

UNIVERSITY *of* WASHINGTON

# URM IMPROVEMENTS



# URM IMPROVEMENTS OVERVIEW

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- > The UW has maintained an ongoing collaboration/dialogue since 2008 with the City of Seattle regarding the unreinforced masonry (URM) issue, policy development and associated historical concerns/issues.
- > We anticipate that the City of Seattle will pass an ordinance in the future requiring ALL owners to retrofit their URM buildings.
  - More than 1,100 buildings citywide (seven at the UW)
- > Money to begin the process at the UW (Phase 1) has been provided from the UW State Funded Building Account.



# URM IMPROVEMENTS OVERVIEW

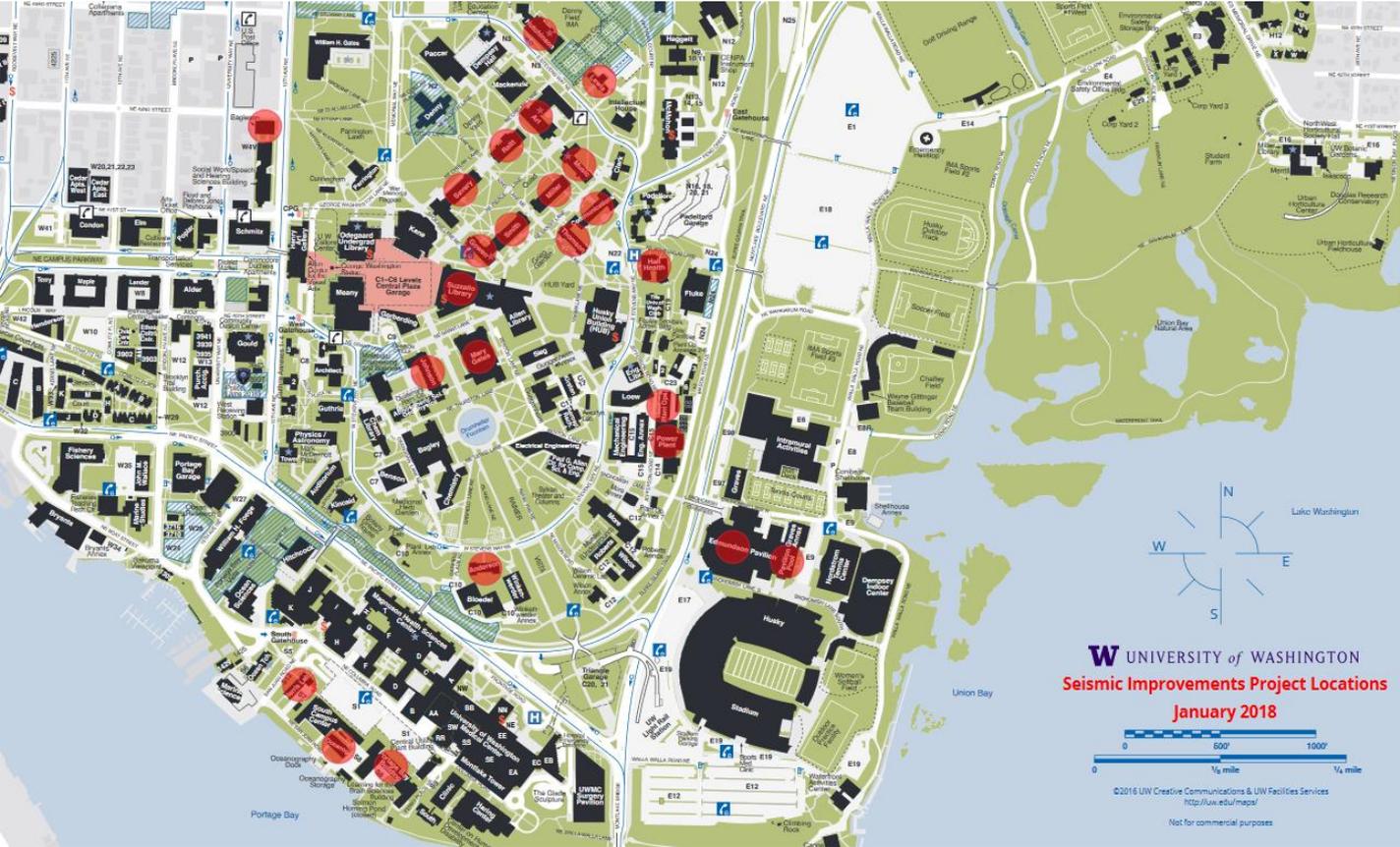
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- > 25 buildings on the UW Campus have been identified with needs.
- > Work to be completed over four (4) biennia (7 years)
- > Eleven buildings have been selected for Phase 1:
  - Smith Hall, Mary Gates Hall, Johnson Hall, Gowen Hall, Savery Hall, Music Building, Thomson Hall, Lewis Hall, Communications, Portage Bay Building, and the Power Plant.
- > Buildings were selected based on the following criteria:
  - Engineering study priorities, classroom utilization, operations & maintenance costs, synergy with Minor Works and Provost-funded projects and building classification type.



