



SEAOC's Recommendations Regarding Mandatory Engineering Assessments

December 6, 2021

Summary:

1. Since the collapse of Champlain Towers South in Surfside, Florida, SEAOC and other professional organizations have been reviewing ideas about proactive structural condition assessment.
2. In particular, the County of Los Angeles solicited SEAOC's guidance on a proposed program of mandatory inspections. The State of Florida, with support from the International Code Council, has drafted a document to guide mandatory inspections of three types:
 - Annual "Maintenance Inspection" that typically does not involve a licensed engineer
 - "Periodic Inspection" that might involve a licensed engineer, typically every 10 to 15 years after initial construction
 - "Milestone Inspection" involving engineering assessment by a licensed engineer, 20 to 30 years after initial construction.
3. SEAOC has reviewed the ideas put forward by these groups and has adopted the position explained in this document and summarized here:
 - SEAOC supports a more proactive implementation of existing regulations, especially those based on maintenance inspections.
 - Current proposals for mandatory "Periodic" and "Milestone" inspections are not justified by observed performance of California buildings or by shortcomings in existing regulations. There is also no evidence that a program of such inspections would improve performance or prevent damage or collapse, especially if it distracts from other more beneficial work.
 - Current proposals for "Periodic" and "Milestone" inspections also pose a number of technical, logistical, professional practice, and legal issues.

Introduction:

SEAOC continues to follow studies of the June 24, 2021 collapse of Champlain Towers South in Surfside, Florida and of the engineering criteria and practices subsequently implemented or in development by local authorities there. Alongside engineering associations, code development organizations, and government agencies across the country, SEAOC has been assessing the merits of some of these mandatory programs and standards proposed by others in the context of existing state building regulations. At this time, the cause of the collapse in Surfside is still being investigated.

In particular, the County of Los Angeles solicited SEAOC's guidance on a proposed program of mandatory inspections. SEAOC provided that guidance in an October 13, 2021 letter to the County's Department of Public Works. This position statement is consistent with the guidance SEAOC provided to the County. SEAOC may revise this statement when additional information becomes available.

Current Regulatory Tools:

Where there is evidence of structural damage or vulnerability, from any cause, California building officials already have regulatory tools available to compel assessment and repair, without the implementation of a new mandatory program. These include the *California Existing Building Code*, which defines "unsafe" and "dangerous" conditions and requires their abatement (we advise using the forthcoming 2022 edition); *California Health and Safety Code* Section 17920.3, which defines "substandard building" with an extensive list of unacceptable conditions; *2020 California Civil Code* Section 5550; and the *International Property Maintenance Code*, which is available for local jurisdictions to adopt (we advise using the 2024 edition, already approved for publication by ICC).



SEAOC's Recommendations Regarding Mandatory Engineering Assessments

December 6, 2021

SEAOC supports a proactive implementation of these existing regulations. Local jurisdictions should consider providing notices to property owners which cite the applicable regulations and require compliance based on constructive knowledge of actual or suspected damage already in place. As program options are assessed, local jurisdictions can develop outreach materials to remind building owners of their responsibility to maintain their buildings, to inform them of the resources available through local government, to encourage them to understand and manage their risks (with the help of engineers where appropriate), and to explain the applicable codes, regulations, and legal precedents.

Is There a Need in California for a Mandatory Structural Assessment Program?

SEAOC finds it is premature to recommend a program of mandatory engineering assessments without first identifying shortcomings in the existing regulations. If those regulations are inadequate, then a more proactive, mandatory engineering assessment program might be needed, but there are likely more effective and less obtrusive solutions as well. Much attention has been given to “periodic” or “milestone” structural assessments 20 or 30 years after construction.¹ We expect that routine maintenance and thoughtful implementation of current regulations will be more effective, and more feasible, than a new program of mandatory “periodic” or “milestone” structural inspections.

