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A National Approach to Seismic Functional Recovery for New Construction

A Seismic Roundtable: Next Steps Forum convened by the International Code Council

Susan Dowty Regional Manager, Government Relations, International Code Council Las Vegas, Nevada Wednesday, October 23, 2019

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INTRODUCTION

After the success of the July 25th ICC and CALBO Seismic Roundtable on the development of a nationally applicable approach to seismic functional recovery for new construction, it was decided to schedule a follow-up meeting on the morning of October 23, 2019 at the International Code Council's Annual Conference in Las Vegas. The meeting named *Seismic Roundtable: Next Steps Forum* was designed to discuss the results from the <u>July 25th Seismic Roundtable</u>, present the seismic functional recovery roadmap for new construction and define next steps and commitments.

On the day of the event, Sara Yerkes, Senior Vice President for ICC's Government Relations, welcomed everyone to the Code Council's 2019 Annual Conference and to the *Seismic Roundtable: Next Steps Forum*. She identified the two goals for the three-hour event:

- 1. Select the best path (or paths) from the "Seismic Functional Recovery Roadmap" and
- 2. Identify participants, supporters and associated roles for the selected path

She also noted the same working definition for "Functional Recovery" used at the first Seismic Roundtable would be used for the Next Steps Forum, which was defined as the "design and construction intended to result in a building for which postearthquake structural and nonstructural capacity are maintained or can be restored to support the basic intended functions of the building's preearthquake use and occupancy within a maximum acceptable time, where the maximum acceptable time might differ for various uses or occupancies (based on proposed California Assembly Bill 393)."

The discussion portion of the event was facilitated by John Bwarie, CEO of Stratiscope, a company that has worked extensively with individuals, associations and jurisdictions on solutions for improving seismic resiliency.

Brief introductions took place next with 50+ participants identifying themselves (see participant list at end of report).

John Bwarie noted the group would use what we learned from the <u>First Seismic Roundtable</u> and synthesize ideas from those deep and lively discussions and put them into action. He then reviewed the report from the July 25th event including the pathways, challenges faced, and potential solutions. He encouraged participants to watch the videos and read the report in case they had not already done so.

Code Council Government Relations Manager Susan Dowty next unveiled the Seismic Functional Recovery Roadmap for New Buildings. The goal of the July 25th Seismic Roundtable was to determine a roadmap for the development of a nationally applicable approach to seismic functional recovery for new construction. She explained that this roadmap was a first version and modeled after Google maps and noted the following:

- North is up and the map is going from south to north with the bottom of the page being "where we are" and the top of the page being our destination.
- There is an onramp with stoplights indicating what needs to happen before proceeding.
- There is an offramp with stoplights indicating what needs to happen before reaching the destination of functional recovery for new buildings.
- There is a toll road.
- There is an interstate freeway.
- There is a highway.
- There is another "coming soon under construction" highway.
- There are two scenic routes.
- The roadmap includes this note: "This is a working document that will change after 10/23/19."







After the roadmap was distributed, there was individual review followed by small breakout group discussions followed by a large group discussion. John Bwarie asked the group what they liked about the map, and comments included the following:

- 1. The graphic visual representation is simple and easy to understand for elected officials.
- 2. The map shows multiple paths that can all take place simultaneously.
- 3. There is a timeline associated with the map to ensure the route is achievable by a given date.
- 4. The use of colors: the green line being a legal approach, the orange line being a code approach, and the red line being a standard approach is helpful.

John Bwarie asked the group what revisions they would like to see on the map, and comments included the following:

