On June 16, 2015, in Berkeley, California, six people died and seven others were severely injured when the fourth-floor balcony on which they were standing collapsed due to sudden failure of cantilevered wood joists, as seen in Figure 1. (Subsequently, many millions of dollars have been paid in legal settlements and, in 2017, the general contractor for this apartment facility, built in 2006, was stripped of his license due to various alleged construction and waterproofing errors.)

In quick response to the massive public outcry, within a month of this tragedy the City of Berkeley had adopted an “Exterior Elevated Elements” (“EEE”) ordinance requiring owners of all multifamily residential buildings to hire a licensed professional to inspect and certify that all wood- and steel-framed balconies, decks, landings, walkways, stairway systems, guardrails, handrails, or any parts thereof with a walking surface located more than six feet above grade are in “generally safe” condition. Reinspection is required every five years thereafter.

Berkeley’s EEE mandate applies to all weather-exposed building components with walking surfaces that project out from exterior walls, with the exceptions of fire escapes (which already are inspected every five years by the fire department) and occupiable roof decks not extending beyond exterior walls. The term “weather-exposed” encompasses all exterior elevated elements where “rain can fall upon the surface, or... moisture can accumulate on the surface or at the joints or intersections.” The only parties authorized to carry out Berkeley’s required EEE inspections are California-licensed general contractors, “structural pest control operators,” architects, and civil and structural engineers.

In contrast with the city’s rapid political response to this tragedy, the statewide wheels of change moved more slowly and fitfully, with ever-weakening results, as lawmakers responded to increasing opposition from special interest groups, while simultaneously, the general public’s level of outrage dissipated over time. The following comparison of California Senate Bill 465 (signed by the governor on September 15, 2016) and Senate Bill 721 (signed in 2018) demonstrates this process of legislative diminishment.

CALIFORNIA’S LEGISLATIVE RESPONSES TO THE 2015 “BERKELEY BALCONY COLLAPSE”
statewide on January 1, 2017. Architects, engineers, and builders who have failed to stay abreast of these emergency changes could experience future legal peril.

CALIFORNIA SENATE BILL 721 (2018) – EXISTING BUILDINGS

Introduced in February 2017, Senate Bill 721 (SB 721) was signed into law on September 17, 2018. “This bill would require an inspection of exterior elevated elements and associated waterproofing elements, as defined, including decks and balconies, for buildings with 3 or more multifamily dwelling units by a licensed architect, licensed civil or structural engineer, a building contractor holding specified licenses, or an individual certified as a building inspector or building official, as specified.”

SB 721 grandly proclaims: “The purpose of the inspection is to determine that exterior elevated elements and their associated waterproofing elements are in a generally safe condition, adequate working order, and free from any hazardous condition caused by fungus, deterioration, decay, or improper alteration to the extent that the life, limb, health, property, safety, or welfare of the public or the occupants is not endangered. ...Associated waterproofing elements include flashings, membranes, coatings, and sealants that protect the load-bearing components of exterior elevated elements from exposure to water and the elements.”

However, compared with the immediate and comprehensive mandate of the City of Berkeley’s 2015 ordinance, lobbying efforts by interested parties to water down the immediate real-world impacts of SB 721 are apparent upon reading the final bill. For example, the inspector need only carry out “direct visual examination” of “at least 15 percent of each type of exterior elevated element,” and such inspections need not be completed until “January 1, 2025, and by January 1 every six years thereafter.”

SB 721 mandates that the inspector’s ensuing report “shall include photographs, any test results, and narrative sufficient to establish a baseline of the condition of the components inspected that can be compared to the results of subsequent inspections. In addition to the evaluation required by this section, the report shall advise which, if any, exterior elevated element poses an immediate threat to the safety of the occupants, and whether preventing occupant access or conducting emergency repairs, including shoring, are [sic] necessary.”

