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**ALFRED E. ALQUIST
SEISMIC SAFETY COMMISSION MEETING**

Zoom Teleconference Meeting
May 24, 2023

Item I. Call to Order

The meeting was called to order by Cindy Silva, Chair, at 9:01 am. Salina Valencia, Director of Legislation & Communications, conducted the roll call.

Present:

Cindy Silva, Chair
Representative Astghik Hakobyan for Anthony Portantino
Assemblymember Freddie Rodriguez
Representative Diane Gould for Ida Clair
Alegria De La Cruz
Debra Garnes
Representative Lori Nezhura for Nancy Ward
Joone Kim-Lopez
Representative Irina Brauzman for California Building Standards
Commission
Kevin McGowan
Dr. H. Kit Miyamoto (Departed at 10:10am)
Vincent Wells

Absent:

Nancy Ward
Anthony Portantino
Ida Clair
Mia Marvelli
David Rabbitt



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Item II. Chairman's Remarks

Chair Silva thanked the Seismic Safety Commission (SSC) for attending the meeting today and the hearing yesterday. Chair Silva addressed the testimonies from those who experienced the Ferndale Earthquake Sequence and thanked Rio Dell for hosting and making accommodations to set up the hearing.

Chair Silva gave remarks regarding the departure of Commissioner Fuad Sweiss and Commissioner Mia Marvelli from the SSC.

Item III. Approval of Seismic Safety Commission January 19, 2023, Meeting Minutes Discussion:

The Seismic Safety Commission (SSC) discussed the meeting minutes of January 19, 2023. Motion to approve by Commissioner Garnes, seconded by Commissioner De La Cruz. Motion passed unanimously.

Item IV. Update on Türkiye Earthquakes Speaker – Dr. Kit Miyamoto, SE Global SE

Commissioner Miyamoto gave an overview of the M7.8 and M7.5 Türkiye earthquakes. The affected area was about 300 miles long and 100 miles wide in the mountainous region of Türkiye and the Syrian border. The destruction is potentially the worst seen since the 2008 Sichuan Earthquake.

The Türkiye Earthquakes affected 14 million people and 1,700,000 structures which included roughly 1% collapsed, 12% severe damage, and 28% light/moderate damage. There were 51,000 fatalities and 107,000 injuries. Today, about 4.1 million people are still displaced due to damage and fear of building stability which results in an estimate of \$104 billion in direct damage. Commissioner Miyamoto stated the Turkish Building Code was changed in 1998 and there is currently no license system for contractors or inspection required by engineers.

Commissioner Miyamoto explained the partnership between the SSC and the National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory (JPL). He stated that JPL provided satellite imagery to assess damage in the initial stage.



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There were almost 150K emergency response and recovery teams on the ground and 150-250K warm tents were provided within the first 48 hours. About 10K search and rescue teams were organized to deploy, and demolition had already begun when Commissioner Miyamoto arrived.

Three hundred and fifty thousand buildings were assessed in the first two weeks and there was a QR code attached to each building for residents to download information regarding the five different categories of damage. The government focused on taking down and reconstructing the collapsed buildings.

Discussion:

Representative Nezhura asked if those whose homes were affected can utilize an insurance agency or program to rebuild homes.

Commissioner Miyamoto explained that the insurance agencies are more robust than those of California and every Turkish household must purchase the insurance which will be used to reconstruct damage. The estimation from the agency will provide between \$10-15 billion. Türkiye could also get a loan or other countries and raise money to address heavily damaged structures. He explained that he does not believe there is money for those that are lightly damaged which needs to be focused on. Seismic strengthening of apartment complexes also needs to be investigated.

Commissioner Miyamoto stated the M7.8 has 1000x more energy than what had been experienced in the Northridge Earthquake and was followed by another M7.5 aftershock. California has not experienced urban disasters since 1906 and the earthquakes seen in Los Angeles and San Francisco Bay area were moderate. The California Governor's Office of Emergency Services (Cal OES) and other agencies do great work, but Commissioner Miyamoto is unsure if the same could be done if M7.8 and M7.5 earthquakes were experienced in California.

