

EXHIBIT A: MEMO TO COUNCIL

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TO: Portland City Council

FROM: Courtney Patterson, Interim Director, Bureau of Emergency Management *CAP*
Rebecca Esau, Director, Bureau of Development Services *RE*

RE: Unreinforced Masonry Building Mandatory Retrofit Policy

DATE: May 9, 2018

Portland has a high concentration of URM buildings – more than any other city in the Pacific Northwest. We also have high seismic hazard. These URM buildings pose a significant life safety hazard to occupants and the general public in the event of an earthquake.

Recognizing hazards posed by URM structures, in May 2014, the Portland City Council directed the Portland Bureau of Emergency Management (PBEM) and the Bureau of Development Services (BDS), with support from Prosper Portland, to develop recommendations to address the risks of unreinforced masonry (URM) buildings in Portland.

Over the last nearly four years, PBEM, BDS, and Prosper Portland worked with URM experts, owners, and other stakeholders to develop policy proposals. Deliberations also engaged many URM building owners and managers, and called on a mixture of science, engineering, economics, finance, politics, and policy. We are grateful to the members of the URM Policy Committee, the Retrofit Standards Committee and the Support Committee for their time and thoughtful engagement with this complex and important issue. The report provided as **Exhibit B** reflects the consensus recommendations of this group.

Mandatory Retrofit Recommendation

The Policy Committee reached agreement on a program of limited, but mandatory, URM building retrofits. These are described in technical terms in the table on page three of this memo. In lay terms, they would require:

- Essential structures (URM Class 1 buildings) to be retrofitted to be operational after an earthquake,
- Schools and some large public assembly spaces (URM Class 2 buildings) to be retrofitted to a damage control standard, which would mean they would be more likely to be repairable after an earthquake and functional in a relatively short time frame after the event.
- For the majority of other URM buildings (URM Class 3 and 4 buildings, which represent approximately 80% of the URM building stock), the Policy Committee recommended the mandatory retrofit requirements should be to brace parapets, chimneys, and cornices; tie walls to roof; and tie floors to walls in multi-story buildings, to reduce the likelihood of collapse during an earthquake.

The proposed standard for Class 3 and 4 buildings is a much lower standard than the Life Safety Standard upgrade initially proposed by the Retrofit Standards sub-committee, and much less than the standards adopted in California cities or the one being considered in Seattle. For most URM buildings, these retrofits would reduce the risk of complete collapse, but would not necessarily achieve even a Collapse Prevention performance standard. This lower seismic standard was proposed based on feedback the Policy Committee heard from stakeholders, including many building owners, who expressed concern with high cost of a full Life Safety upgrade.

In addition to the mandatory seismic upgrade requirements the committee also recommended strengthening existing regulations contained in City Code Title 24.85 related to required upgrades to URM buildings.

Staff generally support recommendations of the URM Policy Committee related to mandatory retrofitting and related to incentives. We recommend that the Council move forward with the Committee recommendation, which are described in **Exhibit B page 32**, and listed in the resolution. In summary, they are:

- Codify proposed mandatory building retrofit rules and return to Council for adoption. (The proposed standard is summarized in the table on the following page.)
- Continue to update the URM building inventory, and to prepare to send a notice to URM building owners of their status and new requirements.
- Develop a proposal to implement the Seismic Retrofit Tax Exemption in Portland.
- Develop a proposal to capitalize and administer a pool of funds to support seismic retrofits of privately-owned buildings, through loans or interest-rate buy-downs.

Staff also recommend that Council continue to seek additional opportunities to support seismic retrofitting of URM buildings, including:

- Develop a proposal to provide staff that would assist URM building owners in navigating the retrofit process, including permitting and financing options.
- Assess City-owned URM buildings and develop plans to retrofit them.
- Develop legislative concepts for the additional incentives proposed by the committee that will require state legislative action, such as a state historic tax credit, and include these in the council's legislative agenda in the next long session (2019).

Summary of Proposed Engineering Standards for URM Building Retrofits

Building classification and description	Approx. # buildings ⁴	Upgrade Level ^{2,3}
<p>URM Class 1:</p> <p>Critical Buildings (Risk category¹ IV buildings, power stations serving critical facilities, water facilities, other public utilities)</p>	<p>6</p>	<p>Evaluation and Retrofit Level: Tier 3 in accordance with ASCE 41. Performance Objective: BPON for Risk Category IV. Structural Performance Objective: Immediate Occupancy for BSE-1N and Life Safety for BSE-2N. Non-Structural Performance Objective: Operational for BSE-1N for all non-structural components assigned a component importance factor, $I_p=1.5$ as defined in ASCE 7-10 Chapter 13, as well as URM parapets, cornices, partitions, chimneys, and hollow clay tile partitions.</p>
<p>URM Class 2:</p> <p>A. All school buildings B. Risk category¹ III buildings</p>	<p>92, including 44 schools 38 churches 10 other buildings</p>	<p>Evaluation and Retrofit Level: Tier 3 in accordance with ASCE 41. Performance Objective: BPOE for Risk Category III. Structural Performance Objective: Damage Control for BSE-1E and Limited Safety for BSE-2E. Non-Structural Performance Objective: Position Retention for BSE-1E for URM parapets, cornices and chimneys as well as unreinforced masonry or clay tile partitions along major routes of egress.</p>
<p>URM Class 3:</p> <p>All URM buildings with more than ten occupants that are not critical facilities, schools, or Risk Category III or IV buildings (everything not in class 1, 2, or 4).</p>	<p>1,332 Plus 35 churches and other buildings owned by non-profits (but not schools) may elect to meet this standard and post a placard noting earthquake risk.</p>	<p>Evaluation and Retrofit Level: Tier 2 deficiency only in accordance with ASCE 41. Performance Objective: Limited Performance Objective.</p> <p>Only the following elements are required to be upgraded per ASCE 41 for Life Safety performance under the BSE-1E and Collapse Prevention under the BSE-2E: a. brace URM parapets, cornices and chimneys; b. anchor URM walls to floors and roofs for out of plane loading; c. attach roof diaphragm to vertical elements to transfer in plane shear; d. New roof sheathing as required for diaphragm functions.</p>

