

**National Construction Safety Team Advisory Committee
(NCSTAC) Meeting Summary
National Institute of Standards and Technology (NIST)
Gaithersburg, Maryland
(hybrid Public Meeting conducted via web conference and in-person)
October 19, 2022**

Advisory Committee Members:

Ross Corotis, Chair	University of Colorado, Boulder
Jose Izquierdo-Encarnación, Vice Chair	PORTICUS
Donald Dusenberry	Consulting Engineer
William Holmes	Rutherford + Chekene
Gary Klein	Wiss, Janney, Elstner Associates
Kimberly Shoaf	Utah School of Medicine
Jeannette Sutton	University at Albany, State University of New York
Aspasia Zerva	Drexel University

NIST Leadership:

James Olthoff	Associate Director for Laboratory Programs
Joannie Chin	Director, Engineering Laboratory
Jason Averill	Chief, Materials & Structural Systems Division (MSSD)
Steven McCabe	Associate Chief, MSSD

NIST Staff (listed in alphabetical order):

Glenn Bell	Structural Engineer and Champlain Towers South NCST Associate Lead Investigator
Tanya Brown-Giammanco	Director, Disaster and Failure Studies
Benjamin Davis	Designated Federal Officer, NCSTAC
Maria Dillard	Social Scientist and Hurricane Maria NCST Associate Lead Investigator
Peter Gale	Administrative Office Assistant
Kenneth Harrison	Operational Research Analyst and Hurricane Maria Project Leader
Jennifer Huergo	Director of Public Affairs and Family Liaison, Champlain Towers South NCST Investigation
Joseph Main	Research Structural Engineer and Hurricane Maria NCST Lead Investigator
Judith Mitrani-Reiser	Senior Research Scientist and Champlain Towers South NCST Lead Investigator
Fahim Sadek	Research Structural Engineer and Champlain Towers South NCST Project Leader
Matthew Speicher	Research Structural Engineer

Public Speakers:

Martin Langesfeld
Pablo Langesfeld

I. Welcome and Opening Remarks

Mr. Benjamin Davis, serving as the Designated Federal Officer (DFO), called the meeting to order and took roll call of the Committee members. Six members of the Committee were in attendance in person, with two additional members attending virtually. Mr. Davis then introduced the NIST Associate Director for Laboratory Programs, Dr. James Olthoff, who welcomed the Committee and thanked them for their engagement and participation. He noted the importance of the Committee and their reports to Congress, and described how the NIST team uses those Committee recommendations in the investigations to improve building performance and safety in the US. Dr. Olthoff noted that the Committee would receive updates on Hurricane Maria's impacts on Puerto Rico and on the Champlain Towers South partial collapse in Surfside, Florida. He described the impact NCST investigation recommendations have had in the past, and encouraged the Committee to continue to provide advice to ensure this continues.

II. Opening Committee Business

Mr. Davis introduced the Chair of the Committee, Dr. Ross Corotis, who described the meeting goals, introduced the two newest members of the Committee, Mr. Donald Dusenberry and Dr. Aspasia Zerva, and described the agenda. The meeting goals announced were to:

- Review Disaster and Failure Studies Program Scoring of Events and Readiness of Teams,
- Review the status of the NCST investigation of Hurricane Maria's effects on Puerto Rico,
- Review the status of the NCST investigation of the partial collapse of Champlain Towers South in Surfside, Florida, and
- Develop the Committee's annual report to Congress

III. Disaster and Failure Studies (DFS) Program Updates

Dr. Corotis introduced Dr. Tanya Brown-Giammanco, who presented an overview of the DFS Program and the progress made since the June meeting. She highlighted the Advisory Committee composition, including term expirations for the current members, and described efforts to recruit additional members. She described an update to the National Construction Safety Team (NCST) Act that was passed as part of the Creating Helpful Incentives to Produce Semiconductors (CHIPS) Act. She highlighted recent disaster events that had been scored, and a preliminary reconnaissance conducted for Hurricane Ian by the Acting NWIRP Director, Mr. James LaDue. She also highlighted recent progress on the SciServer initiative to automate disaster scoring, and described recent interagency agreements and support. The presentation can be found here:

[Disaster and Failure Studies Program Updates](#)

Discussion:

The Committee and staff discussed scoring and decision-making of Hurricanes Fiona and Ian, as well as related areas of interest. NIST described the scoring of Hurricane Fiona and the strong tie with the ongoing Hurricane Maria investigation. NIST described code implications for storm surge, and the success of modern codes in preventing damage as areas of interest for Hurricane Ian, but noted the resource constraints with two ongoing investigations. The Committee noted that a connection with the tsunami community could be valuable if a storm surge investigation is pursued. NIST noted that no final decisions had been made about investigating Fiona or Ian.

The Committee also commented on challenges with structural inventory data and asked about the new National Structure Inventory that Dr. Brown-Giammanco referenced in her presentation. They described the typical sources of these kinds of information. NIST described their limited knowledge of the resource, noting they had just received access the week prior, and would be reviewing the data soon.

The Committee and staff discussed recent efforts to ensure that outstanding safety training was completed, as well as a new storage space for the team safety kits.