Commissioner Kim-Lopez asked what was experienced regarding the water and sewer system.

Commissioner Miyamoto explained the basic lifeline systems (water distribution and electricity) were restored quickly.



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Commissioner Rodriguez thanked him for the presentation and asked when the last time was that the building codes in California were upgraded to prepare for incidents with earthquakes.

Commissioner Miyamoto stated that California and Japan are leaders when it comes to earthquake safety and sets the standard. The Applied Technology Council is extremely helpful to put the state of art research into practice. Code is updated every 5 - 10 years but 1973 was a benchmark year and was the first time non-ductile concrete structures were addressed. Anything built prior can be highly probable to collapse.

Commissioner Rodriguez asked if codes and funding need to be re-evaluated moving forward after this recent event.

Commissioner Miyamoto stated that the current building codes are fine, but older buildings need to be made safer. The city of LA is the only city in California to notify owners of non-ductile concrete commercial buildings built prior to 1973 and are given a 25-year due date to act. Individuals who fail to act may face a potential lawsuit in the event of an injury due to damage.

Speaker - Ayse Hortacsu, Director of Projects from Applied Technology Council

Ayse Hortacsu, gave a personal background and stated The Applied Technology Council is a nonprofit organization that does a lot of work towards developing better codes and standards for hazard mitigation. Ms. Hortacsu is also a Director for the Earthquake Engineering Research Institute (EERI) and was deployed to the field as part of the research.

Ms. Hortacsu's presentation provided images of structures in Türkiye with concrete frames and beams with unreinforced bricks which differs from what is used in the United States. The brick walls shown are a lot of the nonstructural damage previously demonstrated.

Ms. Hortacsu also provided a satellite image which demonstrated the movement of the faults. The seismicity of the region is well-known, so the area of Türkiye was well instrumented. Because the shaking was so severe and well documented, there will be big impacts into ground motion research.



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Ms. Hortacsu's showed images of building structures that were affected by the earthquakes. She stated the city of Kahramanmaras had 14,000 heavily damaged buildings. Structures must be considered on a community level and not building by building when mitigating seismic risk.

She also stated the only 10-year-old hospital located outside of the city was not functioning on day 10 due to nonstructural damage. Water was lost in the main for 6 days. Other teams that went out at 6 weeks did a survey of 35 hospitals and found that only 13 were functioning following the earthquake.

Lifelines are also very important. There was a severe loss of water and power to different regions of the earthquake. The earthquake area was so large that response differed depending on location. Only 2% of buildings in the region are government and the rest are residential. Two images show damage of buildings from 1980 that were retrofitted in 2000 with sheer walls and Fiberglass Reinforced Polyester racks and the difference between retrofitted and non-retrofitted structures.

1.7 million buildings were inspected with inspectors spending 5 minutes per building. Appeals from homeowners were made regarding the lack of depth of inspections and requests for engineering evaluations. Ms. Hortacsu stated California has a robust safety assessment program training inspector. Inspectors from Türkiye were trained on the go and she believes California is in a good place to respond to an earthquake of this magnitude from the safety assessment perspective.

Discussion:

Commissioner De La Cruz expressed her appreciation for the focus on healthcare institutions in this disaster and asked what lessons were taken away from what happened in Turkey to strengthen resources or incentives in California.

Ms. Hortacsu stated in Türkiye, the nonstructural provisions are either one page in the code or less. There is a big gap in the requirements for nonstructural provisions compared to what is present in the United States. In the last five years, a new requirement was introduced that if a government hospital of a large size is built, they must be built on base isolators.



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Representative Gould addressed the lack of contracting licenses or inspection requirements and the design requirements for government buildings in Türkiye. Ms. Gould asked if there were elevated contractor or inspections to go along with it or if requiring greater attention in design was still an issue.

Commissioner Miyamoto explained that it's just commercial buildings and if the engineer follows the building code; the contractor must be very conscious about doing the right things. There is no guarantee, and the California system works because of licensees and inspection requirements for consumer protection. In Türkiye, there is a requirement that hospitals with more than 100 beds must have base isolation. Commissioner Miyamoto believes that hospitals in California do well because of the attention paid to nonstructural components that are a huge part of hospital buildings.

