CALIFORNIA DEPARTMENT OF GENERAL SERVICES

Governor Edmund G. Brown Jr.

SB 465
Exterior Elevated Elements Working Group
Report to the Legislature

State of California
Governor Edmund G. Brown Jr.

Government Operations Agency
Secretary Marybel Batjer

Department of General Services
Director Daniel C. Kim

California Building Standards Commission
Executive Director Mia Marvelli

2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833
Telephone: (916) 263-0916
Fax: (916) 263-0959
Email: cbsc@dgs.ca.gov

TABLE OF CONTENTS

ACRONYMS

CBSC	California Building Standards Commission
CSLB	Contractors State License Board
DSA	Division of the State Architect
EEE	Exterior Elevated Element
HCD	Department of Housing and Community Development

Introduction and Brief Background

Senate Bill 465 (Chapter 372, Statutes of 2016) was enacted to address a catastrophic balcony failure that occurred at the Library Gardens apartment complex in Berkeley, California in June of 2015. The balcony failure resulted in injuries and loss of life. Among a number of laws enacted by this bill to address this matter, Health and Safety Code Section 18924.5 (reprinted below for reference) was added to require the working group, formed by the California Building Standards Commission, to review available documents and reports, including forensic reports, reports and studies relied upon in the development of national and state building codes, and any other available material germane to the construction and maintenance of exterior elevated elements. Additionally, the review conducted by the working group was to facilitate the development of recommendations, and make such recommendations to appropriate state agencies for the purpose of developing and proposing building standards as needed. The working group was tasked with assisting in the development of a report to appropriate policy committees of the Legislature by January 1, 2018. The report would include findings, possible recommendations for changes in law, and/or amendments to the California Building Standards Code (Cal. Code Regs., Title 24).

Health and Safety Code Section 18924.5

(a) By January 1, 2018, the working group formed by the California Building Standards Commission to study recent exterior elevated element failures in California shall submit a report to the appropriate policy committees of the Legislature containing any findings and possible recommendations for statutory changes or changes to the California Building Standards Code.

(b) The working group shall review related documents and reports, including, but not limited to, any available forensic reports related to exterior elevated element failures in California, reports and studies used in the development of national and state building codes, and any other material deemed relevant to make recommendations to the appropriate state agency or agencies for the development of proposed building standards for exterior elevated elements.

(c) The working group shall solicit technical expertise as appropriate from, but not limited to, representatives from the Department of Housing and Community Development, the Division of the State Architect—Structural Safety, the Office of the State Fire Marshal, local building officials and plan checkers, structural engineers, apartment owners and managers, the building industry, the wood, steel and concrete industries, and any other interested parties.

(d) Notwithstanding the deadline in subdivision (a), if, at any time, it is determined by the working group that one or more changes to the California Building Standards Code are needed as soon as possible in order to protect the public, the working group shall submit the recommended changes to the appropriate state agency or agencies for consideration as soon as possible according to this part.

(e) This section shall remain in effect only until January 1, 2018, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2018, deletes or extends that date.

Overview of the California Building Standards Commission

The California Building Standards Commission (CBSC) is responsible for administering California's building standards code adoption process. This includes triennial and intervening code cycles and emergency rulemakings. State agencies with the authority to propose building standards (e.g. the Department of Housing and Community Development, Office of the State Fire Marshal, Division of the State Architect, Office of Statewide Health Planning and Development, Department of Public Health, and Department of Consumer Affairs, and various boards therein) or adopt building standards (e.g. California Energy Commission, State Historical Building Safety Board, Board of State and Community Corrections, Department of Food and Agriculture, State Librarian, State Lands Commission, Department of Water Resources), develop necessary California amendments to national model codes in order to meet California's current needs and priorities. These proposals are then assigned to CBSC's appropriate Code Advisory Committees where they are reviewed for technical merit and vetted through public meetings amongst relevant industry professionals, stakeholders, and the general public.

