Seattle Department of Construction and Inspections
sdci
Tip 345
Seattle Permits
— part of a multi-departmental City of Seattle series on getting a permit

Seattle Existing Building Code Requirements for Unreinforced Masonry Buildings

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This Tip explains what Unreinforced Masonry (URM) buildings are and discusses the seismic regulations impacting them. It will cover how we apply Seattle Existing Building Code (SEBC) Section 304.5 and other relevant sections to URM buildings. Currently, compliance with the URM seismic regulations is voluntary unless the building owner initiates changes to the building.

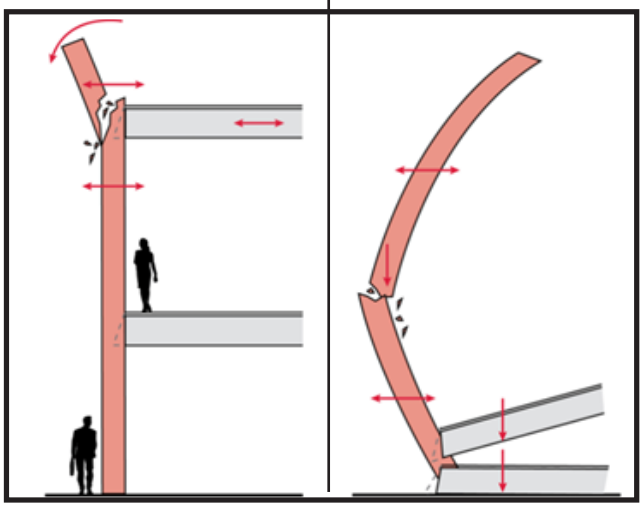
Building owners should consider potential public safety risks and liability posed by their URM building in an earthquake even though the City is not currently mandating URM retrofits. In California, building owners have been held liable for URM failures despite meeting retrofit compliance timelines from the local jurisdiction.

The latest information about development of a mandatory URM retrofit ordinance can be found on the **URM Program webpage**. Additional information can be found on the **URM Frequently Asked Questions page**.

What is a URM Building?

The 2021 SEBC Section 202 defines a URM building as "a building where one or more URM walls provide the primary support for vertical loads from floors or roofs and the URM walls rely on the tensile strength of masonry units, mortar and grout in resisting design loads." URM buildings were generally constructed prior to 1945 and unlawful after adoption of the 1973 Uniform Building Code on May 7, 1977. The majority of URM buildings were built with red clay brick but may include burned clay, concrete or sand-lime brick, hollow clay block, or hollow clay tile. Unreinforced concrete masonry units (CMU) are not included in the definition of URM.

When URM buildings were designed and constructed the impact of earthquakes on structures were not well understood. Past earthquakes have shown that these buildings are highly vulnerable to collapse during moderate to strong shaking, posing a significant risk to occupants.



Failure of a URM parapet *Floor-to-wall bearing connection failure*

Figure 1: URM Building Failure Types

Credit: Stephanie Redding | The Seattle Times. August 10, 2015.

Do I need to brace my URM parapets?

A parapet is any wall that continues vertically past the roofline. A URM parapet may collapse during an earthquake or extreme high winds, creating a serious public safety risk especially along streets and alleys, due to its height, weight, and weak structural connections. We have the authority to require elimination of unsafe conditions under SEBC Section 101.14 and 302.8. We require abatement of URM parapets and other unsafe appendages, like URM chimneys, as part of any construction or mechanical permit submitted for plan review. Even if your building is not of URM construction, URM parapets may be present.

When you submit a project for plan review, we screen for unbraced URM parapets and appendages. If they exist, we'll notify you of the abatement requirement. You can continue with your application, however, final approval will be placed on hold until you apply for a permit to address the parapets. If you face hardship, you can request a deferral by providing a letter from the building owner guaranteeing the timing of the work. The deferral letter allows issuance of a Temporary Certificate of Occupancy. You can apply for a Certificate of Occupancy once you submit the parapet abatement permit.

Will your project significantly increase the number of occupants?

Adding more people to an un-retrofitted URM building increases the risk to life safety during an earthquake. If the proposed number of occupants is significantly higher than what was legally established, the building must be retrofitted to reduce the risk to the occupants. The threshold for a "significant increase" varies based on the building's existing occupant count and type of occupancy. The number of occupants and the percentage increase are considered when determining whether the project is required to comply with the URM seismic regulations.

Example 1:

A retail store is remodeled, and the occupant load increases from 30 to 45. This is a 50 percent increase. It is not a significant increase because the overall occupant load remains low.

