

City of West Hollywood Community Meeting

Presented by
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Jeff Roi, SE

Date: November 19, 2016

Presentation Outline

- ☐ Background
- ☐ City of West Hollywood Seismic Retrofit
Program Overview
- ☐ Soft Story Ordinance Discussion

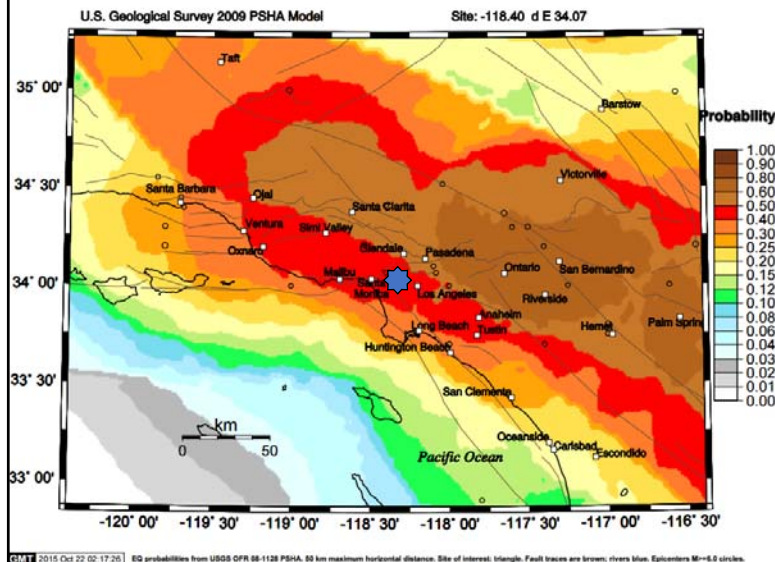
Vulnerable Buildings



Soft / Weak Story

Probability of Next Earthquake

Probability of earthquake with $M > 6.0$ within 25 years & 50 km



USGS PREDICTS
THERE IS A 50%
PROBABILITY
THAT A
MAGNITUDE 6.0
WILL OCCUR IN
THE NEXT 25
YEARS CLOSE TO
WEST
HOLLYWOOD



California Code Requirements

Additions

3403.4 Existing structural elements carrying lateral load. Where the addition is structurally independent of the existing structure, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613.

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10 percent greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.

Alterations

3404.4 Existing structural elements carrying lateral load. Except as permitted by Section 3404.5, where the alteration increases design lateral loads in accordance with Section 1609 or 1613, or where the alteration results in a structural irregularity as defined in ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613.

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is no more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of additions and alterations since original construction.



UPGRADES ARE ONLY REQUIRED WHEN SIGNIFICANT CHANGES ARE MADE TO STRUCTURE



Repairs

3405.2 Substantial structural damage to vertical elements of the lateral force-resisting system. A building that has sustained substantial structural damage to the vertical elements of its lateral force-resisting system shall be evaluated and repaired in accordance with the applicable provisions of Sections 3405.2.1 through 3405.2.3.

Exceptions:

1. Buildings assigned to Seismic Design Category A, B, or C whose substantial structural damage was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

3405.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the building official. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613.

Change in Occupancy

3408.4 Seismic. When a change of occupancy results in a structure being reclassified to a higher risk category, the structure shall conform to the seismic requirements for a new structure of the higher risk category.

Exceptions:

1. Specific seismic detailing requirements of Section 1613 for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, overstrength, redundancy and ductility of the structure.
2. When a change of use results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, S_{DS} , is less than 0.33, compliance with the seismic requirements of Section 1613 are not required.

