



Standard Practice for Probable Maximum Loss (PML) Evaluations for Earthquake Due-Diligence Assessments^{1,2}

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1. Scope

1.1 This practice establishes standard-of-care for evaluation and classification of the financial risks from earthquake damage to real estate improvements for use in financial mortgage transactions and capital investment evaluation. As such, this practice permits a user to satisfy, in part, their real estate transaction due-diligence requirements with respect to assessing and characterizing a property's potential losses from earthquakes. This practice is intended to address only physical damage to the property from site and building response.

1.1.1 Hazards addressed in this practice include earthquake ground shaking, earthquake-caused site instability, including faulting, subsidence, settlement landslides and soil liquefaction, earthquake-caused tsunamis and seiches, and earthquake-caused flooding from dam or dike failures.

1.1.2 Earthquake-caused fires and toxic materials releases are not hazards considered in this practice.

1.1.3 This practice does not purport to provide for the preservation of life safety, or prevention of building damage associated with its use, or both.

1.1.3.1 This practice does not address requirements of any federal, state, or local laws and regulations of building construction or maintenance. Users are cautioned that current federal, state, and local laws and regulations may differ from those in effect at the times of construction or modification of the building(s), or both.

1.1.3.2 This practice does not address the contractual and legal obligations between prior and subsequent Users of seismic risk assessment reports or between providers who prepared the report and those who would like to use such prior reports.

1.1.3.3 This practice does not address the contractual and legal obligations between a provider and a user, and other parties, if any.

1.1.4 It is the responsibility of the owner of the building(s) to establish appropriate life-safety and damage prevention practices and determine the applicability of current regulatory limitations prior to use.

1.2 Considerations not included in the scope: the impacts of damage to contents, loss of income(s), rents, or other economic benefits of use of the property, or from legal judgments, fire sprinkler water-induced damage or fire.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 *ASTM Standards*:³

E2026 Guide for Seismic Risk Assessment of Buildings

2.2 *Other Standards*:⁴

UBC-97 Uniform Building Code, 1997 Edition

IBC International Building Code, current edition

2.3 *ASCE Standards*:⁵

ASCE 7 Minimum Design Loads for Buildings and Other Structures, current edition

ASCE 41 Seismic Evaluation and Retrofit of Existing Buildings, current edition

3. Terminology

3.1 See also definitions in Guide **E2026**.

3.2 *475-year site ground motions, n* —seismic induced ground motions at a site with approximately: a return period of 475 years, a 10 % probability of exceedance in 50 years, and an annual frequency of 0.21 %. Also referred to as the DBE.

3.3 *field assessor, n* —field assessor, as defined in Guide **E2026**.

¹ This practice is under the jurisdiction of ASTM Committee **E06** on Performance of Buildings and is the direct responsibility of Subcommittee **E06.25** on Whole Buildings and Facilities.

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³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from International Code Council (ICC), 500 New Jersey Ave., NW, 6th Floor, Washington, DC 20001, <http://www.iccsafe.org>.

⁵ Available from American Society of Civil Engineers (ASCE), 1801 Alexander Bell Dr., Reston, VA 20191, <http://www.asce.org>.