



TYPICAL SEISMIC RETROFIT SCOPE OF WORK

This document outlines a typical scope of work used to develop budget estimates for seismic retrofitting. These recommendations are based on preliminary site observations and common industry practices for improving structural performance during an earthquake. Final plans will be developed after full engineering review.

OVERVIEW

The goal of a seismic retrofit is to reduce structural vulnerabilities that can lead to damage or collapse during an earthquake. Typical upgrades may include wall anchorage, roof diaphragm reinforcement, continuity ties, and other load path improvements. The measures below reflect common retrofit strategies for older commercial or industrial buildings.

Note: These recommendations are preliminary and may change following formal engineering analysis and structural calculations.

STRUCTURAL IMPROVEMENTS UNDER CONSIDERATION

WALL ANCHORAGE TO ROOF DIAPHRAGM

Walls must be securely anchored to the roof to prevent separation during seismic shaking. This can be achieved using wall anchors or steel tie rods placed symmetrically at structural elements like beams, purlins, and sub-purlins.

- **Spacing:** Anchors typically installed at no more than 8 feet on center.

ROOF DIAPHRAGM CONTINUITY TIES

To distribute seismic forces across the roof diaphragm, continuity ties should be installed in both directions.

- **Spacing:** No more than 24 feet on center
- **Purpose:** Ensures the anchorage loads are properly transferred across the diaphragm



ROOF DIAPHRAGM NAILING

Improving the nailing of the roof diaphragm may further enhance building performance.

- This is not included in the current budget.
- If needed, it will be included in future construction documents—typically when the building is re-roofed.

COLLECTORS AND CHORDS

Collector elements and chord members may be required to complete the lateral force-resisting system.

- These elements will be designed as needed based on final engineering calculations.
- Common locations include re-entrant corners or long diaphragm spans.

SEISMIC LOSS ESTIMATES: WHY THEY MATTER

Scenario loss ratios are commonly used in financial risk analysis for buildings in seismic zones. These include:

- **SEL (Scenario Expected Loss)** – The estimated average percentage of building replacement cost that could be lost during a defined seismic event. It reflects a 50% chance that actual losses could exceed this amount and is commonly used for risk assessment, insurance planning, and financial decision-making.
- **SUL (Scenario Upper Loss)** – A more conservative estimate of potential loss during a seismic event, representing the upper end of expected damage. It reflects a 10% chance that actual losses could exceed this value and is often used by lenders and insurers to evaluate worst-case financial exposure.

Many lenders require buildings to meet specific SEL or SUL targets before approving financing or refinancing. A well-designed retrofit can reduce both estimates—making the building safer and more financially viable.



KEY TAKEAWAYS

- These upgrades improve building performance and reduce earthquake risk.
- All recommendations are subject to revision based on the engineer's structural analysis.
- The scope reflects standard practices used in budgeting and pre-construction planning.

WORKING WITH SAUNDERS SEISMIC

Since 1979, [Saunders Seismic](#) has focused exclusively on commercial and industrial earthquake retrofits, structural repairs, and reinforcements. With in-house construction crews and decades of field experience, we help clients evaluate retrofit needs, develop effective scopes of work, and complete projects with minimal tenant disruption.

Every retrofit is designed to meet real-world performance goals and align with engineering, lender, and insurance requirements—helping you strengthen your building with confidence.

[Contact us today](#) to learn how we can support your next seismic retrofit project.