Concerns Regarding a Mandatory Structural Assessment Program:

1. Effective mitigation programs typically target groups of buildings with similar known deficiencies. Buildings may be similar in terms of age, height, use, occupant load, or location, but from a structural engineering perspective, none of those necessarily indicates similar vulnerability to damage or collapse. An arbitrary focus on certain buildings based on one of these attributes could improperly suggest that other buildings have been determined to be safe.
2. The Surfside collapse occurred in the absence of any extreme natural hazard event. A clear distinction should be maintained between a building's performance in an earthquake or major event and its performance under more frequent conditions. Mixing an evaluation of expected seismic performance with a condition assessment will mislead the public into thinking that seismic issues have been addressed, when in fact they have not. Further, the two types of assessments are fundamentally different in their goals. A maintenance inspection assumes the original as-built condition was acceptable and looks for loss of capacity relative to that baseline, while a seismic evaluation applies new knowledge to the original design assuming it might *not* be acceptable by current standards.
3. The terminology used to define the assessment of a building can be deceptive. Specifically, the terms “certify” and “recertification” are misleading to the public regarding the level of evaluation and analysis being completed. Assessing a building for performance under its original design code is different from performance under current standards. Furthermore, “certification” is not a service that is insurable for engineers.

¹ For example, *Ensuring the Safety of Existing Buildings: Codes, Standards, and Periodic Inspections*. International Code Council, undated. This document was apparently presented to Florida's Hurricane Research Advisory Committee at its August 27, 2021 meeting and is available here:

https://www.floridabuilding.org/fbc/workgroups/Hurricane_Advisory_Committee/Hurricane_RAC.htm. It starts by citing the Florida building code, but it otherwise is written as generally applicable, with a generic recommendation for state and local jurisdictions to adopt an appendix to the *International Property Maintenance Code*. It includes a “Working Draft” of that appendix.



SEAOC's Recommendations Regarding Mandatory Engineering Assessments

December 6, 2021

4. Without clear justification, a mandatory engineering assessment program (as opposed to mandatory routine maintenance inspections) could confuse or needlessly worry building owners and tenants. In the absence of an extreme event like an earthquake, the sudden collapse of an occupied, maintained, in-service building in California is exceptionally rare. While we encourage owners to be aware of their buildings' condition, and to engage structural engineers or other experts in some cases, a new mandate would over-emphasize one unlikely problem. By imposing unknown costs, it could even distract owners from work that is more cost-beneficial over the long term, including seismic evaluation or retrofit. Further, condition assessment and structural evaluation routinely finds small deficiencies and minor non-conforming conditions in older existing buildings. Engineers might feel obligated to identify and report these, but doing so in the context of a mandatory program premised on a Surfside-like collapse could mislead not only owners and tenants, but also their lenders, insurers, and attorneys.
5. We know from seismic retrofit programs, that even when they are justified, mandatory programs require special attention to logistics, quality assurance, professional liability, equity, and a balance of costs and benefits. Where a program is not well-justified by past performance, these issues are heightened and will likely complicate program design and compliance.

Support for Mandatory Maintenance:

Proactive maintenance inspection is probably a more effective and enforceable solution to community concerns than mandatory periodic or milestone inspection. Annual inspection is appropriate for damage causes that are seasonal. It is too frequent for seismic, and might not be frequent enough for chronic or continuous causes of damage, like sun, rain, soil erosion, or infestation. Annual inspections should be supplemented (or perhaps replaced) by event-based inspections whenever a triggering event occurs, independent of any fixed schedule. The triggering event might be a strong storm, a structure fire, an equipment failure, discovery of a design or construction defect, the start of a significant project (especially one that exposes the structure), or any surprising damage, such as a pattern of leaks or cracks. Whether annual or event-based, or both, the findings of maintenance inspections must also be well documented, in order to allow comparisons of cracks, deformations, etc. over time.

Authored by the SEAOC Existing Building Maintenance & Assessment Advisory Committee:

Kelsey Anne Parolini, S.E. (Chair)
David Bonowitz, S.E.
Michael Cochran, S.E.
David Kane, S.E.
Robert Kraus, S.E.

Peter Maloney, S.E.
Steve Spence, S.E.
Fred Turner, S.E.
Daniel Zepeda, S.E.
Ryan Kersting, S.E. (NCSEA Correspondent)