# URM IMPROVEMENTS OVERVIEW

## Campus Locations



# URM IMPROVEMENTS OVERVIEW

## Types of Corrections by Building

Building	Load Bearing Corrections	Façade Corrections	Parapet Corrections
Anderson Hall			
Art Building			
Communications			
Eagleson Hall			
Edmundson Pavilion			
Gowen Hall			
Hall Health			
Harris Hydraulics			
Hutchinson Hall			
Jacobsen Observatory			
Johnson Hall			
Lewis Hall			
Mary Gates Hall			

Building	Load Bearing Corrections	Façade Corrections	Parapet Corrections
Miller Hall			
Music Building			
Oceanography			
Pavilion Pool			
Plant Operations			
Portage Bay Bldg.			
Power Plant			
Raitt Hall			
Savery Hall			
Smith Hall			
Suzzallo Library			
Thomson Hall			

Gray shading indicates work at each building.



## PROJECT GOALS

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- > Structural improvements that help **STABILIZE** the buildings to make them less vulnerable to collapse during earthquakes.
- > **BRACING or STABILIZATION** of parapets and exterior wall appendages to ensure that the parapets and appendages remain in their original positions during earthquakes.
- > Connect UW staff with available **RESOURCES** by which departments and schools can increase their own seismic resilience.



# PHASE 1

## PRELIMINARY SCHEDULE

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- > The project will be delivered via a Design-Build process.
- > A preliminary agreement has been reached with the Contractor/design team.
- > The design and permitting process will begin in July and likely continue through the end of the year.
- > Construction is planned to begin in Fall 2018 with anticipated substantial completion for Phase 1 in Summer 2019.





## TYPES OF WORK

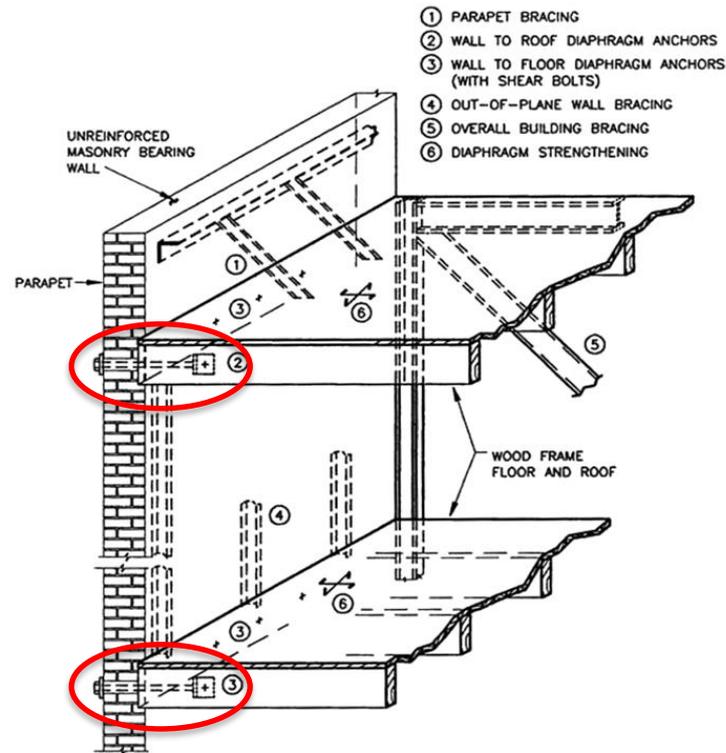
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- > Targeted improvements:
  - Load bearing corrections.
  - Masonry façade corrections.
  - Unreinforced masonry (URM) parapet corrections.