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Classification	Approx. # buildings ⁴	Upgrade Level ^{2,3}
<p>URM Class 4: 1 and 2-story buildings with 0-10 occupants.</p>	<p>201</p>	<p>Performance Objective: Limited Performance Objective.</p> <p>Only the following elements are required to be upgraded per ASCE 41 for Life Safety performance under the BSE-1E and Collapse Prevention under the BSE-2E: a. brace URM parapets, cornices and chimneys; b. anchor URM walls to roofs for out of plane loading.</p>

ABBREVIATIONS AND REFERENCES FROM THE ABOVE TABLE:

RISK CATEGORY is defined in *Oregon Structural Specialty Code, 2014, Table 1604.5.*

ASCE 41 refers to latest edition of American Society of Civil Engineers standard ASCE 41. As of this writing, the reference standard is ASCE 41-13.

BASIC PERFORMANCE OBJECTIVE FOR EXISTING BUILDINGS (BPOE) is a series of defined performance objectives for existing buildings, based on a building's risk category; shown in Table 2-1 of ASCE 41.

BASIC PERFORMANCE OBJECTIVE FOR NEW BUILDINGS (BPON) is a series of defined performance objectives for new buildings, based on a building's risk category; shown in Table 2-1 of ASCE 41.

BASIC SAFETY EARTHQUAKE 1E (BSE-1E) is taken as a seismic hazard with a 20% probability of exceedance in 50 years in accordance with ASCE 41, except that the design spectral response acceleration parameters, SXS and SX1, shall not be taken less than 75 percent of the respective design spectral response acceleration parameters for the BSE-1N seismic hazard level and need not be taken greater than those for the BSE-1N.

BASIC SAFETY EARTHQUAKE 1N (BSE-1N) is taken as two-thirds of the BSE-2N in accordance with ASCE 41.

BASIC SAFETY EARTHQUAKE 2E (BSE-2E) is taken as a seismic hazard with a 5% probability of exceedance in 50 years in accordance with ASCE 41, except that the design spectral response acceleration parameters of, SXS and SX1, shall not be taken less than 75 percent of the respective design spectral response acceleration parameters for the BSE-2N seismic hazard level and need not be taken greater than the BSE-2N.

BASIC SAFETY EARTHQUAKE 2N (BSE-2N) is taken as a seismic hazard corresponding to the risk-targeted maximum considered earthquake (MCER) in accordance with ASCE 41.

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Public Information Recommendation

It was challenging to engage URM building tenants and occupants in deliberations about URM building policy. Many people who live, work, or attend school in URM buildings are not aware of the risks inherent in the structure. And for many residential tenants, the current housing crisis makes future emergencies difficult to prioritize.

Staff do not support exempting property owners from tenant relocation fees, since URM building retrofitting work is designed and planned over a long period, usually more than a year, and residential property owners will have fifteen years to complete the requirements. This is more than adequate time to incorporate necessary work into lease agreements, rather than evicting tenants for no cause.

Considering the limited participation of URM building users in the policy process, and given that the proposed URM building retrofit standards will not prevent the collapse of many URM buildings in an earthquake, staff also recommend two additional steps to protect the interests of the public:

- Develop an ordinance to require landlords to disclose to tenants the URM status of a building in the rental agreement, if the building has not been retrofitted to achieve Collapse Prevention standard as defined in ASCE -41, and
- Develop an ordinance to require owners of commercial URM buildings to post a placard at public entrances informing users that the building is a URM building, if it has not been retrofitted to Collapse Prevention standard as defined in ASCE -41.

These recommendations extend recommendations made by the committee; the committee recommended that churches and non-profits retrofit buildings, including large assembly spaces, to collapse risk reduction standard and post placards. They did not suggest that private buildings retrofitted to collapse risk reduction post placards. Because the risks to users are the same, staff recommend that both do so. The committee also suggested that the City pursue statewide legislation on tenant notification before implementing it locally. Because jurisdictions in other parts of the state have different risks, staff cannot recommend imposing the requirement statewide without further study.

Staff recognize that informing tenants and occupants of a building's risks will be unpopular among many building owners. However, URM buildings pose grave danger to occupants and bystanders in an earthquake. These buildings cannot be recognized by sight. And the City has a thorough inventory of these risky structures. Residents ought to have access to the same information when they sign a lease or enter a building, so that they can make decisions in their own interests. Simply posting the information on the internet does not inform potentially vulnerable groups in a consistent or timely way.

In the longer term, informing building occupants of risks may also stimulate market demand for URM building retrofits; lack of market demand for retrofit was a significant obstacle in developing financing strategies for URM buildings.

We expect that building owners, residents, and realtors to provide input into the notification ordinances and implementation process. BDS, Prosper Portland, and PBEM can move these forward with their input.