owners prior to implementation. A full outreach program will be developed to make sure that each building owner has been contacted prior to the effective date, including a mailing to each owner, and an extensive web page will be developed with a resources and references to assist property owners with achieving compliance. Other outreach tools will be considered as well, such as a seismic fair similar to the event held by the City of Los Angeles. Staff has also had conversations with the Chamber about creating local vendor sponsorships. A complete outreach program will be developed and can be brought back to Council for review if desired. Additional outreach to the professional community and training for staff will also be required as mentioned below.

Technical Analysis

The key features considered during the development of the ordinance include technical requirements as well as timelines and prioritization. The technical provisions establish the strengthening requirements and design parameters for the retrofits. Timelines are essential in order to provide an overall time limit for compliance as well as verification that each milestone of the retrofit process has been completed.

In addition, a priority designation will be applied to each building. Buildings will be placed into one of the three priorities designated for each building type. When considering the prioritization, the ultimate goal was to make the buildings with the highest risk start their retrofit first. These buildings include higher occupancy buildings as well as buildings that, from a structural aspect, would have a higher potential for severe damage during a significant seismic event.

The ordinance establishes seismic strengthening provisions for four categories of existing buildings as listed below:

1. Mandatory Seismic Strengthening Provisions for Existing Wood-Frame Buildings with Soft, Weak or Open Front Walls
2. Voluntary Seismic Strengthening Provisions for Cripple Walls and Sill Plate Anchorage in Existing Wood-Frame Buildings
3. Mandatory Seismic Strengthening Provisions for Non-Ductile Concrete Structures
4. Mandatory Seismic Strengthening Provisions for Pre-Northridge Steel Moment Frame Buildings

Each of the four are discussed below:

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



The ordinance requires the mandatory retrofit of existing buildings of wood-frame construction where the ground floor contains parking or other similar open floor space that causes soft, weak or open-front wall lines with one or more stories above. These types of buildings were commonly built in the 1950's and 1960's and have typically performed poorly in past earthquakes because of the weakened open wall line which oftentimes leads to substantial building damage or building collapse. Retrofit requirements will only apply to buildings where a permit for construction was applied for prior to January 1, 1978. The provisions of the ordinance would require that the soft/weak wall line be analyzed and strengthened (if required) after performing a structural analysis. A framework for the analysis is contained within the ordinance. Typical retrofits to mitigate this deficiency include installation of a steel frame on the open wall line which consists of a series of at least two steel columns, a steel beam, and foundation work. There are an estimated 780 buildings in the City that fall within this category.

Process

The first step in the retrofit process is to notify the Owner that their building has been identified as a soft/weak story building. A time period of 5 years will be given to comply with the requirements of the ordinance for this building type. Within the 5 year time period, there are also other milestones that must be completed as noted below:

TIME PERIOD FOR COMPLIANCE

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

In addition to the timeline for completion, a prioritization table will also be implemented to stagger the retrofit work for these types of buildings. The soft/weak story buildings have been categorized into three priorities with higher occupancy buildings required to comply first. Below is the priority designation table contained within the ordinance.

PRIORITY DESIGNATION

Priority	Description
Priority I.	Buildings containing 16 or more dwelling units
Priority II.	3 stories or more containing fewer than 16 dwelling units
Priority III.	Buildings not falling within the definition of Priority I or II.

2. VOLUNTARY SEISMIC STRENGTHENING PROVISIONS FOR CRIPPLE WALLS AND SILL PLATE ANCHORAGE IN EXISTING WOOD-FRAME BUILDINGS



Voluntary measures are provided for strengthening cripple walls and providing foundation bolting for houses and similar light frame wood structures typically identified by the presence of a crawl space. Older houses are often not bolted to their foundations and lack bracing on the wood framed exterior walls enclosing the crawl space. These types of wood buildings are prone to sliding off their foundation during an earthquake. Bolting the sill plate to the foundation and adding plywood to the cripple walls at the perimeter of the crawl space can significantly improve the performance of these buildings during an earthquake. While the provisions for this type of building are voluntary, the purpose of this section of the ordinance is to encourage strengthening these types of buildings and provide prescriptive design guidelines to those who choose to retrofit their buildings. These provisions are intended to improve the seismic performance of residential buildings reducing the risk of severe earthquake damage.

3. MANDATORY SEISMIC STRENGTHENING PROVISIONS FOR NON-DUCTILE CONCRETE STRUCTURES



The ordinance will require mandatory seismic retrofits of existing non-ductile concrete buildings. Concrete buildings built prior to the implementation of modern building code standards for ductile detailing have proven to perform poorly during seismic events. Non-ductile concrete buildings have the potential to fail without warning causing catastrophic damage and loss of life due to their brittle nature. The construction of non-ductile concrete buildings continued until approximately 1980 when building codes required ductile detailing of concrete buildings.