Pursuant to Building Standards Law and the Administrative Procedure Act, a public comment period of no less than 45 days is required following the Code Advisory Committee recommendations, to further vet code change proposals with the relevant industry professionals, stakeholders, and the general public. During a publicly held CBSC meeting, the commissioners must then approve, disapprove, further study, or approve as amended the proposed or adopted building standards. Upon adoption, CBSC is required to publish and make the California Building Standards Code available to the public at least 180 days before its effective date. These procedures provide the building industry, design professionals, developers, contractors, labor groups, local government planners, building officials, plan reviewers, and building inspectors the opportunity to become familiar with new building standards and ensure compliance with the code. These building standards are published in what is known as the California Building Standards Code (Cal. Code of Regs., Title 24), and consists of 13 Parts.

In addition to administering the code adoption cycles and emergency rulemakings, CBSC develops, proposes, and adopts state amendments to the national model codes for inclusion in the California Building Standards Code applicable to the following occupancies:

- Green building standards for nonresidential occupancy types for which no other state agency has authority (HS. Code, § 18930.5), including electric vehicle charging infrastructure standards (HS. Code, § 18941.10) and recycled water building standards (HS. Code, § 18940.6).
- Specified state-owned and state-occupied buildings, as well as buildings constructed by the Trustees of the California State University and the Regents of the University of California (HS. Code, §§ 18934.5, 118505).
- Seismic retrofit standards for state buildings, specified universities, and state colleges (HS. Code, §§ 16600 - 16604).
- Standards for parking lot lighting systems for the University of California, California State University, and California Community Colleges (Gov. Code, § 14617).

Cities, counties, and other local entities are authorized to amend Title 24 based on local conditions of climate, geology, and/or topography, necessitating changes to the California Building Standards Code. These ordinances are filed with CBSC, or other appropriate state agency as provided in law, and a determination made that specified criteria in Health and Safety Code Sections 17958.7 and 18941.5 is met. While less common, certain ordinances are required to be filed with other state agencies rather than CBSC.

Overview of the Exterior Elevated Element Activities

2015

- On June 16, a sudden and catastrophic balcony failure occurred at the Library Gardens apartment complex in Berkeley, California, which resulted in severe injuries and the loss of six lives.
- On July 21, CBSC received a letter from the City of Berkeley urging the amendment of the California Building Standards Code to require higher standards for weather-exposed balconies and similar elements. The letter was added as an agenda item to be discussed during CBSC's meeting on October 21, 2015. Following receipt of the letter, CBSC received a local ordinance from the City of Berkeley on July 28, 2015, amending the California Building Standards Code to require more restrictive building standards for certain residential and non-residential structures pertaining to the construction of weather-exposed exterior building elements. The amendments include a number of mandatory inspections, decay and corrosion resistant materials, and ventilation openings. The Berkeley ordinance filing is within the parameters of law as provided in Health and Safety Code Sections 17958.7 and 18941.5.
- At the October 21 CBSC meeting, several commissioners stated the importance of reviewing pertinent information before investigating the incident in further detail, including the forensic report developed by the Contractors State License Board (CSLB) containing information relating to the cause of the balcony failure. CBSC and the Department of Housing and Community Development (HCD) made regular and frequent contact with the City of Berkeley and the Alameda County District Attorney's office following receipt of the city's letter. However, CSLB's forensic report was unavailable at the time of CBSC's meeting. As such, the commission held the agenda item over until such time that the CSLB forensic report and other information may become available.

2016

- At the April 19 CBSC meeting, the commissioners voted unanimously to establish an adhoc subcommittee to review exterior elevated elements (EEE) information and to make appropriate recommendations. Commissioners Steven Winkel and Kent Sasaki were appointed by the commission to the EEE adhoc subcommittee (working group). Commissioner Steven Winkel is a California licensed architect and Commissioner Kent Sasaki is a California licensed structural engineer.
- On September 19, SB 465 (Chapter 372, Statutes of 2016) was signed into law and became effective January 1, 2017. This legislation requires the EEE working group to solicit technical

expertise from the state agencies, industry stakeholders, and other interested parties, and submit a report to appropriate policy committees of the Legislature by January 1, 2018, of its findings and any recommendations for statutory changes or amendments to the California Building Standards Code.

