

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

PREPARED BY: COMMUNITY DEVELOPMENT DEPARTMENT
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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 17-____ : 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 January 1, 2018

BACKGROUND / ANALYSIS:

At the direction of City Council at the May 18, 2015 City Council meeting, staff brought to City Council an Ordinance on August 15, 2016 establishing 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

Staff is recommending that the effective date of the ordinance be January 1, 2018 to allow approximately one year for further outreach and education to building owners prior to implementation.

Community Outreach

Although the City Council agreed in concept with the Ordinance, it was not approved and it was requested that additional community outreach be conducted to building owners, specifically condo owners as well as additional information with regard to retrofit costs and additional building data.

Staff conducted 3 community meetings located at the Council Chambers to discuss the seismic retrofit policy being considered. The first two meetings took place on November 14th and 19th and focused on Soft/Weak Story buildings. The third meeting was held on November 29th and focused on Non-Ductile Concrete and Steel Moment Frame Structures. All three meetings had approximately 25-30 attendees from the community. Each meeting was led by the Acting Building Official and a presentation was given by Daniel Zepeda and Jeff Roi of Degenkolb Engineers. The meetings were concluded with a question and answer period facilitated by the Center for Non-Profit Management (CNM). The intent of these meetings was to provide information about the seismic retrofit policy and answer any questions with regard to the ordinance as well as get feedback from the property owners.

At all 3 meetings, there was general agreement among the participants that the retrofit ordinance and seismic safety is important. Many of the questions that arose during the community meetings were clarified by staff and the consultants, however some concerns did arise and are categorized below:

Process and Timeline for Implementation - Many smaller property owners brought up the issue that they may not be able to complete the work within the timeframes provided in the ordinance due to monetary issues. In addition, some of the owners of condominiums brought up the same issue due to the potentially larger dollar amounts that could be required to retrofit their buildings. Taking these concerns into consideration, the Ordinance was recently revised to include provisions for providing time frame extensions to do the retrofit due to unforeseen or unusual circumstances. This new language would give a building owner a time frame extension only after a screening report/engineering report has been provided and retrofit plans have been approved. The building owner would then need to submit an application and provide an alternate time line schedule and workplan to be reviewed by the Building Official on a case by case basis. This is intended to insure that the property owner is making efforts to retrofit their building while at the same time taking into consideration those that may have special circumstances and require additional time to comply with the ordinance.

Engineers and Contractors – An issue that came up at all meetings, was the concern of finding a Contractor and Engineer to do retrofit work that would not only understand the requirements of the ordinance, but would not take advantage of the owners by requiring

excessive amounts of money for the work or doing unnecessary work. The City cannot directly provide recommendations for contractors or engineers, however, staff has been in contact with the West Hollywood Chamber of Commerce and has discussed possibly offering a list of Contractors and Engineers that could be made available to the building owners with the idea that the Contractors and Engineers on this list would have familiarity with the City's Ordinance as well as provide fair pricing. Staff would also be able to provide a handout that provides general guidelines for selecting a contractor/engineer. These recommendations may include items such as obtaining at least 3 different estimates, checking references, how to look up licenses, etc.

Cost – Many of the questions were related to potential mandatory retrofit costs. In order to get a better understanding of the actual dollar amounts that are involved with the cost of strengthening the affected buildings, staff felt it necessary to get a cost study specific to our City. Degenkolb Engineers along with sub-consultant Cummings were able to use the data collected from the building survey and review specific case studies for each category of buildings to provide the City with Rough Order of Magnitude (ROM) costs. The results are summarized below:

Soft/Weak Story Buildings – Fifty case studies were examined with varying heights and number of units. These types of buildings are typically strengthened utilizing steel moment frames. It was determined that the cost of a single moment frame is estimated to be between \$33,000 - \$47,000 with an average cost of \$40,000. Most buildings sampled are expected to require between 1 to 4 retrofit moment frames with a few requiring up to 5 frames. Using the estimated value of \$40,000 per moment frame, a majority of buildings will have an estimated retrofit cost between \$40,000 and \$160,000.

Non-Ductile Concrete/Steel Moment Frame Buildings – These types of buildings are typically larger in scale and the retrofits are more complex in nature. Three case studies were selected of varying size for each building type for a total of six case studies. The case studies indicate that the average construction cost for retrofitting most of these types of buildings will be expected to vary between \$50 and \$100 per square foot with an additional 10-20% for engineering and permitting fees. As expected, the retrofit construction costs given by the study varied, for each building depending on their individual size and complexity. As an example, one case study showed that a 3 story, 39,600 square foot non-ductile concrete building was expected to have a retrofit cost of \$86 per square foot or overall construction cost of approximately \$3,400,000. Another example indicated that a 10 story, 109,300 square foot pre-Northridge steel moment frame building would expect a retrofit cost of \$96 per square foot or overall construction cost of approximately \$9,800,000.

Please note that the numbers provided are for informational purposes only to assist the City while exploring seismic retrofit finance programs. They are not intended to be used to estimate a building owners' individual retrofit costs since the ROM costs are not tailored to address the deficiencies for any one building in

particular.

Although the cost information was not available at the time of the meetings, there were concerns from both small property owners and owners in condo buildings as to whether they would financially be able to pay for the retrofits in the time frames specified in the ordinance. Some brought up the possibility of allowing time extensions. As mentioned above, staff further investigated this issue and has incorporated a provisions for time extensions in the ordinance on a case by case basis.