Retrofit requirements as specified in this section of the ordinance will apply to concrete buildings built under building code standards enacted before 1979. Seismic strengthening for these types of structures requires a complete building analysis by an Engineer to determine what deficiencies exist. Because these types of structures are typically of larger scale and are more complex it is difficult to determine the extents of retrofit work until an engineering analysis completed. There are estimated to be approximately 55 of these concrete buildings within the City. There are also an additional 60 buildings that are classified as 'undetermined' building types, some of which may also fall into this category after additional investigation as determined by the required engineering report.

Process

The time period for compliance for concrete structures is done in a two phase approach. The first phase begins with an engineering report demonstrating whether the building conforms to the design provisions within the chapter for non-ductile concrete structures and all building deficiencies must be identified. As part of phase 1, the top five major deficiencies must be retrofitted within 10 years from notice to the owner. Phase 2 requires that the remaining building deficiencies be retrofitted and must be completed within 20 years after notice to the owner. Below are the time limits showing the required milestones at each phase.

TIME LIMITS FOR OWNER

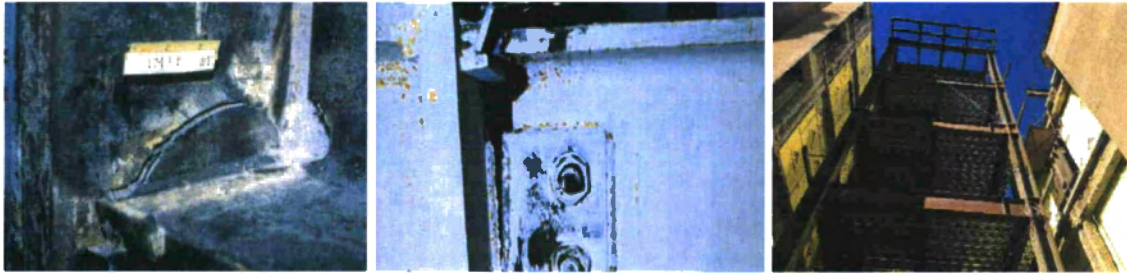
	Phase 1: Engineering Report & Major Deficiency Mitigation ^{a, b}				Phase 2: Complete Retrofit ^d		
Phase	Submit Engineering Report & Determine All Deficiencies	Submit Retrofit Plans for Major Deficiency Mitigation	Obtain Building Permit & Commence Construction	Complete Major Deficiency Mitigation Construction ^c	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

A prioritization table will also be implemented to offset the retrofit work for these types of buildings. The non-ductile concrete buildings have been categorized into three priorities based on the number of stories, with those buildings that have more stories required to comply first. Below is the priority designation table contained within this section of the ordinance.

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

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



The 1994 Northridge Earthquake in the Los Angeles area dramatically illustrated several weaknesses in steel moment frame buildings. Column fractures occurred in several buildings at the beam to column connection. Upon further investigation of these types of buildings, additional deficiencies were also identified including weld quality issues. A majority of these buildings have not been retrofitted and may be susceptible to severe structural damage or building collapse in a major earthquake. The Northridge Earthquake triggered significant changes to the way these types of new buildings are designed and prompted quality assurance measures for workmanship during construction.

A complete building analysis by an Engineer is required to determine what deficiencies exist in these types of buildings. Because structures of this type are typically more complex it is difficult to determine the extents of retrofit work without an engineering analysis. There are estimated to be approximately 31 pre-Northridge moment frame buildings within the City. There are also an additional 60 buildings that are 'undetermined' building types, some of which may also fall into this category after additional investigation as determined by the required Engineering Report.

Process

The time for compliance will also take the same two phase approach as specified for the non-ductile concrete buildings noted above. In addition, a prioritization schedule will also be implemented based on number of stories which is also consistent the priority schedule for non-ductile concrete buildings specified above.

Purpose:

The provisions contained within the ordinance create minimum design standards and requirements intended to reduce the risk of collapse for the four categories of buildings identified and improve the performance during an earthquake by reducing, but not necessarily preventing the loss of life, injury and damage to the building.

Current Building Codes have been revised to address buildings that have performed poorly in past earthquakes by providing design methods to mitigate these building deficiencies. These standards, however, are only applicable to new buildings. The Building Code is not retro-active and does not address these deficiencies in existing buildings. The strengthening of potentially vulnerable existing buildings would not only increase life safety, and reduce the risk of total building collapse, but would also lessen the economic impact after a significant seismic event and improve the resiliency of the City.

Next Steps:

1. Implementation Plan

The next phase of the seismic program is implementation. Continued efforts will be required in order to insure proper implementation of the ordinance. Additional community outreach efforts will be required to provide information to building owners, tenants, architects, engineers, contractors and all other entities that may be affected by the ordinance. Informational handouts and guidelines will be generated and be made available to the public and design professionals to assist with their retrofit. Staff training will also be required as well as coordination with other divisions within the City. The City's current permitting system will also require customized upgrades in order to track the progress of each building required to be retrofitted.