- 1. Add routes for:
 - a. Voluntary approach, including tiered approach similar to CalGreen
 - b. IBC appendix
 - c. Incentive route via helicopter. This route would be for those who voluntarily want to achieve functional recovery due to incentives (such as rebates, tax breaks, and reduced insurance premiums), bypassing the other routes and getting to the destination more quickly.
 - d. Local roads that local jurisdictions can take on their own to the destination.
 - e. Development of International Functional Recovery Code (IFRC)
- 2. Add lifeline standards as they relate to new building construction (cell towers, roads, electrical and water distribution were mentioned).
- 3. The onramp stoplights are significant tasks that may need roadmaps of their own.
- 4. Add carpool lanes indicating multiple partners that can ride together along the routes, such as community outreach teams, research and analysis teams, and legislative teams.
- 5. Add a stop on the "Route Future IBC" for FEMA Prestandard prior to "Develop Functional Recovery Standard" stop.
- 6. In addition to the offramp stoplight, "Public Outreach" needs to be an onramp stoplight and continue throughout the entire process.
- 7. Add a stop for each route for messaging the cost-benefit of proceeding with the respective route.
- 8. Consider options such as only providing functional recovery for the nonstructural components. The final destination could be shown with varying degrees of entry.
- 9. Add year at starting point and add year at freeway entrance point.
- Some were of the opinion the timeline for "Route ASCE 7-28" is too optimistic and it should be revised to take 16 years, with ASCE 7-34 being adopted in the 2036 IBC. One participant noted that ASCE 7 was the preferred approach because states and jurisdictions are more apt to amend the model code, but not ASCE 7. Also, ASCE 7 addresses all hazards, not just seismic, and the ideas being exchanged can be used for other hazards.

After the break, Ryan Kersting, S.E., presented "<u>Update on Functional Recovery Efforts From Sacramento to Washington</u> <u>D.C. with Many Stops In Between.</u>" Ryan indicated he is working on the functional recovery topic on many fronts including serving as: 1) SEAOC Legislative Committee Chair, 2) SEAOC Functional Recovery Working Group Chair, and 3) FEMA-NIST Functional Recovery Committee Chair. Ryan made the following points during his presentation:

- This topic is drawing attention from elected officials and the public about the intended performance provided by building codes.
- A consensus definition for functional recovery is being worked on that would apply to buildings and to infrastructure systems.
- Functional recovery is not "community resilience" but is a performance level for the built environment that can be combined with target recovery times to help achieve community resilience.
- California AB 393 passed through the Assembly, but stalled in final Senate committee and did not reach the Senate floor for a vote. However, Assemblymember Nazarian and the Structural Engineers Association of California (SEAOC) are committed to working with stakeholders to move the concept forward.



- The <u>EERI "Functional Recovery: A Conceptual Framework" White Paper</u> is a great resource and addresses the entire spectrum: new buildings, existing buildings, lifelines and infrastructure.
- The SEAOC Functional Recovery Working Group is actively collaborating with the SEAOC Resilience Committee, EERI, ATC, HB Risk Group, and others. Topics the group is working on include:
 - o Identifying relationship between functional recovery and community resilience.
 - o Quantifying performance provided by current code provisions and factors affecting repair and recovery time.
 - o Studying alternative framework and design criteria options to achieve improved performance in terms of functional recovery time.
 - o Performance objectives to meet community goals.
 - o Code-based criteria to meet the performance objectives.
- The FEMA-NIST Functional Recovery Committee is working to achieve their purpose as outlined in the 2018 NEHRP Reauthorization Act: "assess and recommend options for improving the built environment and critical infrastructure to reflect performance goals stated in terms of post-earthquake reoccupancy and functional recovery time." It is expected that the options identified will include creative and innovative strategies for engineering, codes and standards, lifelines, community planning, hazard mitigation, emergency response and business continuity. Stakeholder workshops are planned for early 2020 and the report is due to Congress June 2020. An update will be provided at the <u>National Earthquake Conference in San Diego</u>, March 4-6, 2020.
- It is critical to broaden the audience and bring more stakeholders into the functional recovery conversations.

John Bwarie next led the final group discussion on Next Steps – Collaboration and Commitments. The next steps were identified with the first three being stop lights along the onramp of the roadmap. The following tasks and those volunteering to work on the tasks were recorded as follows:

1. Functional Recovery Terminology Defined. Provide definitions for terms related to functional recovery that everyone can agree upon and understand. This will inform Task 2 Messaging: Making the Case for Functional Recovery. This task could also include drafting a mission statement or clear objective of this effort.