# LOAD BEARING CORRECTIONS

**Floor to wall connections**, additional plywood sheathing and interior support wall framing are added.

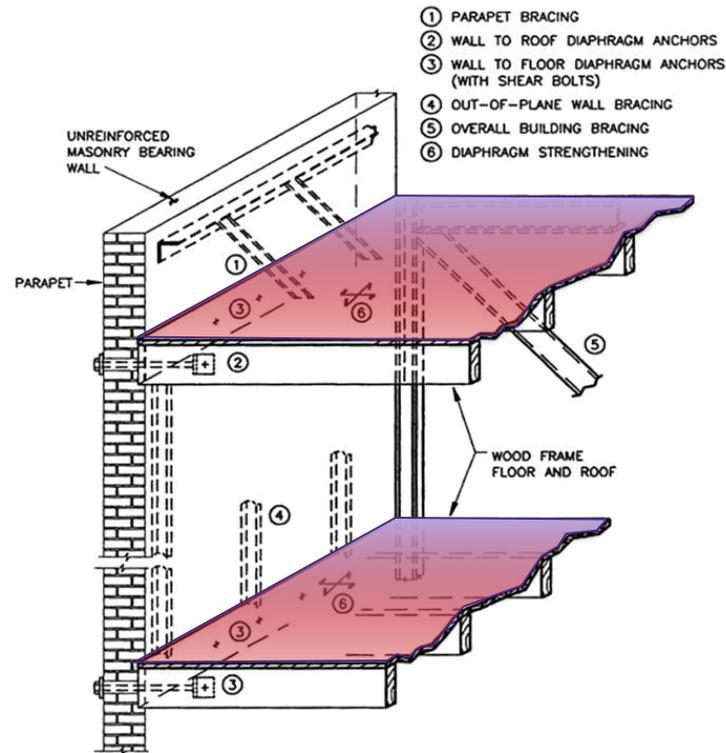


Base Image Credit: ASCE 31-03



# LOAD BEARING CORRECTIONS

Floor to wall connections, **additional plywood sheathing** and interior support wall framing are added.

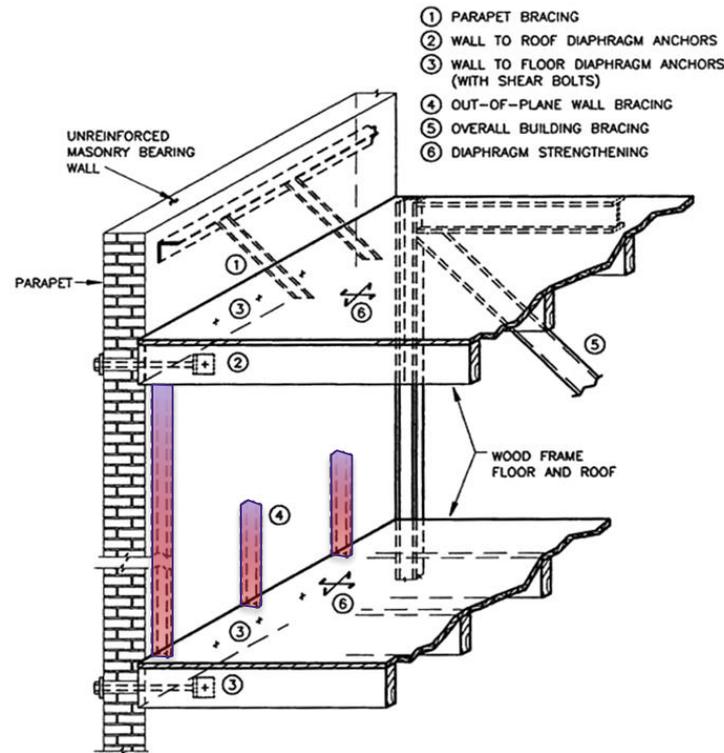


Base Image Credit: ASCE 31-03



# LOAD BEARING CORRECTIONS

Floor to wall connections, additional plywood sheathing and **interior support wall framing** are added.

