ALFRED E. ALQUIST
SEISMIC SAFETY COMMISSION MEETING

Microsoft Teams Teleconference Meeting
July 07, 2022

I. Call to Order

The meeting was called to order by Chairwoman Silva, at 10:30 am.
Tanya Black, Administrative Processes Manager, conducted the roll call.

Present:

Cindy Silva, Chair
Fuad Sweiss, Vice Chair
Representative Diane Gould for Ida Clair
Representative Nestor Lopez for Ken Cooley
Alegria De La Cruz
Debra Garnes
Mark Ghilarducci, Cal OES Director
Representative Lori Nezhura for Mark Ghilarducci
Joone Kim-Lopez
Mia Marvelli
Kevin McGowan
Anthony Portantino, California State Senator
David Rabbitt
Andrew Tran
Vincent Wells

Absent:

Ida Clair
Ken Cooley
Dr. H. Kit Miyamoto

II. Approval of Seismic Safety Commission May 12th, 2022, Meeting Minutes Discussion:

The Seismic Safety Commission (SSC) discussed the meeting minutes of May 12th, 2022. Motion to approve by Commissioner Rabbitt, seconded by Commissioner McGowan. Motion passed. Commissioner Portantino, De La Cruz, and Wells abstained.

III. Chairman's Remarks

Chairwoman Silva began by inviting California Governor's Office of Emergency Services (CalOES) Director Mark Ghilarducci to address the SSC. Commissioner Ghilarducci welcomed the SSC and stated that CalOES is excited to be embedded with and looks forward to working with the SSC. Commissioner Ghilarducci mentioned all the great work that CalOES, SSC, and others have done around fire and earthquake hazards and preparedness. Commissioner Ghilarducci stated that a big earthquake is looming, and the work of the SSC will be critical.

Chairwoman Silva thanked the SSC for their hard work and dedication to the work completed. Chairwoman Silva noted that when the SSC meets, they discuss substantive issues, and it is an opportunity to work together collaboratively across all the functions and disciplines they represent to ensure the safety of all of California and communities.

IV. IN-CORE for State-of-Art Community Disaster Resiliency Modeling
Speaker – *Professor John W. Van de Lindt, Ph. D., F. ASCF, F. SEI Harold H. Short Endowed Chair Professor Co-Director, Center for Risk-Based Community Resilience Planning*
Speaker – *Dr. Jong Lee, Deputy Associate Director of Software Directorate, National Center for Supercomputing Applications, University of Illinois at Urbana Champaign*

Salina Valencia, Acting Executive Director and Jia Wang-Connelly, SSC Senior Structural Engineer introduce the presenters.

Ms. Wang-Connelly mentioned at National Conference on Earthquake Engineering in Salt Lake City, one of the key themes being community resilience. There's a significant shift from focusing only on physical damage of buildings and infrastructure to focusing on the people. Ms. Wang-Connelly introduced Prof. John W. Van de Lindt, and Dr. Jong Lee.

Prof. Van de Lindt stated IN-CORE represents The Interdependent Networked Community Resilience Modeling Environment and is thought of as a next generation resilience analysis. Prof. Van de Lindt has worked with DHS, NIST, NSF, FEMA, and more but will be discussing the private entities of the cities, counties, and states who are actively working in the space now.

The NIST Center of Resilience, with Prof. Van de Lindt as the Co-Director, spent the first 5 years developing IN-CORE, standardizing data ontologies, and then had a comprehensive set of testbeds and hindcasts. A set of building archetypes are designed and then the community is populated through buildings, transportation, water, and power networks. There is an economic model that is used solve a system of equations, find equilibrium, and links physical infrastructure to the economy. Once the model is set up, damage and loss impacts of natural hazards can be looked at and integrated to find alternative actions and resilience planning.

Prof. Van de Lindt showed testbed examples where interdisciplinary teams establish linkages between physical, economic, and social models and networks. Mr. Van de Lindt used the Joplin tornado in 2011 as an example.

Prof. Van de Lindt also shows charts that display results for the socio-economic resilience metrics using two retrofit strategies for comparison and prediction modeling. The results can be de-aggregated to determine which decisions should be made at the code or retrofit level to meet those community objectives in terms of certain core metrics. Three different levels are looked at that essentially say what percentage of buildings should be retrofit to hit the community targets in physical, population, and economic metrics.
Prof. Van de Lindt provided an example of a major earthquake in the Memphis area modeling the built, social, and economic systems. The models depicted the dependencies between the water and the electric network as well as the restoration analysis, how fast it comes back online.