- On November 29, CSLB filed an accusation against the general contractor that constructed the apartment complex in Berkeley. The accusation alleged that the balcony was designed to withstand the load of the 13 students, that the general contractor did not follow the approved plans or accepted trade standards, and that joist decay of the wood structural members was the cause of the balcony collapse.
- At the CBSC meeting on December 13, the EEE working group provided an update to the full commission regarding its progress. The working group informed the commission that it has met twice to date and reviewed many documents related to the event. Some of the documents were provided by CSLB, the City of Berkeley, the Structural Engineers Association of California, and the American Wood Council. Additionally, the working group has conducted research of other EEE failures within California and throughout the United States, existing building standards, and construction materials and practices. Lastly, the working group reported to the commission about recently approved changes by the International Code Council to the 2018 International Building Code and International Existing Building Code related to EEEs. These changes comprise of requirements for the detailing of moisture barrier systems on plans, the inclusion of positive drainage and special inspections, ventilation for enclosed wood framing, and increasing the design loads on balconies or decks. The working group did not make recommendations during the meeting. However, as a result of the discussion at this commission meeting, CBSC, HCD, and the Division of the State Architect (DSA) acted independently to pursue the development of emergency EEE building standards based on the International Code Council's 2018 code changes.

2017

- At the CSBC meeting on January 27, CBSC, HCD, and DSA proposed emergency building standards pertaining to the construction of EEEs. Based on the working group's research provided at the December 13, 2016 CBSC meeting, and in order to reduce the risk of future failures related to the construction of EEEs that may occur prior to the next regular triennial rulemaking cycle (which will not take statewide effect until January 1, 2020), the state agencies determined that immediate regulatory action was necessary to preserve the health and safety, or general welfare of the public. The building standards set forth requirements for the detailing of moisture barrier systems on the construction plans, special inspections during construction, an increase in live loads for balconies and decks, positive sloping of waterproofing surfaces to reduce water retention, and ventilation to the soffits of enclosed EEEs. The emergency building standards also reinstate a maintenance provision from the 2013 California Building Code that allows local jurisdictions to re-inspect buildings when deemed necessary by the authority having jurisdiction. During the International Code Council's development of the 2015 International Codes, it was determined that the maintenance section was better suited in the International Property Maintenance Code, which is not adopted by California. As a result, the maintenance

provision was not included in the 2016 California Building Standards Code. The commissioners voted unanimously to approve the emergency building standards which became effective on January 30, 2017, and would expire after 180-days unless extended by re-adoption or replaced with a final adoption of the emergency building standards. The emergency building standards amended the 2016 California Building Code (Cal. Code Regs., Title 24, Part 2) and the 2016 California Existing Building Code (Cal. Code Regs., Title 24, Part 10).

- On February 2, CBSC staff issued Information Bulletin 17-01, informing local jurisdictions and other interested parties of the emergency building standards that were approved by the commission and alerted them to their immediate effective date.
- On May 25, the EEE working group convened a meeting to further solicit technical expertise from the state agencies, industry stakeholders, and other interested parties, pursuant to Health and Safety Code Section 18924.5. There were no actions taken or recommendations made during the meeting. CBSC staff created an EEE information repository webpage for the submittal of reports, data, and comments by interested parties, for use as a resource by both the public and the working group.
- On May 30, CSLB publicly released its investigation materials pertaining to the failure of the balcony. The release of information follows a settlement reached by CSLB on April 27, 2017, with the General Contractor that constructed the apartment complex in Berkeley. In the settlement, the Contractor's license was revoked effective May 19, 2017. CBSC staff provided a link to CSLB's investigation materials on its EEE webpage so that interested parties could benefit from the information and thereby submit suitable content to CBSC's online repository.
- At the June 20 CBSC meeting, the commissioners re-adopted the EEE emergency building standards for a 90-day period pursuant to Government Code Section 11346.1, in order to implement the certifying rulemaking process making the emergency building standards permanent.
- At the CBSC meeting on August 20, the EEE working group provided an update to the full commission regarding its progress, including a list of documents submitted via CBSC's EEE online repository. The working group stated that it would present findings and recommendations at the next CBSC meeting scheduled for October 17, 2017.
- At the CBSC meeting on October 17, the commissioners re-adopted the EEE emergency building standards for a second 90-day period pursuant to Government Code Section 11346.1, in order to complete the certifying rulemaking. The EEE working group presented its findings and recommendations to the commission.