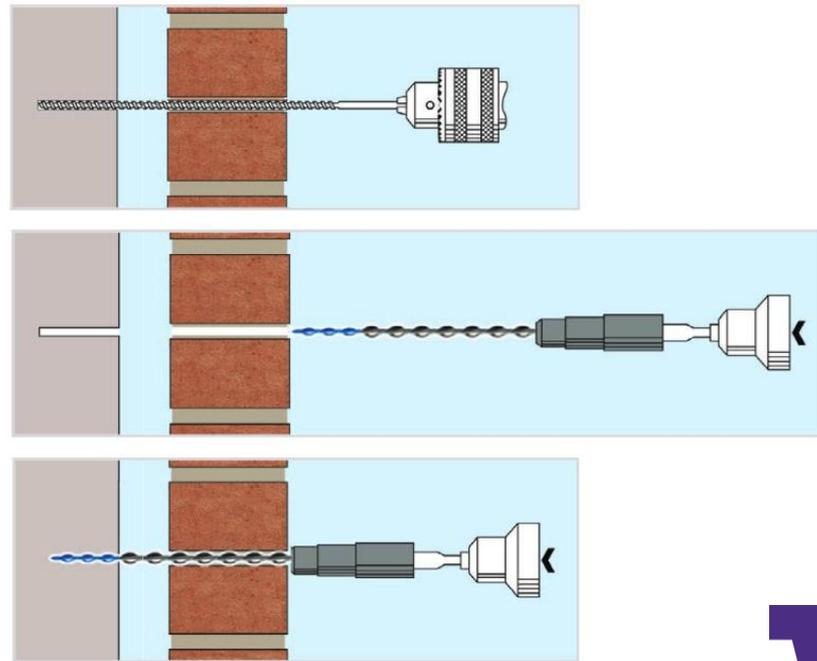
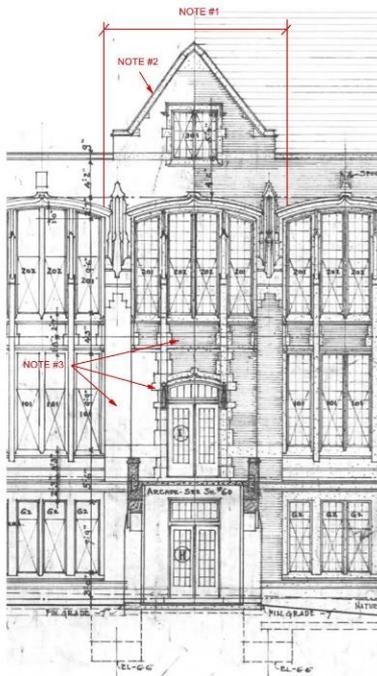


Base Image Credit: ASCE 31-03



# MASONRY FAÇADE CORRECTIONS

Masonry veneer anchorage points are inspected and improved as needed. Minimal to no visual impact.

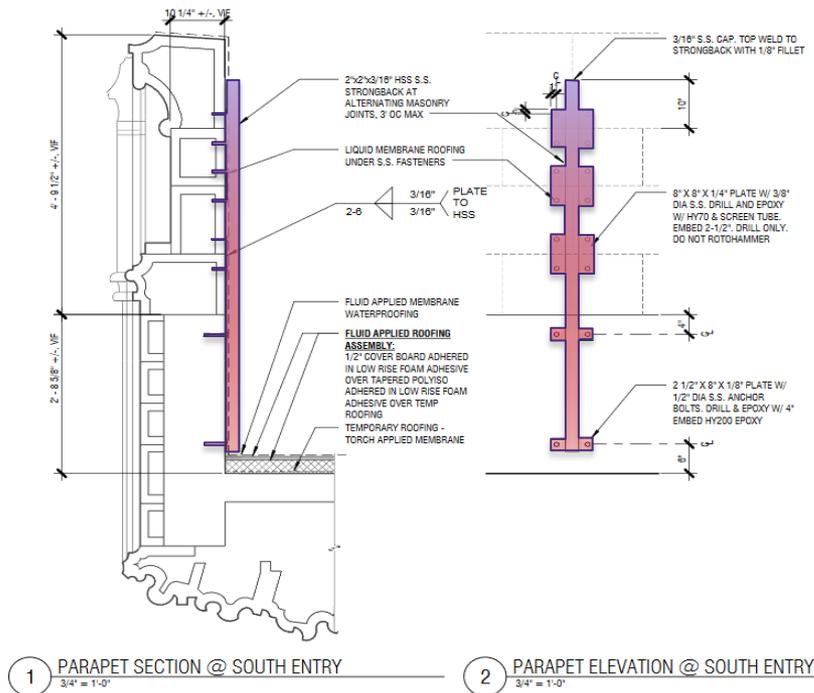


Helical Anchors  
(recently used on Lewis Hall)



# URM PARAPET CORRECTIONS

Parapets, and other masonry appendages, will be anchored to solid elements of the building structure.



Simple Parapet Brace

Image Credit: City of San Diego website



# SITE WORK ISSUES

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- > Accessing building façade and parapets/roofline
  - Scaffold
  - JLG Lift
- > Laydown areas (minimize extent...if at all)
- > Landscape restoration
- > Timing
  - Quad cherry tree bloom “traffic”
  - Pruning



# ADDITIONAL SOURCE FOR INFORMATION

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## City of Seattle URM Website

- <http://www.seattle.gov/dpd/codesrules/changestocode/unreinforcedmasonrybuildings/whatwhy/>