Remarkably, after intense political pressure (including a statewide “call to arms” by a self-described “Condo Law Guru”), the final iteration of SB 721 was amended to exclude condominiums from its inspection scope. While SB 721 does require EEE inspections of apartment buildings, no such inspection is deemed necessary for identical balconies at condominium facilities. In effect, the new law does nothing to disrupt
the commonly seen practice of long-term deferred maintenance of decks and balconies at residential condominiums.7

OUR CONCERNS ABOUT SB 721’S STATEWIDE IMPLEMENTATION

Frankly, it is our experience that many traditional architects and engineers tend to lack sufficient practical training and field experience to be able to identify hidden areas of structural degradation solely by “direct visual examination” of only 15% of a project’s wood-framed balconies and decks. Specialists working primarily in the fields of design, specification, and engineering for new buildings often lack the distinct set of analytical skills honed by those with forensic, puzzle-solving expertise in the arena of construction defect analysis.

Consider representative Figures 2 and 3, from a 50-building apartment complex in Phoenix, AZ. For our team, upon observing the whitish “efflorescence,” it was obvious that the wood beams supporting the facility’s many entry landings would be severely damaged. Experienced inspectors know that efflorescence at stucco-wrapped beams (particularly when the stucco lacks “weep screeds”) is a tried-and-true recipe for structural decay and deterioration. This finding, broadly applicable to the entire complex, came as a great surprise to the owner. Prior visual surveys by a series of real estate inspectors (with no forensic experience) had produced no reports of potentially problematic conditions. As documented in Figure 3, our destructive sampling confirmed widespread structural degradation of these beams.

Similarly, in Figures 4, 5, and 6, from an apartment complex south of San Francisco: the darkish water staining at the stucco cladding and our observation that the plywood soffit appeared to have been recently painted led us to conclude that the deck waterproofing system above was broadly deficient. Inexperienced inspectors could have been fooled by this new coat of paint.

We certainly do not wish to imply that traditional architects, engineers, and “contractors” lack the knowledge and abilities necessary to successfully implement such inspection protocols. Instead, we simply urge such traditional professionals to recognize and embrace the puzzle-solving nature of the forensic evaluation process. Small clues noted during visual examinations often warrant invasive sampling that may expose severe hidden damage.

Further, upon noting that SB 721 allows these EEE inspections to be carried out by “an individual certified as a building inspector or building official from a recognized state, national, or international association, as determined by the local jurisdiction,” we urge all parties to closely evaluate the credibility of such credentials. We often have encountered self-professed housing, building, and property inspectors who, for an annual fee, have been “registered” or “certified,” without any verification of qualifications or any continuing education requirements, by privately owned online diploma mills.

In addition, California’s EEE inspectors should keep in mind that SB 721 advises: “The governing body of any city, county, or city and county, may enact ordinances or laws imposing requirements greater than those imposed by this section.” Therefore, the initial step for such EEE inspections should be consultation with the controlling local authority to determine what additional (if any) investigative and reporting requirements will be imposed.

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QUALITATIVE (PURPOSEFUL) SAMPLING OF EEES

Importantly, SB 721 does not require randomized statistical sampling of these exterior elevated elements, but instead promulgates a purposeful evaluation process founded on the skilled inspector’s presumed experience, knowledge, training, and forensic expertise.

In our professional experience, such qualitative surveys commonly commence with an initial assumption that the project’s design, detailing, construction, and quality control will be found to have been carried out in a generally consistent manner (whether “good,” “fair,” or “poor”) at all elevations.10

However, as noted, the state of California has established within SB 721 that these qualitative inspectors must sample (via “direct visual examination,” at a minimum) “at least 15 percent of each type of exterior or elevated element” in order to ascertain whether or not any additional examination might be necessary in order to protect “the life, limb, health, property, safety, or welfare” of a building’s occupants.

In essence, SB 721 has prescribed a lower bound (assuming that generally consistent
construction is observed) to the evaluation protocol, which potentially can consist of nothing more than direct visual examination. We recommend that EEE inspectors with limited practical experience in forensic deconstruction should exceed this 15% threshold and should be prepared to require invasive testing where necessary to gain a fuller understanding of existing conditions. Further, we suggest that these forensic inspectors consider extending this 15% threshold to comparable investigations (combining visual surveys and targeted destructive sampling) of other project-wide components of the building envelope, such as windows.

Supplemental Discussion

We strongly urge private apartment building owners, common-interest homeowner associations, and their respective managers to develop project-specific evaluation protocols that proactively require EEE inspectors to demonstrate prior substantive experience in building forensics and deconstruction. We confidently predict that in the coming decade our firm (and many others throughout the state) will be hired to help both plaintiffs and defendants better understand the legal and practical implications of the SB 721 inspection protocol.