Ms. Hortacsu stated what was missing in Türkiye that is present in California is professional licensing of engineers. There is not much accountability on the engineers, whereas in the United States, there is professional licensing that requires an apprenticeship and tests.

Item V. Humboldt County Earthquakes Update

The Humboldt County Earthquakes were discussed during a hearing on May 23, 2023, and a summary of the hearing and key lessons learned will be discussed today.

Executive Director Ewertsen addressed items that were discussed at the hearing. She stated Rio Dell and Humboldt County can see the importance of money for preparation, mitigation, and recovery. Partnership building and planning before, during, and after an earthquake can be vital. Twenty-five percent of the housing stock was impacted by the disaster, but the event didn't rise to a federal declaration which meant additional resources didn't become available for the community. The event was catastrophic for the community, but the community stepped up to help each other. A poignant example of this is the PTSD amongst the community related to not knowing when the next earthquake can occur, and mental health will be considered when moving forward.

Commissioner Garnes addressed the intensity of the hearing, hearing the perspective of the Türkiye incident, and the fear of another earthquake occurring. She stated the impact of earthquakes on mental health is severe and



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there is a lot to work through. The Rio Dell was prepared to an extent, but there were still issues that can be resolved to be better prepared for a future disaster. A community emergency response team has been developed, but there are no warnings for an earthquake which is unsettling.

Item VI. Break

Break was taken at 10:23am and reconvened at 10:36am

Chair Silva directed that Item 8: Next Steps for SSC Projects be taken before Item 7: Establishment of Ad-Hoc Committees

Item VII. Next Steps for SSC Projects

Speaker – Annde Ewertsen, SSC Executive Director

Salina Valencia, SSC Legislative & Communications Director

Executive Director Ewertsen reported on potential SSC projects. University of California Los Angeles (UCLA) requested a letter of support for a grant application in which they are applying for through the UC Climate Program. She also discussed the SSC developing a combined report on the Humboldt County and Türkiye earthquakes, utilizing Pacific Earthquake Engineering Research (PEER) to assist with the report. The final project that was discussed was a Fire Station Inventory. Executive Director Ewertsen proposed that SSC work with Cal Fire and Cal OES' Seismic Hazards Branch and Hazard Mitigation Assistance (HMA) Program on that project. The project will develop an inventory of all fire stations in California and their status as it relates to the Essential Services Act, collect data on the implementation of Earthquake Early Warning (EEW) in all fire stations and the interest in pursuing implementation of EEW. In addition, development of a template to be used for future HMA funding opportunities for both seismic mitigation activities related to the Essential Services Act and EEW and research will be conducted on other potential funding opportunities.

There were various comments from Commissioners regarding the success of the hearing. Commissioner De La Cruz shared her appreciation for the layout of the hearing presentation at every level of government involved in response. She stated the federal government was missing from the response in significant ways so the ability to advocate for changes at policy level to encourage or authorize



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the feds to be involved in a different way. Commissioner De La Cruz also would like to focus on mental health services during and post-disaster to provide responses or create a foundation for other areas to access resources.

Representative Brauzman shared that she believes nonstructural components of buildings need to be addressed and trainings or drills for many departments would help a lot to know what to do in the case of another earthquake.

Representative Nezhura stated that she supports gathering information to change policies and processes to determine federal aid to locations where the entire region is not eligible.

Executive Director Maffei, California Residential Mitigation Program, discussed seismic retrofitting and understanding how many and what types of retrofits needs to happen, what the cost and workload would be, and the availability of engineers and others to complete the retrofit. This is a region where incidents will occur again so making the community more resilient as quickly as possible is important. Representative Nezhura believes the report can help to understand what it would take.

Commissioner Wells expressed the importance of looking into the emergency and medical response side of the earthquake and making sure there is discussion in the report on how it was handled.