EEE Working Group Findings and Recommendations made at the CBSC meeting on Oct. 17, 2017

The Exterior Elevated Element (EEE) working group members stated they believe that the current emergency building standards will help to reduce future EEE failures in new construction. The working group also stressed that it is the state agencies that develop and propose amendments to the code, not the commissioners. They also informed the commission of statistics provided by the City of Berkeley, which indicated 402 (19 percent) of the 2,176

properties inspected as of January 20, 2016, required repair. That data reveals that deterioration of EEEs is a significant problem and illustrates that a post-occupancy inspection program is critical to reducing the risk of failure of existing EEEs.

The working group made the following recommendations to state agencies to consider, which include potential areas of change to the California Building Standards Code, to help improve the design, construction, and inspection of EEEs:

EEE Working Group Recommendations

1. EEE emergency building standards require the installation of ventilation openings at enclosed exterior balconies or elevated walking surfaces; however, these ventilation openings may conflict with the required fire-resistance rated construction for those elements. To address that conflict, we recommend that the Office of the State Fire Marshal consider developing amendments that allow ventilation openings required by the EEE emergency building standards. This may include adding exemption(s) to the California Building Code (Cal. Code Regs., Title 24, Part 2), Section 1406.3 Balconies and similar projections, which presently requires those elements to have the same fire-resistance rating as the floor construction. The presence of openings in the fire assembly may be further mitigated by allowing the use of wildland-urban interface vent assemblies that close in the event of an exterior fire, but allow air movement during normal operations.

2. EEE emergency building standards use the terms “balcony and elevated walking surfaces,” but do not provide definitions for those terms. This may lead to inconsistencies regarding the parameters that determine an elevated walking surface. We recommend the state agencies consider providing definitions for those terms. Additionally, we recommend the definition for “elevated walking surfaces” include such terms as elevated decks, walkways, stairs, and landings. Including these terms will address the working group’s findings that similar structural failures have occurred at exterior stairs and egress balconies that are not simply “balconies” in the traditional sense.

3. EEE emergency building standards use the terms “balcony and elevated walking surfaces,” but the terms used in the California Building Code Table 1607.1 Minimum Uniformly Distributed Live Loads and Minimum Concentrated Live Loads, uses the terms “Balconies and decks.” We recommend the state agencies amend the word “deck” in the table to “elevated walking surfaces,” provided that the state agencies establish definitions for “balcony and elevated walking surfaces” as recommended in Item 2 above. This is a substantial change since it would be applicable to elevated walkways, stairs, landings, as well as decks.

4. As an alternate to providing a definition for “balcony and elevated walking surfaces,” as recommended in Item 2 above, we recommend the state agencies define a new term, “exterior elevated elements,” which would include elevated balconies, decks, walkways, stairs, and landings.

5. EEE emergency building standards do not pertain to the California Residential Code (Cal. Code Regs., Title 24, Part 2.5), which contains provisions applying to detached one- and two-family dwellings, efficiency dwelling units, and townhouses not more than three stories above grade. Since these structures are often built with EEEs, which can have high occupant loads during use, even in one- and two-family dwellings, we recommend that HCD add EEE amendments to the California Residential Code.

6. Since a key aspect to inspection of existing EEEs is the ability to readily inspect the framing, we recommend that state agencies consider requiring access panels for enclosed EEEs for periodic post-occupancy inspections. Removable vents could be used as both access panel and ventilation opening. The City of Berkeley currently requires access panels in their EEE regulations. Similar to the ventilation requirement stated in Item 1 above, we recommend the Office of the State Fire Marshal consider developing amendments that allow access panels required by EEE amendments.

7. Since impervious moisture barriers installed over EEEs can deteriorate and leak, damaging the sheathing and framing, we recommend that state agencies consider requiring EEEs supporting moisture permeable floors or roofs be constructed of naturally durable wood, preservative-treated wood, corrosion resistant steel, or similar approved materials. Current regulations waive that requirement if an impervious moisture barrier is installed. The City of Berkeley has this type of requirement in their EEE regulations. Note that the definitions "naturally durable wood" and "preservative-treated wood" are old definitions that may not apply to currently available material with the reduction in availability of first-growth timber and changes to the preservative-treatment processes. Continued use of the old definitions may allow installation of materials that are not durable in the long run in a moist environment. Therefore, we recommend the state agencies consider updating the definitions for those two terms. Additionally, we recommend that state agencies research the performance of oriented strand board (OSB) in moist conditions and if its performance is found to be poor in such conditions, consider prohibiting its use in EEEs.