Prof. Van de Lindt demonstrated a real community model vs a mapped community model with archetypes of Galveston Island. This is used for a combined wind-wave surge modeled for coastal communities. The power network damage and restoration analysis are all combined with the social institutions.

Dr. Jong Lee explained that IN-CORE is a software platform and is released regularly. This is open source and can be accessed through a public link.

Dr. Jong Lee showed an example using the data from the Joplin Tornado. The notebook provides explanations of the models and a how-to import IN-CORE service to visualize and create a map. This also shows some of the archetypes available, the fragility curve, the damage analysis, electrical power facility, and pole damage. This information can then be used to visualize the spatial distribution results and the infrastructure functionality analysis.

IN-CORE worked with NIST to develop the playbook for community resilience planning. It is a playbook for the community on how to develop resilience planning with six steps integrated with the scientific analysis and IN-CORE technology within each step.

Prof. Van de Lindt thanked Dr. Jong and stated that IN-CORE's novelty in risk, resilience, and decision support lies in that it's critical to model recovery across infrastructure, economics, institutions, etc., as buildings are being damaged, during the recovery process, and during future planning. Mr. Van de Lindt states that the development of IN-CORE was funded by NIST over the last eight years.

Discussion:

Representative Nezhura asked if IN-CORE has or may have the capability to model outcomes if commercial buildings adopt earthquake early.

Prof. Van de Lindt confirmed that IN-CORE could have the capability to do so. It would take a little bit of work to bridge together information to identify outcomes and long-term impacts.

Commissioner De La Cruz stated she is moved by the focus on people and how it would help local governments be more responsive to the specific needs of specific populations. Commissioner De La Cruz asked where the data is sourced from and if users can create their own local data sets to fill in the gaps where traditional data collection methods of certain populations can be invisible.

Both Prof. Van de Lindt and Dr. Lee confirmed that it is possible and that the census data is mostly used but if there is more data available at the household or block level, they could use it because the models are handled at a different

spatial granularity of the system. Mr. Van de Lindt added that some of the models have even been used to predict homelessness as the result of a hazard based on age, interacting across the physical infrastructure, and the social recovery as well. Models are being developed constantly.

Commissioner De La Cruz asked how community goals are set, if they are set goals across jurisdictions, or if there is some way of also specifying specific goals grounded in the community.

Prof. Van de Lindt commented that's a good question and can be up to the community but it's variable. There is currently a policy portfolio that isn't finished but enables people to select a certain policy and then choose the best approach. In the NIST Community Resilience Planning the idea is to bring the community together by picking the resilience lead, the citizen advisory board, and any ideas that they collectively come to. There are also focus groups within the community.

Commissioner Garnes asked if there is any research that the commission can do to advance the IN-CORE project.

Dr. Lee answered the current testbeds try to have a different diverse portfolio, or a community with different characteristics such as Galveston, Texas or Lumberton, North Carolina. Some testbeds in California with different characteristics of the community could improve IN-CORE.

Commissioner Tran believes today's insured loss is around $6 billion and economic loss around $12 billion. Commissioner Tran stated that there's a huge dependency on the financial aspect of the speed of recovery, mentions insurance and rates, and asked how the model reflects some of those dependencies in dispute recovery and if it is measured. He also asked what the economic impact was for the Joplin example model, the dollar amount.

Commissioner Marvelli asked if IN-CORE has assisted with the NIST FEMA report that was issued about recommendations for improving the built environment post-earthquake time recovery and any information shared with them to help with the seven points discussed.

Mr. Van de Lindt stated that they work closely at workshops with NIST. NIST is funding a post-doc to work on their functional recovery. IN-CORE works closely with them and others and will be continuing to work with them moving forward.

V. A Disaster Resilient Nation with Functional Infrastructure After an Earthquake Speaker – *Anne Rosinski, CEG, Earthquake Program Manager, FEMA Region IX*

Acting Executive Director Salina Valencia introduced Anne Rosinski. Ms. Rosinski is an Earthquake Manager with FEMA Region IX and returned to FEMA Region IX from the State of California where she worked nearly two decades as a Senior Engineer Geologist publishing liquefaction hazard maps and performing seismic hazard assessments of critical-use facilities such as hospitals and schools. She has also worked with the SSC over the last few years. Most recently, she has contributed to the SSC's public hearing after the Ridgecrest earthquake in 2019.

Ms. Rosinski mentioned that she had some one-on-one conversations with Commissioners Kim-Lopez and Commissioner Tran earlier but noted that it has been a while since FEMA has done a formal presentation to the SSC.