Commissioner McGowan added that there was a little bit of discussion at the emergency management level about recovery being part of the Emergency Operations Center. Stating as the emergency evolves and there is a transition from response to recovery, a sole structure is set up and it would be beneficial also to look at the recovery side as well as response. Commissioner McGowan stated that the differences may not be that different when looking at resources per capita and something to explore could be the similarities of an earthquake in a smaller population or rural area.

Commissioner Kim-Lopez explained that the vulnerability of the community and lack of resources available stood out to her. Discussing vulnerabilities and deficiency is not indicative of lack of responsibility, can put everybody on notice as to what to expect, and encourages individuals to take responsibility to make



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sure they are prepared. Commissioner Kim-Lopez stated that she supports that funding resources need to be poured in for impacted communities to address clear vulnerabilities. There is funding available for mitigation for events that needs to be used to gather resources before they are needed to respond effectively and safely.

Commissioner Rodriguez stated that lessons learned are strengths and weaknesses in response to the earthquake. In general, everybody has a unique perspective on what was heard and advocates that California should be the leader when it comes to disaster response, recovery, and planning.

Commissioner Garnes stated that aging infrastructures needs to be looked at for all the communities. There is a lot of vulnerability in infrastructures that can be addressed and brought up to code to mitigate a lot of issues. Figuring out what can be put into the report regarding the response for community members and those effected to provide resources in the event of a disaster needs to be addressed. Commissioner Garnes mentioned members of the community that were identified as housebound or could not access necessities during COVID and the assistance that was provided. This is an area that can be looked at to assist and address the vulnerability of the community. Mental health needs to be addressed directly.

Chair Silva addressed the communication technology aspect as an area of focus as it is a lifeline to receive responses. Chair Silva also addressed the communication in terms of consistency of information provided to the public and having individuals on the same page. Law enforcement and fire were providing a slightly different message regarding the event which is not helpful to the public. Chair Silva asked how the state can figure out a way to make a recommendation to the federal government to be able to aggregate and look at things slightly differently because the community will be more disadvantaged once things are done.

A motion was entertained to move the forward with these projects. Commissioner Garnes made the motion, seconded by Commissioner De La Cruz. Motion passed unanimously.



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Item VIII. Establishment of Ad-hoc Committees

Speaker – Annde Ewertsen, SSC Executive Director

Executive Director Ewertsen requested that the SSC approve Ad-Hoc Committees. Executive Director Ewertsen stated by establishing Ad-hoc committees, it is the intent to provide counseling and advice for the SSC staff to handle a task on the Commission's agenda. A streamlined committee structure makes Commission work easier. Involving Commissioners in standing committees' activities is a direct way of taking advantage of everyone's special skills and expertise. Any recommendations made by a standing committee needs to be approved by the entire SSC.

A motion was made by Representative Gould to approve the establishment of Ad-Hoc Committees, seconded by Commissioner Rodriguez. Motion passed unanimously.

Item IX. Election of Chair & Vice-Chair

Speaker – Annde Ewertsen, SSC Executive Director

Executive Director Ewertsen stated the SSC Chair and Vice-Chair elections are completed annually. Commissioners interested in applying for a position submitted a statement of interested. The two statements received were Chair Silva requesting to remain as Chair and Assemblymember Freddie Rodriguez as Vice-Chair.

Executive Director Ewertsen allowed for any candidates to address the SSC.

Commissioner Kim-Lopez made a motion to reappoint Cindy Silva as Chair, seconded by Assemblymember Rodriguez. Motion passed unanimously.

Chair Cindy Silva made a motion to elect Commissioner Rodriguez as Vice-Chair, seconded by Commissioner De La Cruz. Motion passed unanimously.

Item X. Miscellaneous Announcements

Executive Director Ewertsen stated the Commercial Property Owners' Guide was completed last year has been updated and translated into Spanish. The



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SSC worked with the Seismic Hazards Branch to complete the guide at no cost and the Spanish translation is available on the SSC website.

The website will continue to be updated and will be revamped following the SSC Strategic Plan.

Executive Director Ewertsen announced that the SSC will be moving from the West Sacramento location and to the campus at Mather.