8. Finally, periodic post-occupancy inspection is critical to preventing the failure of existing EEEs. As such, there needs to be post-occupancy inspection and the requirement for this post-occupancy inspection needs to be strengthened. We recommend that state agencies encourage local jurisdictions to implement a periodic post-occupancy inspection program for EEEs. Legislation may be required to allow state agencies to implement such local inspection programs. We would encourage the legislature to write the enabling legislation in a way to allow the appropriate agencies to develop these programs rather than having the programs set forth in detail in the legislation.

Additional sentiments were offered during the October 17, 2017 CBSC meeting by the working group reiterating that state agencies need to work together to reconcile requirements for life safety and fire safety, as discussed in Item 1 and 6 above, where visual inspection elements/ventilation may conflict with requirements for fire protection. The members suggested that new technologies may be available, derived from Wildland Urban Interface

(WUI) zones, such as vents that are designed to close in a fire, which could satisfy both requirements. The working group further reiterated that state agencies should strengthen inspection requirements during construction to make sure that inspections happen. The members stated that part of the issue with EEEs is that many building systems, such as the structure, waterproofing, walking surface, door sill, and exterior finishes, overlap and intersect in that area of construction. This situation results in building trades persons coming at different times, who can be negligent about damaging the work of other building trades persons. The members suggested this should be accomplished in a way that's mandatory, but doesn't back an unfunded mandate for either the local jurisdiction or the contractor(s).

During commission discussion, one of the commissioners advised that local responsibility for periodic post-occupancy inspections of multifamily buildings is often divided up between either county and city fire which look at smoke alarms and exiting to ensure compliance, the health department which may look at mold and other substandard housing issues, local code enforcement which may look at state housing law violation issues, and building enforcement departments which regulate new construction. The commissioner also pointed out that post-occupancy inspections will require the creation of a new program to identify buildings in the jurisdiction that have EEEs, as well as requiring mailing notices and a tracking system to ensure compliance. Local jurisdictions are concerned about unfunded state mandates, and although the Legislature may sometimes add the ability for local jurisdictions to put fees in place, those often happen after the program has been created, resulting in the local enforcement agencies bearing the burden of that initial cost. Following the Berkeley tragedy, local jurisdictions have committed themselves to the enforcement of the new EEE provisions as adopted by the commission related to new construction. Additionally, they have provided a great deal of educational outreach to builders informing them of the issues associated with these sorts of balconies and decks, including providing the appropriate weatherproofing to ensure safety. Finally, the commissioner expressed his appreciation in regard to comments from the working group about leaving enforcement to local control, as the City of Berkley has demonstrated that when given the opportunity, local jurisdictions can develop a program that works and is most appropriate for their jurisdiction.

Future Exterior Elevated Element Activities

During the upcoming December or January CBSC meeting, CBSC, HCD, and DSA will present their final certifying rulemaking packages to the commissioners to make the emergency building standards permanent in the 2016 edition of the California Building Standards Code. At the conclusion of the public comment period for the EEE certifying rulemaking, CBSC may make non-substantive and sufficiently related changes to the emergency building standards based on comments received. Any substantive comments received during the public comment period may require additional stakeholder input at future workshops during the next rulemaking cycle. The proposed EEE amendments, if approved by the commission during certifying rulemaking, will be codified and published within the 2016 California Building Standards Code. CBSC staff will continue to provide EEE guidance and/or training to local enforcement agencies and other stakeholders. Accordingly, educational resources, including guidebooks, information bulletins,

and other training materials, will be updated and issued as necessary to provide the most current information. CBSC will continue monitoring the International Code Council's activities for updates to the International Building Code, International Residential Code, and International Existing Building Code for amendments related to EEEs. During future rulemaking cycles, CBSC will provide ongoing maintenance for existing EEE building standards, which will be evaluated for any necessary amendments to the codes. CBSC, in coordination with other state agencies, may propose subsequent amendments during a regular triennial or intervening code adoption cycle.