FEMA is a federal agency divided into different regions. Region IX includes California, Arizona, Nevada, Hawaii, Guam, American Samoa, and the commonwealth of the Mariana Islands. She mentioned that Region IX has every kind of seismic activity.

Ms. Rosinski is part of the Seismic Western Integration Group (WIG), with her colleagues, Sean McGowen from Region VIII, a Structural Engineer, and Amanda Sciock from Region X, a Planner.

Ms. Rosinski stated FEMA is more than just floods and flood insurance and the FEMA Earthquake Program is more than just NEHRP. In Regions VIII, IX, and X earthquake hazards are higher than flood hazards. The Seismic WIG developed a business plan to collaborate and influence the Risk MAP and mitigation planning efforts to increase seismic resilience. It aligns with the FEMA Insurance and Mitigation Directorate strategic plan. This is asking for support in developing program partnerships.

In addition to risk management goals, the proposed business strategy also aligns with the two executive orders for climate change and social equity. Climate change includes retrofits that can be multi-beneficial. Reducing seismic vulnerability will reduce our carbon footprint from earthquakes.

Disasters disproportionally impact disadvantaged communities and many of the disadvantaged population live in pre-code or low-code buildings that have higher risk. There is data to inform equity-based retrofit programs. Mrs. Rosinski noted that they need help in mitigation planning and Risk MAP to develop local support for seismic retrofit programs.

The first WIG goal that was mentioned includes building code data review and collection, equity, and vulnerability analysis, and expanding earthquake risk integration into planning. If a priority is identified in the local plan, it is likely to be something FEMA can fund. Mrs. Rosinski encouraged the SSC to have conversations to figure out how to help mitigate the problem.

The second goal includes retrofitting existing infrastructure. Because of the Field Act, there is less of an issue with unreinforced masonry structures, but it is still an issue in California. A strategy for mitigating the structures has been developed, workshops have been held, a strategy was published, an inventory of public schools was completed, and projects are starting to be funded.

The third goal includes informing response and recovery. FEMA contains a Regional Response Coordination Center to discuss plans and coordinate with other organizations.

The fourth goal is to partner with National Preparedness and practice exercises to develop projects for Earthquake Early Warning, Preparedness, and Insurance & Financial Preparedness.

Ms. Rosinski stated the Seismic Benefit Cost Analysis (BCA) issue has been known and attempted to be fixed for years. One of the challenges is that the BCA does not address things like climate change or nature-based solutions. FEMA has contracted with Rand to do a study of all FEMA BCA modules. FEMA has already funded a task order to update BCA's recommendations for infrastructures. Improving the BCA's will allow for more seismic projects to be developed.

Discussion:

Commissioner Kim-Lopez acknowledged and applauds the importance of the leadership and great work being completed.

Commissioner Tran also commented on his admiration of the work being completed as well as her work on seismic issues. He spoke to FEMA Deputy Administrator who stated he was disappointed in the amount of money not being used. FEMA was struggling to understand why not enough people have come and spreading awareness is important.

Representative Gould commented that she enjoyed Ms. Rosinski's presentation, is very encouraged by the work she is doing, and hopes to get a copy of the presentation. Gould encourages Rosinski to reach out to Division of the State Architect (DSA) should she ever need assistance.

Commissioner Rabbit stated the county has been a recipient of over $37 million in grants after the wildfires. Commissioner Rabbit mentioned the BCA and explained that the Golden Gate Bridge Seismic Upgrade is facing issues with the Department of Transportation's interpretation on BCA.

VI. Update on the Recovery Status of the City of Ridgecrest Earthquake Sequence of July 2019
Speaker – *Eric A. Bruen, Mayor, City of Ridgecrest*

Chairwoman Silva stated that unfortunately, Mayor Eric A. Bruen has taken ill and could not attend the meeting. His conversation will be delayed until a later date.

VII. California Building Standard Commission to Petition to Adoption International Existing Building Code Chapters 6-11 and 13
Speaker – *Irina Brauzman, Associate Architect, California Building Standards Commission*

The California Building Standards Commission (CBSC) is charged with administering California's building code adoption process. Their mission is to reduce sensible and usable state building standards and regulations that implement or enforce those standards. Ms. Valencia introduced Irina Brauzman

to provide an overview of the petition submitted by the American Institute of Architects. The petition is to adopt several chapters of the international existing building code that were not adopted in California before.

Ms. Brauzman stated the petition was first received in November 2019 to adopt Chapters 6-11 & 13 of the International Existing Building Code (IEBC). The Chapters would be used to repurpose underused commercial buildings for multifamily housing. The petition was accepted but could not be included in the 2019 Intervening Cycle rulemaking due to timing.