Financing - With regard to the financing, staff researched the possible funding options to assist property owners with the retrofit of their buildings. After contacting other cities that are developing seismic retrofit programs and reviewing a report from the City of Los Angeles, it was concluded that there are very limited resources available at this time on both the state and federal level with regard to financing seismic upgrades. Currently the City of San Francisco, Berkeley and the City of Los Angeles and Santa Monica have opted into Property Assessed Clean Energy (PACE) programs which provide seismic retrofit financing to property owners. In August of 2016, the City of West Hollywood, made PACE financing available. PACE financing allows participating property owner to repay the cost of retrofit improvements through an assessment levied against their properties which is payable on property tax bills. A lien is filed against the property as security until the assessment is repaid. The assessment remains with the property until the assessment is repaid. 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.

Passthrough Costs -Questions also arose with respect to passthrough costs in rent stabilized buildings. Although it was made clear that these meetings were focusing on the policy discussion only, there was a general interest by attendees on this topic. Separate meetings will be set up early this year to provide a platform for those conversations. As indicated in previous reports, this will be brought back as a separate item shortly after the approval of the ordinance. The City has already retained a Consultant who is reviewing passthrough cost frameworks in other jurisdictions and will return to the City Council with equitable cost sharing options. This work cannot be completed until the ordinance is adopted.

Additional Outreach Efforts- Staff will continue to engage the community in the City's efforts to strengthen the potentially vulnerable building stock. A webpage www.weho.org/seismic was recently launched on the City's webpage to provide information and resources about the proposed seismic program as it becomes available. The proposed Ordinance, presentations from past community meetings, and answers to frequently asked questions as well as other resources are available on the webpage. A link is also provided so that people may register their email to receive updated information as it becomes available. This has received positive feedback from the community. In addition, future community meetings as they relate to passthrough costs and implementation of the ordinance are planned in the near future.

Prioritization/Building Data

At the City Council meeting in August, there were questions with regard to the prioritization of the required retrofits. The Advisory Group was heavily involved with the complex strategy and development of the priority designations for each building type. For Soft/Weak Story buildings, the building data collected from the survey was analyzed which resulted in the priority designations as shown below:

TABLE B
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.

The goal was to require those buildings with larger occupancies (based on number of units) and a greater number of stories to be strengthened first.

The prioritization for Non-Ductile Concrete and Steel Buildings is prioritized based on the number of stories as shown below:

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

For these types of buildings, larger/taller buildings typically have higher occupant loads and are structurally more vulnerable during a significant seismic event, therefore these buildings were targeted first for strengthening.

Additional building data information with regard to the prioritization can be can be found in Attachment B

Ordinance Revisions

The only changes to the Ordinance that have occurred since the presentation in August has been the addition of items f and g to sections 13.28.060, 13.36.060, and 13.40.060. Item f includes provisions to allow for time frame extensions on a case by case basis. Item g gives the Building Official permission to draft implementing regulations and policy with respect to the ordinance if necessary.

Summary of Seismic Retrofit Ordinance – A copy of the original staff report presented on August 15, 2016 is included as attachment C. Below is a summary of the ordinance and timelines.

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

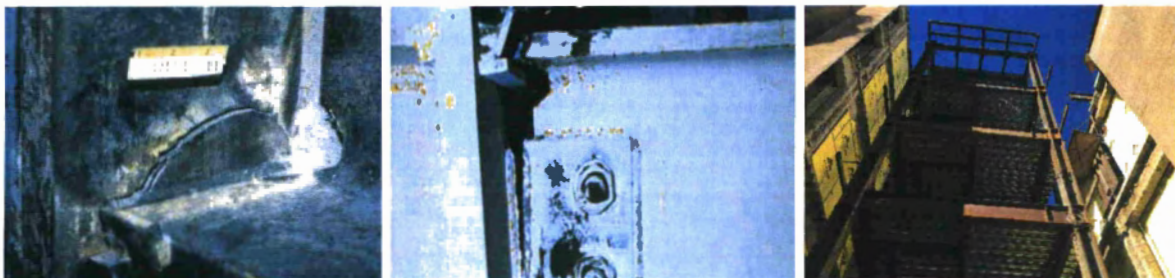
	Phase 1: Engineering Report & Major Deficiency Mitigation ^{a, b}				Phase 2: Complete Retrofit ^d		
Phase	Submit Engineering Report & Determine All Deficiencies	Submit Retrofit Plans for Major Deficiency Mitigation	Obtain Building Permit & Commence Construction	Complete Major Deficiency Mitigation Construction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

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

This item is consistent with the Primary Strategic Goal(s) (PSG) and/or Ongoing Strategic Program(s) (OSP) of:

- 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 if 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:

Staff recently held additional community outreach meetings at the request of the City Council. Two meetings were held to discuss the Soft/Weak Story structures on Tuesday, November 14th and Saturday November 19th. A third meeting to discuss Non-Ductile Concrete and Steel Moment Frame Structures was held on Tuesday November 29th. The meetings lasted approximately 90 minutes and included a presentation by Degenkolb Engineers and public comment facilitation by CNM. There was a general agreement that retrofitting existing potentially vulnerable buildings is needed, as well as questions with regard to cost, timeline, and financing.

Previously, 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 information with regard to implementation of the seismic policy as well as the pass-through. 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.

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 as 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. Staff will also be exploring the options of providing incentives such as waiving plan check, permit, and planning fees associated with a seismic retrofit.
4. 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.
5. 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. 17-_____

ATTACHMENT B: Building Priority Data

ATTACHMENT C: Previous Staff Report from August 15, 2016

ATTACHMENT D: Additional Building Data