What Others Cities are Doing



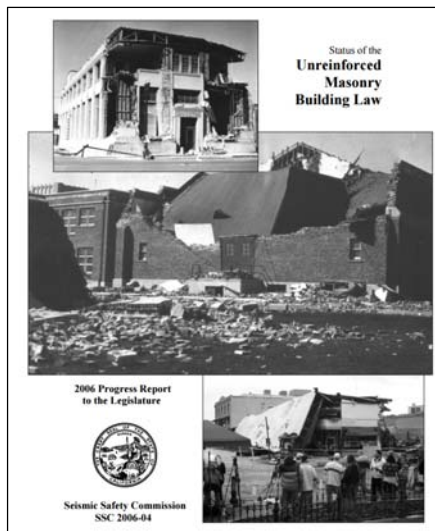
Wood Soft-Story Retrofit Programs

Jurisdiction	Approximate No. of Bldgs.	Building Type	Structural Evaluation	Complete Construction
Los Angeles	~13,500	Mandatory, 4 units or more Prior to 1978	1 year after notification	7 years after notification
Santa Monica	Not reported	Updating Building Inventory and Existing Mandatory Ordinances		
Beverly Hills	In Progress	Building Inventory and Ordinance Development in Process		
Burbank	Not Reported	Voluntary Ordinance – No Time Lines Provided		
Berkeley	~150	Mandatory, 5 units or more Prior to 1978		By Dec 31, 2018
San Francisco	~4,500	Mandatory, 5 units or more Prior to 1978	1 year after notification	2 years after permit application
Oakland	~1,400	Completed Building Inventory. Developing Ordinances		
Palo Alto	In Progress	Building Inventory and Ordinance Development in Process		
Alameda	~100	Mandatory Analysis, 5 units or more Prior to 1985	1.5 year after notification	
Fremont	Not Reported	Mandatory, 3 units or more Prior to 1978		4 to 5 years after notification

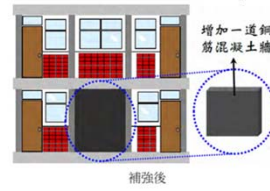
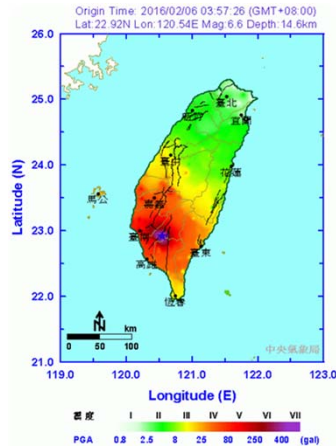
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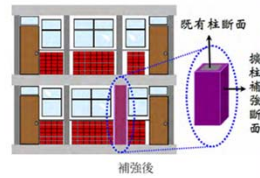
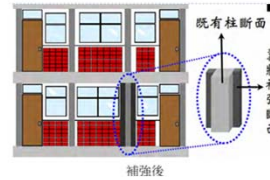
URM Retrofit Ordinance



Seismic Programs Case Study



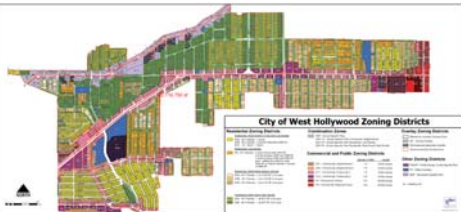
於既有框架內增設整片RC牆體，可有效提升整體結構物之強度。



School Building Seismic Program:

- 334 "Safe" Buildings: 1 Damaged
- 75 "Unsafe" Buildings: 18 Damaged

City of West Hollywood Seismic Retrofit Program Process



SITE SURVEY & RECORD RESEARCH



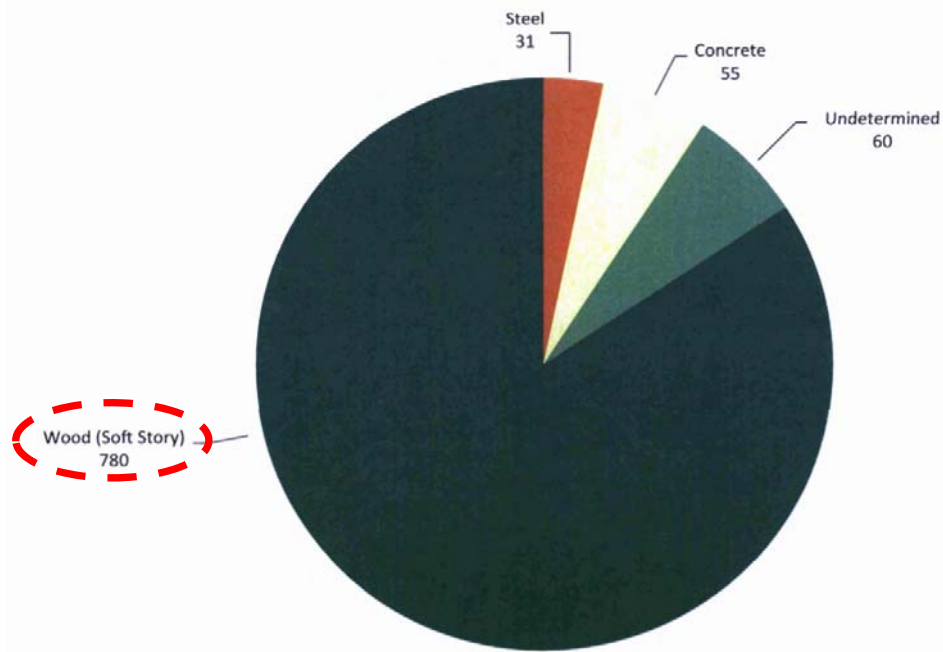
POLICIES



IMPLEMENT



Preliminary Survey Results



City of West Hollywood Seismic Retrofit Program Process



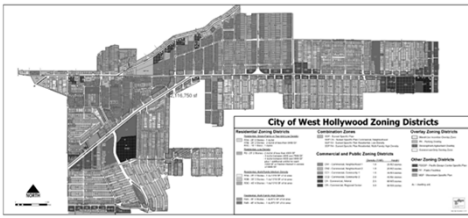
Policy Considerations



Proposed Policy

Policy Items	Los Angeles	West Hollywood	San Francisco
Voluntary or Mandatory Retrofit	Mandatory	Mandatory	Mandatory
Timelines	7 Years for 13,500 Bldgs	5Y for ~780 Bldgs	7 Years for 4,500 Bldgs
Priority Tiers	3 Tiers	3 Tiers	4 Tiers
Incentives and Facilitation Programs	Financial programs are being explored	Financial programs are being explored	Financial program was set up with AllianceNRG/Deutsche Bank
Architectural Improvements	Waived with exception of ADA	Waived with exception of ADA	Waived with exception of ADA
MEP Improvements	Waived	Waived	Waived

City of West Hollywood Seismic Retrofit Program



SITE SURVEY & RECORD RESEARCH

POLICIES

IMPLEMENT



Implementation



Wood Soft Story Ordinance



- 13.28.010 Purpose
- 13.28.020 Scope
- 13.28.030 Definitions
- 13.28.040 Compliance Requirements
- 13.28.050 Time Period for Compliance/Prioritization
- 13.28.060 Administration
- 13.28.070 Occupancy and Tenant Advisory
- 13.28.080 Historical Buildings
- 13.28.090 Analysis and Design
- 13.28.100 Information required on plans
- 13.28.110 Quality Assurance
- 13.28.120 Violation/Penalty
- 13.28.130 Applicability



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Wood Soft Story Ordinance



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UP TO 1 YEARS FROM NOTICE

November 29, 2016

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2 TO 4 YEARS FROM NOTICE

November 29, 2016

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Wood Soft Story Ordinance



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UP TO 5 YEARS FROM NOTICE

November 29, 2016

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Wood Soft Story Ordinance



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UP TO 5 YEARS FROM NOTICE

November 29, 2016

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Summary



Jurisdiction	Submit Engineering Report	Submit Retrofit Plans	Obtain Building Permit	Complete Construction	Total Time
Los Angeles	N/A	1 Year After Receiving Order to Comply	2 Years After Receiving Order to Comply	7 Years After Obtaining Retrofit Permit	7 Years
West Hollywood	1 Year from Notice to the Owner	2 Years from Notice to the Owner	4 Years from Notice to the Owner	5 Years from Notice to the Owner	5 Years
San Francisco	1 Year from Operative Date	2 to 5 years from Operative Date	N/A	4 to 7 Years from Operative Date	4-7 Years from operative date

Priority	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

Let's Talk about it



www.who.org/seismic

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