2. Financing

Staff researched the possible funding options to assist property owners with the retrofit of their buildings. After having contacting other cities engaging in a seismic retrofit program and reviewing a recent report from the City of Los Angeles, there are very limited resources available at this time, on the state level and the federal level with

regard to financing seismic upgrades. Currently the City of San Francisco, Berkeley and the City of Los Angeles have opted into Property Assessed Clean Energy (PACE) programs. These programs provide loans to property owners through assessments on their property tax bill. Staff will be making these types of programs available for seismic retrofits, as well as other types of projects, and is being brought to the City Council as a separate agenda item. Staff will continue to explore other potential finance options which will be brought back to City Council at a later date as a separate agenda item.

3. Cost Pass-Through for Rent Stabilized Tenants

The City has hired a consultant to review options for an equitable cost sharing plan (pass-through plan) for rent stabilized building stock. Staff is currently working with the consultant to analyze potential pass-through structures and exemption processes as they relate specifically to mandatory seismic retrofit costs. As a separate agenda item, staff will return back to the City Council with a report containing options for potential pass-through structures that would be appropriate for the City with the ultimate goal of equitable distribution of costs..

CONFORMANCE WITH VISION 2020 AND THE GOALS OF THE WEST HOLLYWOOD GENERAL PLAN:

- OSP-9: Upgrade Existing Buildings & Infrastructure.

In addition, this item is compliant with the following goal(s) of the West Hollywood General Plan:

- SN-1: Reduce injury and damage from natural hazards.
- H-2: Maintain and enhance the quality of the housing stock and residential neighborhoods.

EVALUATION PROCESSES:

Staff will explore enhancing the City's permitting system to include the ability to track the progress of each building required to comply with the retrofit ordinance and provide notifications to building owners at each timeline milestone.

ENVIRONMENTAL SUSTAINABILITY AND HEALTH:

A retrofit program would increase life safety and minimize catastrophic building damage during a significant seismic event as well as lessen the economic impact following an earthquake.

This ordinance is exempt from the California Environmental Quality Act (CEQA) per section 15301, 15302, and 15308.

COMMUNITY ENGAGEMENT:

The community outreach plan included various efforts during the development of the ordinances. One of the first priorities was to assemble an Advisory Group to provide input and feedback during the ordinance development phase. The Advisory Group included six members from the community which included two building owners, a Planning Commissioner, a Historic Preservation Commissioner, an Architect, and an Engineer. Their input was key to assist with important policy issues such as timelines and prioritization.

One-on-one meetings were also set up with several commercial property owners to get feedback and address any potential concerns that may arise with the seismic program. In addition to the one-on-one meetings, a presentation to the West Hollywood Chamber of Commerce Governmental Affairs Committee (GAC) as well as the Chamber Board of Directors was given to discuss the seismic program.

On July 28th, a community meeting was held for the general public to inform the community about the seismic retrofit program and discuss the process as well as address any concerns and answer any questions. About 30 community members participated in the meeting, raised questions regarding pass-through and other financing questions, but provided positive feedback and as well.

Several community meetings will be planned in the future to include general information as well as information geared to targeted audiences such as tenants, owners, engineers, and architects. In addition, a seismic resource fair will also be considered as a way to make information available to the public with regard to requirements from the various divisions involved and also provide additional information related to the retrofits.

Staff is also working on designing a web page which would provide information, resource documents, as well as responses to frequently asked questions as they relate to the seismic program. A feature will also be available to register your email address to receive information and updates as they become available.

OFFICE OF PRIMARY RESPONSIBILITY:

COMMUNITY DEVELOPMENT DEPARTMENT / BUILDING & SAFETY DIVISION

FISCAL IMPACT:

Potential future fiscal impacts that may be considered and will be brought back under separate agenda items:

1. The cost of potentially retrofitting approximately 11 City owned buildings. The cost of an engineering report and analysis would be required for each building as well as construction costs for strengthening each building (if required).
2. Cost of upgrades to the City's existing permitting system to include enhancements to assist with tracking the progress and issue notices for those properties required to comply with the seismic retrofit program.

3. Extending the contract with the City's Consultants, Degenkolb Engineers, to include assistance with the next phase of the seismic program which is implementation of the ordinance. The scope of work would include additional community meetings, internal staff training, development of Design Guidelines to assist the public with the retrofit of their buildings, as well as having them available to consult with staff on technical issues that arise with these types of projects. A detailed scope of work will be brought back to the City Council at a later date.
4. Staff will also be exploring the options of providing incentives such as waiving plan check, permit, and planning fees associated with a seismic retrofit.
5. Staff will explore the need of additional consultants to assist with the influx of additional plan reviews and inspections generated by the buildings required to be seismically strengthened.
6. As part of the implementation, a structural engineering consultant would be required to provide plan review services for non-ductile concrete structures and moment frame structures. The analysis for these structures is complex and requires a consultant with expertise in this field. An RFP for this scope of work would be required and would be brought back to the City Council at a later date.

ATTACHMENTS:

ATTACHMENT A: Ordinance No. 16-_____

ATTACHMENT B: Retrofit Efforts in Other Jurisdictions

ATTACHMENT C: Existing Building Stock Subject to Mandatory Provisions