Documents Submitted Through EEE Online Repository

- "All Decked Out" – An article on balcony construction and waterproofing by Joseph W. Lstiburek, Ph.D., P.Eng., Fellow ASHRAE
- Email discussing code change proposals for the 2018 International Building Code, submitted by Dennis Richardson, PE, CBO, CASp, American Wood Council
- Suggested requirements for system installations for decks and other elevated structures, submitted by Amir Rudyan, President, AVM Industries
- Letter submitted by David Sibbrel, Vice President, Life Paint Company
- Letter discussing definitions for wood treatment, submitted by Robert K. Wangel, Koppers Incorporated
- "Building Waterproof Roof Decks" and "Scuppers and Drains for Waterproof Decks" – articles discussing industry best practices by Bill Leys, Central Coast Waterproofing
- Email discussing EEE definitions, submitted by Ron Takiguchi, CALBO
- Letter discussing decay resistance of wood structural elements, submitted by Kyle Krause, Deputy Building Official, El Dorado County

Other Documents Relied Upon

- CSLB Berkeley Balcony Investigation Materials
- City of Berkeley staff analysis, local ordinance, and E3 inspection program requirements
- City of San Francisco requirements for inspection of residential balconies and decks
- Structural Engineers Association of California recommendations
- 2018 International Building Code and 2018 International Existing Building Code

Current rulemaking documents, as well as the full text (including updates) of the 2016 California Building Standards Code (Cal. Code Regs., Title 24), can be viewed on CBSC's website at http://www.bsc.ca.gov.

Links

CBSC Exterior Elevated Elements Working Group Website
http://www.bsc.ca.gov/Rulemaking/ExteriorElevatedElementsSubcommitteeResources.aspx

Exterior Elevated Elements Information Repository Website
http://www.bsc.ca.gov/Rulemaking/ExteriorElevatedElementsSubcommitteeResources/EEEInformationRepository.aspx

California Contractors State License Board Berkeley Balcony Investigation Materials
http://www.cslb.ca.gov/Resources/Reports/Investigative/cslb_berkeley_balcony_materials_packet.pdf

CBSC Emergency Rulemaking: Finding of Emergency
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/CBSC/BSC-EF-01-17-FOE-rev2.pdf

CBSC Emergency Rulemaking: Emergency Express Terms
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/CBSC/BSC-EF-01-17-ET-Pt-2and10-revised.pdf

CBSC Emergency Rulemaking: Request for 90-day Re-Adoption of Emergency Regulations
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/CBSC/BSC-ReadoptReq.pdf

HCD Emergency Rulemaking: Finding of Emergency
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/HCD/HCD-EF-01-17-FOE-r1.pdf

HCD Emergency Rulemaking: Emergency Express Terms
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/HCD/HCD-EF-01-17-ET.pdf

HCD Emergency Rulemaking: Request for 90-day Re-Adoption of Emergency Regulations
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/HCD/HCD-ReadoptReq.pdf

DSA Emergency Rulemaking: Finding of Emergency
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/DSA-SS-CC/DSA-SS-EF-01-17-FoE-r1.pdf

DSA Emergency Rulemaking: Emergency Express Terms
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/DSA-SS-CC/DSA-SS-EF-01-17-ET-revised.pdf

DSA Emergency Rulemaking: Request for 90-day Re-Adoption of Emergency Regulations
http://www.documents.dgs.ca.gov/bsc/2016InterCycle/Emergency-Submittals/DSA-SS-CC/DSA-SS-ReadoptRequest.pdf

Information Bulletin 17-01: Emergency Building Standards for Immediate Enforcement
http://www.documents.dgs.ca.gov/bsc/Info-Bulletins/BSC_Bulletin_17-01_FINAL.pdf

Information Bulletin 17-02: Re-adopted Emergency Building Standards
http://www.documents.dgs.ca.gov/bsc/Info-Bulletins/BSC-Bulletin-17-02-Oct27-2017.pdf