

ASTM E 2026-16a & E 2557-16a: Changes to the Seismic Risk Assessment Standards

INTRODUCTION

As part of continuing efforts by ASTM to keep its standards relevant and up to date with ever changing market and regulatory requirements, ASTM has released the latest editions of ASTM E2026-16a, the *Standard Guide for Seismic Risk Assessment of Buildings* and ASTM E2557-16a, the *Standard Practice for Probable Maximum Loss (PML) Evaluations for Earthquake Due-Diligence Assessments* (the Seismic Risk Assessment standards). EBI Consulting has several practices already in place that address many of the changes implemented in the new documents and has implemented the remaining changes so that all Seismic Risk Assessments engaged on or after July 15, 2016 will comply with the new standards.

CHANGES IN ASTM E2026-16a AND ASTM E2557-16a

The intent of the changes is to reflect what many consultants are currently doing in the marketplace to respond to the need for more stringent qualifications for those completing assessments, and to set forth client (User) responsibilities when engaging consultants in the completion of Seismic Risk Assessments.

Specific changes include the following:

Revisions to the Qualifications of the Team Preparing the Seismic Risk Assessment:

The required qualifications are defined based on the new guide's identified levels of investigation as described below. EBI is currently able to complete Seismic Risk Assessments at the following levels of investigation: 0, 1, and 2.

- Level 0 is often referred to as a screening level or desktop review and is based on general information about the building type, characteristics and site information. It is considered to have a high uncertainty level. EBI provides this level of investigation based on collection of building data in the field by an experienced field assessor and report preparation, drawing review (when available) and PML calculation by a licensed professional or structural engineer. This level is very similar to the seismic reports we have been providing for years, where we use experienced personnel to collect the seismic information in the field. Level 0 is best suited for lenders/investors that are comfortable with PML estimates calculated the way they have been in the past and who are using the seismic report as an internal risk document and are unlikely to have any other users involved.

- Level 1 is generally considered an engineering cursory review, including a review of construction documents and a site visit by a licensed professional or structural engineer. It is considered to have a moderate uncertainty level. EBI provides this level of investigation based on collection of building data in the field by a licensed professional or structural engineer and report preparation, drawing review (when available) and PML calculation by a licensed professional or structural engineer.

Level 1 is the level that ASTM is essentially recommending for users in the lender market, especially lenders who are involved with secondary investors, rating agencies and others not internal to their own decision making process. This level imposes stricter experience and professional licensing requirements for the field assessment, report preparation and review. As a result, the level of effort has increased.

- Level 2 is considered a detailed evaluation. It is generally conducted by a licensed professional or structural engineer with specific knowledge of the particular building systems and requires specific engineering calculations to determine the anticipated structural behavior of the building during an earthquake. Level 2 is considered to have a low uncertainty level.

- ▶ **Outcome:** Little impact for clients requesting Level 0 assessments. For clients requesting Level 1 or above assessments, pricing, as well as turnaround time will increase due to the need for a licensed professional or structural engineer to conduct a site visit.

Importance of the User (Client) Providing Original Construction Drawings for the Investigation: Another significant change is the new emphasis on obtaining and using structural drawings in the assessment. The new guides put the burden of providing these drawings squarely on the User (i.e. the lender or buyer). Additional information relevant to the Seismic Risk Assessment includes geotechnical investigation reports and prior Seismic Risk Assessment

reports. **EBI's fee, schedule and ability to comply with the new guide is directly dependent upon the User's ability to provide structural drawings at the outset of the project. Per the standards, the lack of structural drawings will be identified as a limitation in our assessment.** The standards anticipate that the User is in the best position to obtain structural drawings from the current owner. When not available in their files, these can often be obtained from the municipality or the engineer of record. Most often, the owner has the authority to obtain these.

- ▶ **Outcome:** Clients and/or borrowers will need to participate at the front end to provide the structural drawings, geotechnical reports, and any other seismic related due diligence materials to EBI. Otherwise, the lack of information will be identified as a limitation in our assessment.

Inclusion of Appendices Consistent with ASTM E2557-16a X4 and X5: Each of EBI's Seismic Risk Assessment reports now includes appendices consistent with the new ASTM E2557-16a Appendices X4 and X5. Appendix X4 is a summary findings form that summarizes information relevant to the Seismic Risk Assessment including: the individuals performing the site visit and evaluation; the specific design documents reviewed; the analysis methods/procedures used to determine the site ground motion, site stability, PML and building stability; and a summary detailing any exceptions to the ASTM requirements. Appendix X5 is a summary of important information concerning seismic risk assessment reports including a general review of different levels of investigation.

- ▶ **Outcome:** The Appendices marginally increase the length of Seismic Risk Assessment reports.

THE BOTTOM LINE

EBI will continue to provide users with Seismic Risk Assessments that meet this latest revision to the ASTM standard. As discussed above, the most significant changes to the standards are related to: (1) the qualifications of the team preparing the Seismic Risk Assessment report and (2) the importance of the User (our client) in providing original construction drawings for the investigation. For clients requiring a Seismic Risk Assessment at Level I or above, the associated fees and turnaround time are expected to increase when compared to Level I assessments performed under the 2007 editions of the ASTM guides.

EBI has always provided Seismic Risk Assessments that meet these standards and has also included information within our Seismic Risk Assessments that satisfies our clients expectations and scope of work.

If you have any questions or concerns regarding the new standard and its contents, please contact your client representative, Chuck Losinger at 617.308.6756 or closinger@ebiconsulting.com, or Doug McCan at 949.842.8699 or dmccan@ebiconsulting.com.