NEHRP Reauthorization Charges for Investigation of Functional Recovery

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NEHRP Reauthorization Act of 2018

- P.L. 115-307 signed on 12/11/2018 amends NEHRP by:
  - Authorizes NEHRP through FY2023;
  - Expand NEHRP activities to include: (1) gathering information on community resilience; (2) publishing maps of seismically induced hazards; and (3) continuing the development of ANSS and EEW;
  - Revises or expands the duties of the Interagency Coordinating Committee and all four of the NEHRP agencies;
  - Requires the Government Accountability Office to complete a review of federal earthquake hazard risk reduction efforts, and;
  - Requires NIST and FEMA to jointly convene a committee of experts to assess and recommend options for improving seismic safety standards for functional recovery.
Recent NEHRP Reauthorization

**SECTION 8: SEISMIC STANDARDS**

- Not later than December 1, 2019, [NIST and FEMA] shall jointly convene a *committee of experts* from Federal agencies, nongovernmental organizations, private sector entities, disaster management professional associations, engineering professional associations, and professional construction and homebuilding industry associations, to *assess and recommend options for improving the built environment and critical infrastructure to reflect performance goals stated in terms of post-earthquake re-occupancy and functional recovery time.*

- Not later than June 30, 2020, submit a *report on recommended options* ....
Terminology

- **Recommended Options:**
  - The Committee of Experts shall assess and provide “recommended options” that could lead to the stated goal.
  - Options should include both the technical methodology as well as what steps would be needed to implement it.

- **Critical Infrastructure:**
  - “Critical Infrastructure” is defined by the Patriot Act, but it includes national-level and virtual systems that are not applicable here.
  - The rest of the NEHRP Reauthorization Act uses the term “lifelines infrastructure” so we are assuming the NEHRP term was intended.
    - “Lifeline Infrastructure” means public works and utilities, including transportation facilities and infrastructure, oil and gas pipelines, electrical power and communication facilities, and water supply and sewage treatment facilities.”
Terminology

▪ **Functional Recovery Performance Level:**
  
  “Functional recovery is a post-earthquake performance state in which a building and lifeline infrastructure system is maintained, or restored, to safely and adequately support the basic intended functions associated with the pre-earthquake use or occupancy of a building, or the pre-earthquake service level of a lifeline infrastructure system.”

▪ **Functional Recovery Performance Objective:**
  
  A functional recovery objective is functional recovery achieved within an acceptable time following a specified earthquake, where the acceptable time might differ for various building uses and occupancies, or lifeline infrastructure services.
Different Performance Levels

- **Post Earthquake Reoccupancy:**
  - The ability to safely re-enter a building after evacuation, including the ability to safely occupy the building while clean-up or repairs are being made. Building services are not necessarily functional, except those required for occupancy and needed for safety. Alternative sources of these services are permitted.

- **Post Earthquake Functional Recovery:**
  - A step beyond reoccupancy, which includes safe occupancy, but also includes restoration of building components and services to support a significant measure of pre-earthquake functionality.

- **Full Recovery:**
  - Restoration to a building’s pre-earthquake safety and functionality.
Plan for Report Development

- NIST and FEMA met in early 2019 and developed a one year plan, which we have been implementing.

- NIST and FEMA have identified the “Committee of Experts”. This was broken into two parts:
  - FEMA is funding the Project Technical Panel through a task order with the Applied Technology Council (ATC) to do the report developmental work. We were able to begin this work immediately under an existing related task order.
  - NIST is funding the Project Review Panel and a series of five Stakeholder Workshops through a new contract with the Science and Technology Policy Institute (STPI) to provide review input.
The FEMA-funded PTP consists of 20 members from the interest areas listed in the NEHRP Reauthorization Act. The selection process identified organizations from those interest areas and then specific individuals from those organizations with experience to participate on the Panel.

The PTP has met multiple times from summer 2019 through now to research and identify a series of recommended options for the Report. PTP has met seven times since mid-2019 and one more time in April.

The PTP has received input from several sources:
- The five Stakeholder Workshops;
- Directly from outside interests;
- The PRP.
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Project Review Panel/Workshops

- The Project Review Panel (PRP) is providing review input to the PTP, NIST and FEMA on all report products.
  - They have met twice and will meet one more time this month.

- The NIST contractor (STPI) is also responsible for planning and conducting five Stakeholder Workshops:
  - 1/27 St. Louis
  - 1/29 Salt Lake City
  - 1/31 Seattle
  - 2/4 San Francisco
  - 2/6 Los Angeles

- To obtain broad national input on different aspects of functional recovery including, recovery times and assessment of options.
Project Review Panel Membership

- Marissa Aho, *Chief Resilience Officer, City of Houston*
- John M. Bozeman, *Director, Government and Industry Affairs, BOMA*
- Dan Eschenasy, *Chief Structural Engineer, City of NY*
- Robert Ezelle, *Director, Emergency management Division, State of WA*
- William T. Holmes, *Senior Consultant, R+C*
- James Kendra, *Director, Disaster Research Center, Univ. of DE*
- Thomas D. O’Rourke, *Professor, Cornell University, MCEER*
- Marios Panagiotou, *Senior Consultant, Nabih Yousef Associates*
- Keith Porter, *Research Professor, Univ. of CO, Boulder*
- Lakisha Ann Woods, *President and CEO, NIBS*
The PTP prepared a first draft at end of 2019. That draft report provided input for Stakeholder Workshops and PRP.

PTP will prepare the 100% draft by the end of March for one final review by the PTP and PRP.

ATC will finalize the report and submit it to NIST and FEMA by the end of April. NIST and FEMA will conduct their internal approval reviews and submit the final Report to OMB for approval by the end of May.

Once approved by OMB it will be submitted to Congress.
  - The Report is not public until submitted to Congress the end of June

FEMA and NIST will jointly publish the Report.
Current Situation:

- New construction and changes to existing buildings are regulated by the building codes.
- Building codes provide life safety except better for critical facilities and high risk buildings.
- Lifelines follow industry standards.
- Little coordination.
Functional Recovery: A Bridge to Resilience

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**Community Resilience Goals:**
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Functional Recovery:
- Uses existing code process to regulate FR for individual buildings.
- Improve lifeline systems to provide FR.
- Coordinate both in the process.
Conclusion

▪ Congress wants a “report of recommended options for improving the built environment and critical infrastructure to reflect performance goals in terms of post-earthquake re-occupancy and functional recovery time.”
  ▪ It is not a roadmap or solution and it will not address all needs.
  ▪ However, it is the first step to that, and there will be more to come.

▪ The PTP has had the autonomy to investigate, document and recommend options they feel meets this criteria.

▪ There have been opportunities for synergies and benefits in connection with the States and the design community.

▪ Getting involvement from the public is important to us, and we have encouraged input throughout the process.