SSC Director of Legislation & Communications, Salina Valencia provided a legislative update on AB1505 (Rodriguez) Seismic Retrofit Soft-Story Multi-Family Housing and AB 1046 (Lowenthal) Alquist-Priolo Earthquake Fault Zoning Act.

SSC Senior Structural Engineer, Jia Wang-Connelly shared that the Independent Peer Review Panel (IPRP) was established by California Public Utilities Commission (CPUC) in 2010. It was passed with providing expertise to the CPUC while also assuring the public that Diablo Canyon Power Plant Assembly studies were performed in a proper manner. Members of the IPRP included representatives from the CPUC, California Energy Commission, California Coastal Commission, Cal OES, California Geological Survey, and SSC. Under Senate Bill 846 of 2022, the IPRP was passed with review and assessment for the Diablo Canyon Power Plants Diablo Canyon Independent Safety Committee. The last IPRP meeting was May 5th with the latest IPRP report that SSC staff was adopted and became a part of the public record.

Ms. Wang-Connelly also gave an update on the SSC's project UCSD Shake Table Test Cold-formed Steel Building currently in the planning stage and tests will likely be in the summer of 2024.

Ms. Wang-Connelly stated SSC staff was invited and attended the Federal Utility Working Group meeting organized by the Electrical Power Research Institute (EPRI). Attendees were civil engineers from the West Coast of the US and Canada. Important seismic issues that could impact the grid were discussed including the potential Shake Table test of important substations including transformers.

Item XI. Public Comment



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Janiele Maffei, Chief Mitigation Officer, California Earthquake Authority, addressed residential buildings affected by the disaster and the housing being owned by independent individuals. Ms. Maffei stated FEMA offers up to \$36K for eligible households and can bring in grants. The average grant payment is around \$5,000 and SBA loans cap out around \$200K. Ms. Maffei stated that no way people will be put back to pre-earthquake conditions which stresses the importance of mitigation and protection before the incident occurs.

Ryan Kersting, currently president of the National Council of Structural Engineers Association (SEAOC) and works closely with Earthquake Engineering Research Institute (EERI) and SEAOC in response to the Türkiye disasters. SEAOC and EERI have issued a joint policy agenda and policy statement regarding opportunities for California to improve and reduce seismic risk. The first key agenda point is identifying and retrofitting existing vulnerable buildings such as housing.

Mr. Kersting stated the final key agenda item is to look at how to adopt better building codes. National Council of Structural Engineers Association is working at the federal level with FEMA and other partners to make sure building codes are strengthened to help communities recover. Now, codes are safety based and the amount of downtime expected from safety base codes will be longer than most people expect.

Item XII. Adjourn in memory of Captain Timothy Strack, a former colleague, who passed away on April 2023, and served on the Commission from August of 2011 until May 2022

The meeting was closed in memory of Captain Timothy Strack, who was a member of the SSC for 10 years between 2011 and 2021. Captain Strack passed away unexpectedly on April 1, 2023.

Captain Strack was a respected 28-year member of the Riverside City Fire Department and was president of the City Firefighter's Association Local 1067. Captain Strack was also Chair of the SSC between 2014 and 2016 and Chair Silva was honored to serve with him during her first three years at the SSC. Captain Strack was funny, made things practical, and utilized common sense.

He had great respect for the mission and values of the SSC and gave wholeheartedly serving on various committees and working groups. He was on



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the 2018 Strategic Planning Committee, Earthquake Report Committee, and advised on various projects including OutSmart Disaster, the Natural Hazards Engineering Research Infrastructure, and the Large High-Performance Outdoor Shake Table at UCSD, which included post-earthquake fire performance of light gauge cold-formed steel framed buildings. Captain Strack also worked on efforts to work with the Jet Propulsion Lab project on select technologies and capabilities through earthquake resilience in California.

His passing is a great loss not only to Riverside and his family, but also to all of those of California and across the nation who struggle with fire safety, seismic safety, and resiliency. Captain Strack will be greatly missed, and his legacy will be remembered for a long time.

Item XIII. Adjourn

The meeting was adjourned at 12:11 pm by Cindy Silva, Chair.