We have been assured that key groups are striving to craft EEE inspection requirements for the common-interest (condominiums/townhomes) community that could be adopted during the Legislature’s 2019 session. Such well-intended efforts should be applauded; however, if SB 721’s mandate that only 15% of a facility’s exterior decks and balconies need be inspected every six years has already been deemed egregiously burdensome, then we suspect that any new law will greatly emphasize symbolism over substance.

Endnotes

1. California’s Senate Rules Committee “Floor Analysis” on August 21, 2018, of proposed Senate Bill 721: “Ultimately, the Contractor’s State License Board revoked the license of ... the general contractor responsible for building the apartment complex where the collapse occurred, as it was alleged that the contractor company willfully departed from or disregarded building plans or specifications, and willfully departed from accepted trade standards for good and workmanlike construction.”

2. In California, “structural pest control operators” are certified and licensed under the Pest Control Act to spray certain “lethal fumigants” to combat “wood-destroying pests or organisms.”

3. It should be noted that since 2003, the Housing Code of the nearby combined city and county of San Francisco similarly has required: “All wood and metal decks, balconies, landings, exit corridors, stairway systems, guardrails, hand rails, fire escapes, or any parts thereof in weather-exposed areas of apartment buildings and hotels shall be inspected by a licensed general contractor, or a structural pest control licensee, or a licensed professional architect or engineer, verifying that the exit system, corridor, balcony, deck or any part thereof is in general safe condition, in adequate working order, and free from hazardous dry rot, fungus, deterioration, decay, or improper alteration. Property owners shall provide proof of compliance...”
with this section by submitting an affidavit form ...every five years. For purposes of this section, weather-exposed areas mean those areas which are not interior building areas."
5. SB 721: " 'Exterior elevated element’ means the following types of structures, including their supports and railings: balconies, decks, porches, stairways, walkways, and entry structures that extend beyond exterior walls of the building and which have a walking surface that is elevated more than six feet above ground level, are designed for human occupancy or use, and rely in whole or in substantial part on wood or wood-based products for structural support or stability of the exterior elevated element."
6. http://condolawguru.com/2018/06/call-to-arms-on-calif-sb-721-hoa-balcony-repairs: "SB 721 would prioritize deferred maintenance projects by statute regardless of the budget concerns or other needs of the community, which could result in the need for a special assessment to be placed on the members of the Association. ...Email your assembly member today and ask them to vote "no" on this bad bill for homeowners. Then pick up the phone and call them using this phone list with a call script attached. ...Hello, my name is _____. I’m calling from [city] and I live in [name of association]. I’m calling because I oppose SB 721, because it will create unnecessary costs to me and my neighbor.’ "
7. Inept, unduly cost-driven construction practices at decks, balconies, and guardrails, followed by ensuing decades of gross inattention and deferred maintenance, are a proven formula for structural failure—often occurring during crowded events and celebrations when imposed live loads are the greatest.
8. Efflorescence at stucco and masonry is the crystalline deposit of salts that remains after the evaporation of trapped water.
9. Per SB 721, licensed general contractors and licensed framers “with a minimum of five years’ experience ... in constructing multistory wood frame buildings” are authorized to carry out these EEE inspections. We recommend that such EEE inspectors be required to have additional experience in the field of constructing failed buildings.
10. This assumption should, of course, be closely evaluated during the course of the investigative process. Whenever a significant level of inconsistent construction design or workmanship is identified, then the survey should be redesigned to properly encompass and evaluate the emergent data. (Reference: L. Haughton and C. Murphy, Qualitative Sampling of the Building Envelope for Water Leakage, Journal of ASTM International, 2007. www.astm.org/DIGITAL_LIBRARY/JOURNALS/JAI/PAGES/JAI100815.htm.)

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**RCI Female Membership Grows**

One of RCI’s main goals is to increase the diversity of its membership. Its outreach to women may be seen in its recent collaboration with National Women in Roofing. *RCI Interface* is also dedicated to recruiting more female authors to publish in the pages of this journal. We believe that female participation, perspective, and energy are crucial to our industry’s growth.

According to RCI Director of Membership Services Alec Jeffries, of the 502 new members who joined RCI in 2018, a total of 71, or 14%, were women—a 5% increase from 2017. Female RCI membership is now at 8%.