Example 2:

A night club proposes an increase in the occupant load from 500 to 625. This is a 25 percent increase. This is a significant increase because the overall occupant load is high, and the percentage increase is significant. A night club is also a higher risk occupancy type.

Note that if the change in occupancy results in a structure being reclassified to a higher risk category, as defined in the Seattle Building Code (SBC) Sections 202 and 1604.5, then the retrofit requirement will be stricter than the URM seismic regulations (see SEBC 304.2 – Structural provisions for changes of occupancy).

Will performing a seismic retrofit require additional upgrades of my URM building?

The SEBC requires parts of the building to comply with current codes when a significant scope of work is proposed for an existing building. We call this a substantial alteration. Major renovations, reoccupying a vacant building, or changing the building's use or occupancy to a higher hazard level may classify the project as a substantial alteration. Parts of the building may need to comply with current life safety and energy code requirements in addition to the seismic retrofitting in such cases. However, a voluntary seismic improvement alone does not trigger a substantial alteration.

You may schedule a free 15-minute coaching call to discuss the technical requirements of the retrofit process with one of our URM engineers.

Additionally, we highly recommend scheduling a Construction Pre-Submittal Conference for URM retrofit projects to determine if the work is a substantial alteration or if other systems upgrades will be required. You must submit a **Construction Pre-Submittal Conference Application** to schedule a Construction Pre-Submittal Conference. Under "Application Type" Be sure to select both "Construction only Pre-Submittal Conference" and "Unreinforced masonry (URM) building."

If you are trying to qualify your URM building for the Alternate Method, fill out the **URM Pre-Submittal Conference Seismic Retrofit Questionnaire** before your attend this meeting. Bring it with you to the pre-Submittal Conference.

Please see **SDCI Tip 314: Seattle Building Code Requirements for Existing Buildings that Undergo Substantial Alterations** for more information on substantial alterations.

City of Seattle URM Database

We maintain a **database** of URM buildings developed through in-person visual assessments, reviewing building photographs, and permit record analysis. While the URM database aims to be comprehensive, it may not capture every building in Seattle. If a building not in the database is later found to have URM load bearing walls, it will be classified as a URM building, added to the database, and subject to SEBC retrofit requirements.

How to remove a non-URM building from the Database.

If your building was incorrectly identified as a URM, you can appeal the determination. Our website outlines the **process** for filing an appeal.

How to change the retrofit status of a URM building in the Database.

If your URM building has been retrofitted, you can request recognition of the retrofit in the database by

submitting documentation demonstrating compliance with SEBC Section 304.5.1. Our website has information regarding the **required documentation** and **submittal procedures**. We'lll update the building's status in the "Confirmed Compliant Retrofit" column to "Yes" once the recotrofit is confirmed and approved. The adjacent "Retrofit Method per SEBC 304.5.1" column will address the case where the project is in plan review and whether they still need to submit the same documents. We'll notify you of the decision in writing and add it to your building's permit record. Retrofitted URM buildings are not removed from the URM database.

What are the options for retrofitting or recognizing my existing retrofit?

There are three pathways for recognizing a URM building as retrofitted:

1. Retrofit to the same level required for a substantial alteration, per SEBC Section 304.4.2.
2. Retrofit to the minimum acceptable standard by following SEBC Chapter A6, also known as the Alternate Method. Not all buildings qualify, see list of qualification criteria in SEBC section A603.
3. Demonstrate completion of a previous retrofit:
    a. If a retrofit occurred due to a substantial alteration after September 16th, 1996, but before April 24th, 2009, you can submit a report prepared by a licensed structural engineer indicating the level of retrofit and mitigated seismic deficiencies.
    b. For a retrofit completed due to a substantial alteration after April 24th, 2009, submit the SDCI permit number for the seismic retrofit work and SDCI will evaluate its compliance.
    c. For other retrofits potentially meeting the minimum compliance standards outlined in the Alternate Method or an older comprehensive retrofit, contact the URM Program at **SCI_URM@seattle.gov** prior to submitting an application.

Do I need to retrofit my URM home?

The URM seismic regulations do not apply to one- and two-family dwellings or townhomes. Structures regulated by the Seattle Residential Code (SRC) are exempt from the URM seismic regulations. However, URM chimneys attached to SRC structures may need mitigation and guidance is provided in **SDCI Director's Rule 5-2004**. If you are interested in improving your home's seismic resilience, consider using the **Earthquake Home Retrofit Program** or hiring a professional engineer.

Use the URM Retrofit Compliance Flowchart, shown below, to find the best path for retrofit recognition: