Understanding PMLs and Managing Engineering Providers

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In a land plagued by earthquakes, lenders seek to protect their portfolio from seismic collapse and the mortgage brokers must overcome one more hurdle to fund a deal. Lenders interested in understanding the seismic risk to their collateral require Probable Maximum Loss (PML) reports. The PML can be a lynchpin for a real estate financing transaction. A failing PML precipitates onerous requirements that may often kill a deal. Lenders and mortgage brokers want to understand why a building passes or fails and they need a PML engineer to produce reports that can be trusted.

The PML has long been a somewhat controversial product for mortgage bankers and borrowers, as too often they have seen two engineers return two significantly different PML numbers for the same property. Historic use of the inconsistently defined term PML has left much confusion over what has been the measure of risk in the past and what is the comparable measure under ASTM terminology. This is because the methods employed to calculate the PMLs by engineers have varied widely. Recently, ASTM has updated their original PML Standard with ASTM 2026-07 and published a new standard aimed directly at lenders, ASTM 2557-07 and these new standards have gone a long way toward creating consistently.

The ASTM Standards are not a cure-all. ASTM 2026-07 is a very flexible standard; this standard is a tool box that literally offers 768 different ways to do a PML. For a banker, PMLs that are calculated differently, and cannot be compared to each other, create unwanted inconsistency in their underwriting process.

To fix the 768-types-of-PMLs problem, a banker must specify which method they need. This seemingly simple service request is about as complicated as ordering a latte at Seattle's most pretentious coffee shop. Here is how to order a PML: ASTM 2557 recommends that the PML is reported as the Scenario Expected Limit, Design Basis Earthquake (DBE), 475-Year-Event and I recommend adding: Level 1 Building Damageability Assessment, Level 1 Building Stability Assessment, Level 1 Site Stability Assessment, and Calculated by the Thiel Zsutty Method. Wow…that is a mouthful.

Insist that your engineers follow these tips and you will find that your PMLs are more transparent, understandable, and consistent with other finance industry PMLs.

1. Report one number, define the PML as the SELDBE. Offering PMLs as both the Scenario Expected Limit (SEL) and the Scenario Upper Limit (SUL) is too confusing. Accept the recommendation of ASTM E2557 and require your engineer to report the PML as the SEL only. Many lenders will also want to see the SUL because it is more conservative, but it should be included deeper in the report and not be referred to as the PML. This avoids confusion. A lender can still create a more conservative policy by comparing the SEL to a lower number. For example, a lender desiring to be more conservative could use 18% as the trigger for a retrofit instead of the standard 20%.
2. Require that the engineers use the Thiel Zsutty Method to calculate the PML. This is the most commonly used method in the marketplace and is more transparent than other calculations (the importance of transparency is discussed below). While the ASTM Standards do not specify a method of calculating the PML, if you allow one engineer on your panel to use Thiel Zsutty and another to use their own proprietary method or STRISK, then you will receive inconsistent results.
3. Show the math. Simply giving a high PML result without demonstrating how it was derived not only makes it impossible to take

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of asking our members to invest in their association by renewing their membership for the 09-10 year, I wanted to give you a little insight into how your membership dollars are spent at CMBA. I know many of us have to make hard decisions each year about which professional associations we will belong to, and many times the decision comes down to how effectively we think the association spends our money. Unlike many related associations, CMBA has not significantly expanded our overhead costs during the recent boom years. Instead, thanks to prudent management by staff and our Board of Directors, CMBA has not committed to long-term or wasteful spending. While many organizations have been forced to demand increased dues mid-year, CMBA has maintained our high level of service and quality without raising your dues.

Speaking of service, I wanted to take a minute in each of the next few columns to highlight some membership benefits of which you might not be aware. We changed our Membership Directory format this past year. Instead of sending one printed version to each company (how well does that work for companies with more than one employee?), we have made the Directory fully electronic and accessible by any employee of a CMBA member company. In addition, with all the personnel fluidity in the market these days, a once-a-year printing would make the Directory obsolete very quickly. With the new format, we can update any time in real-time – just send any changes to dustin@cmba.com. As a benefit for helping us keep the Directory relevant, we'll highlight the changes on the CMBA homepage! To access the Directory, go to www.CMBA.com and login to reach the 'Members-Only' section of the site, where you'll find the Directory link. Get your money's worth - make sure everyone in your office checks it out to stay on top of who's who in our industry. If you don't have an ID and password, e-mail Carol at the CMBA office (carol@cmba.com) to get started.

One of the best ways you and your company can help us serve you better is to send us your input! CMBA is not a black hole of red tape and bureaucracy – if you've got a great idea that you think would benefit your company and other CMBA members, call the office at (916) 446-7100 and talk to Susan, Dustin, Stacey or Carol. Whether you're a mortgage banking firm, an industry vendor, or a trade association, a challenging market environment requires the best organizations to always be on the hunt for the next great idea!

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remedial measures, but also makes conducting a peer review futile. How can anyone discuss or refute a computation that is absent? Peer reviewable work is a fundamental hallmark of the engineering profession, and requiring engineers to show their work should be standard.

4. Explain the "b" value. The most controversial variable in the Thiel Zsutty Method is clearly the Building Vulnerablity Parameter, or the "b" value. The engineer should explain how the "b" value was chosen. The determination of a building's damageability factor, b, starts with a table look-up and then must be carefully adjusted to specific earthquake damageability characteristics of the building that the engineer encounters in the field. Absent this discussion, the report suffers from the fatal flaw of being inscrutable.
5. Require the work to be done and signed by a registered engineer. Structural assessment of buildings is at the heart of engineering work. Only registered engineers possess the requisite certification, knowledge and skill for performing PMLs. They also carry personal liability for every report they generate, and are therefore acutely aware of their gravity of their signature. While others may be able to hand over a PML, hiring a registered engineer is the only way to be certain that the resultant report has been formulated competently.

Bankers have long been frustrated by the lack of consistency and transparency in PMLs. If bankers instruct the engineers very precisely, the PML products delivered by the engineering community will feel less like supposition and more like science.