Key Partners/Volunteers: Jon Siu (City of Seattle), Heidi Tremayne (EERI), Ryan Kersting (SEAOC), Sandra Hyde (ICC), Shahen Akelyan and Victor Cuevas (Los Angeles), Jeff Ellis (Simpson Strong-Tie)

2. Messaging: Making the Case for Functional Recovery. Create a messaging plan that will a) identify who needs to be reached, b) include talking points for different groups c) provide a broad outreach with each group's messaging channels. Use the <u>NIST Community Resiliency Planning Guide</u> as a resource. Communities like to have options, this will not be a one-size fits all. Find out what the communities want, inform other task groups, and promote the options.

Key Partners/Volunteers: Eric Beilstein (San Dimas), Jan Bear (Glendale), Terry Whitehill and Amit Kumar (City of Portland), Shahen Akelyan and Victor Cuevas (Los Angeles), Angeline Sickler (City of Salinas)

3. Functional Recovery Matrix: Use vs Recovery Time. Create a matrix that presents -- simply -- the level of performance desired by current and potential standards. The matrix should be developed so that it can be used for Task 2's messaging plan and understood by the general public.

Key Partners/Volunteers: Shahen Akelyan and Victor Cuevas (Los Angeles), Sandra Hyde (ICC), David Bonowitz

4. Create an Engagement Plan. Socialize Task 2's messaging plan, even without the details such as the matrix. Determine who needs to be a part of this effort; help be a messenger to amplify the effort; and understand who strengthens the argument for functional recovery. Use ICC and EERI chapters and SEA chapters and sections to share this information with stakeholders and the broad population and ask them if they want this to be part of their mission statement.

Key Partners/Volunteers: Mike Leach (City of Santa Paula), Los Angeles Shahen Akelyan and Victor Cuevas (Los Angeles), Jeff Ellis (Simpson Strong-Tie), Angeline Sickler (City of Salinas)

5. **Develop Incentive Options.** Develop incentive options, including a tiered approach to encourage independent adoption of functional recovery, e.g. density bonus, permit fee reduction, tax breaks, lower insurance premiums.

Key Partners/Volunteers: Shahen Akelyan and Victor Cuevas (Los Angeles), Eric Beilstein (San Dimas)

6. Provide Cost-Benefit Analysis. Provide a detailed cost -benefit analysis as it relates to the matrix and the value of functional recovery in the life of the building and the community. Also, when considering costs, consider the cost of inspections. Further, consider how this influences Task 2, the messaging plan.

Key Partners/Volunteers: Shahen Akelyan and Victor Cuevas (Los Angeles), David Bonowitz



7. Create a Public Seismic Portal. Create a seismic portal on ICC's website to house all relevant reports, documents, and information for those seeking insights on the status of this effort and relevant resources. This will also serve as a mechanism to engage the ICC membership and other organizations' membership.

Key Partners/Volunteers: ICC

8. Form an Official Functional Recovery Coalition. Form a coalition with clear purpose, what partners agree to, and what involvement looks like. The coalition can write a mission statement and be involved with the engagement plan in order to broaden the coalition. It was noted that all tasks are very likely to be informed by the FEMA-NIST Functional Recovery Options Report due to Congress June 2020. The Coalition could review the report and share the options to potential new coalition partners.

Key Partners/Volunteers: EERI, SEAOC, Shahen Akelyan and Victor Cuevas (Los Angeles), ICC, Jennifer Goupil (ASCE), Michael Mahoney (FEMA), Terry Whitehill and Amit Kumar (Portland), NEMA, NIST, CBSC

Additional information:

Photos from the event are available here.

Post Event Note: After evaluating the information collected at the Seismic Roundtable: Next Steps Forum, it became clear that it would be prudent to wait until the *FEMA-NIST Recommended Options for Functional Recovery of the Built Environment and Critical Infrastructure Report* is released in June 2020 before proceeding with the tasks identified in this report. The author is a member of the FEMA-NIST Functional Recovery Committee and will be continually monitoring progress and considering how to best put the identified tasks into action.



PARTICIPANT LIST

First Name	Last Name	Affiliation
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