The petition was discussed in 2020 but due to model publication dates, state agencies could not review the new addition of the IEBC until January 2021. Agencies presented their positions on adoption of requested Chapters in April 2021 where California Department of Housing & Community Development (HCD) indicated to adopt specific sections. Many concerns were raised associated to fire and life safety provisions. The State Fire Marshall (SFM) identified several regulations that conflicted with IEBC sections. The Chapters needed total analysis to eliminate conflicts resulting in a significant amount of work.

Chapters 6-11 are about Work Area Method and Chapter 13 is about Performance Compliance Methods. The only method adopted in California currently is the Prescriptive Compliance Method covered in Chapter 5. Additional Chapters may provide relief from certain requirements and allow the industry the flexibility to fully comply without costly improvements and lead to utilizing more of the existing buildings. Structural requirements defined in Chapters 5 & 6-11 are generally the same.

Before the 2016 edition of the code, only small portions of international existing buildings were adopted in California and only included appendix Chapters A1 and A3. Other provisions are in 34 and 34A of the California Building Code. Situations changed when Chapter 34 was removed from the 2015 International Building Code which put state agencies in a position to move amendments somewhere else. After many discussions, most state agencies would propose the adoption of certain code provisions which resembled the provisions in Chapter

34. The significant difference in the 2016 and 2019 editions was that the 2016 edition still contained OSHPD provisions.

Chapters 6-11 & 13 cause some local jurisdictions concerned because it might be hard to enforce and would require additional training. These Chapters are available for local jurisdictions if they do not conflict with existing regulations and law.

Mrs. Brauzman presented a timeline for the 2022 Intervening Code Adoption Cycle and states that they are in the middle of the Workshop phase with initial submittals due from agencies in December.

Discussion:

Commissioner Marvelli summarized that the main goal of the Building Standards Commission is to administer title 24. The idea is every 3 years these codes are adopted by California and published. The existing building codes is one piece of all the building codes and there were some compliance methods that were not adopted previously. The methods are developed at a national level and the states can adopt them. Mrs. Brauzman provided a history of why they weren't adopted and then the need for them to be adopted. Further discussion is needed but it is related to seismic to determine the level of upgrade for the buildings when utilized. Commissioner Marvelli offers any assistance needed by the SSC for any further information.

Chairwoman Silva asked if these amendments get alternative housing currently being used to house people struggling with homelessness.

Commissioner Marvelli stated that this would not be for temporary housing for the un-housed and is more for an existing building. It could be determined that the building could be retrofitted to meet today's regulations.

Mrs. Brauzman stated that Chapters 6-11 are about Work Area Method and all the structural requirements there are basically the same as for Prescription Method. Each type of conversions is addressed by each chapter.

Chairwoman Silva requested that anyone interested in learning more to reach out to Commissioner Marvelli.

IV. Miscellaneous Announcements

Ms. Valencia, SSC Acting Director gave a brief update on the legislature and the budget that was signed by the Governor. She also stated Senate Bill 189 was signed by the Governor and a part of this legislation established a seismic retrofit program for soft-story multifamily housing.

Tanya Black, SSC Administrative Processes Manager addressed the need to establish dates for the upcoming commission meeting. She also addressed the per diem process for commissioners and asked if there were any updates to commissioners contact information.

Jia Wang-Connelly, SSC Senior Structural Engineer stated that the Commercial Owner's Guide (COG) project team had a meeting to discuss comments received. Office of State Planning (OSP) has finalized the draft and COG is now working with them on the ADA compliance. The Executive Office will provide direction on posting the publication on the website, and everyone will receive an update.

Ms. Valencia mentioned the SSC is still in the process of recruitment for the next Executive Director.

Chairwoman Silva introduced two new Commissioners Kevin McGowan and Senator Anthony Portantino.

The SSC gave a farewell to Commissioner Andrew Tran, who has resigned from the SSC due to a work opportunity.

Discussion:

Chairwoman Silva asked if the travel expense form will also be provided, and Ms. Black stated she is working with eh travel department to address this.

V. Public Comment

Abdel Barqawi stated that this was a fantastic opportunity to learn and that the work done has encouraged him to promote public safety in first responders with Fire Prevention Technology Systems Manufacture (FPTS). FPTS provides an eco- and budget-friendly product to protect responders while fighting fire. Mr. Barqawi stated that the company can reach 600-900 degrees without damaging the soil and that he would love to send a sample for testing.

IX. Adjourn

The meeting was adjourned at 1:30 pm by Chairwoman Silva.