The Committee commented on the challenges with flood maps, particularly in Puerto Rico and recent events with very high rainfall rates. NIST noted that the scoring rubric for investigations does not currently include rainfall intensity, but has recently been considering how this might need to be addressed in future revisions.

The Committee and staff discussed the idea of addressing infrastructure damage in future investigations. NIST noted that infrastructure is not currently within the authorities of the NCST Act, but expected the Committee would comment on this topic again in their annual report to Congress, as they have done in past years, which the Chair confirmed. The Committee noted that significant financial resources were allocated to Puerto Rico for repair and construction of more resilient infrastructure after Hurricane Maria but when Fiona made landfall, very little had been done.

The Committee asked about some of the technical details of the presentation and noted that a connection with the Applied Technology Council (ATC) could be valuable for the SciServer scoring initiative, as they created the ASCE Hazard Tool.

IV. Summary of Hurricane Maria NCST Investigation Progress

Prior to the presentations, the DFO asked if any members of the Committee had a conflict of interest and if so, to recuse themselves. No Committee members recused themselves. Dr. Joseph Main and Dr. Maria Dillard reviewed the Hurricane Maria program's goals, including both NCST and NWIRP projects, and stakeholder outreach and public communications efforts. They discussed the structure of the overall program, including contractor support, and the recent progress on each of the seven projects. They also noted the effects of Hurricane Fiona and specifically how the more recent storm has impacted their projects. Their presentation can be found here:

[Summary of Hurricane Maria NCST Investigation Progress](#)

Discussion:

The Committee and presenters discussed the continued issues with Puerto Rico's infrastructure, particularly power and water services, the requirement for power to be functional to run water pumps, and how Hurricane Fiona highlighted the vulnerability of these infrastructure systems. They discussed the need to consider subsequent hazard events when making recommendations pertaining to recovery and generator availability and functionality during Hurricane Fiona. They also discussed challenges with illegal construction. The Committee suggested demonstrating via maps where repairs had or had not been made between Hurricanes Maria and Fiona and the associated timelines, and the team believed this would be possible in the Recovery of Social Functions project and the Critical Buildings project where data collection is ongoing and additional

questions can be asked about recovery over time. Other projects may not be able to address this because data collection is complete or nearly complete.

The Committee and presenters discussed the global supply chain and COVID-19 pandemic issues that would affect the supply chain and recovery being studied in the Hurricane Maria investigation. The semi-structured nature of the interviews being used for data collection allow for some flexibility in addressing this, although the focus is primarily on the early time period just after Hurricane Maria.

The Committee discussed the completion statistics and activities that are still ongoing in the Emergency Communications project. Most of the data have been collected and analysis is ongoing. The Committee also discussed English and Spanish data collection and analysis efforts and suggested that in the future, there could be value in conducting analysis using the original, non-translated data.

V. Champlain Towers Updates

Before the presentation began the DFO asked if any Committee members had a conflict of interest, and if so, to recuse themselves. None of the Committee members recused themselves. Dr. Judith Mitrani-Reiser and Mr. Glenn Bell gave a presentation on the Champlain Towers South Investigation. They provided an update on the progress of the investigation over the last four months. They described support provided by contractors and other Federal Agencies, and highlighted data and evidence obtained from the civil litigation experts. They highlighted activities of each project in the investigation, the workflow to investigate each failure hypothesis, and shared an updated timeline of activities. Their presentation can be found here:

[Champlain Towers South NCST Investigation Overview](#)

Discussion:

The Committee applauded the technical rigor and thoroughness of the investigation. They discussed the nature of the structural model resolution. NIST noted that the model is developed for the lower levels and that the level of detail will be revisited and potentially simplified as the model progresses to higher floors where some details may not be as critical.

The Committee discussed the implications of water pressure on the foundation caused by previous hurricanes over the life of the structure. The Geotechnical Engineering project is addressing foundation topics, while the Building History project is addressing the wind loads. However both projects have staff embedded in the other team's meetings to ensure cross-project coordination. The Committee and presenters discussed the structural testing program which uses similar aggregates as the original building concrete and includes full-scale replicates of structural components, including slab-column connections and slab-beam columns.

The Committee and presenters also discussed the need and ongoing work to establish the timeline of the 40-year history of the building as well as the particular events of the evening of the failure. NIST described some of the data sources that are being used to accomplish this and progress on reducing uncertainty as additional data are collected and analyzed. Questions for interviews that have been conducted recently are very targeted as more has been learned, and NIST thanked the members of the public who have been interviewed for their willingness to participate. The team

conducting the interviews and focus groups were also discussed.

The Committee discussed the timeline to complete the investigation and the Congressional appropriation of funds. The team's timeline is well-planned to utilize the funds that have been allocated through the end of FY23, and conversations about how to fund investigative activities beyond that have begun. Investigative timeline challenges with acquiring additional work space in Miami were discussed, particularly in light of the high public interest in the investigation.

VI. Closing Business

Dr. Joannie Chin, the Director of the Engineering Lab at NIST, gave the closing remarks. She thanked the NIST staff who organized the meeting, and thanked Mr. Davis for his service as the DFO for the Committee for the past several years. She thanked the investigation teams for their perseverance in overcoming challenges, and thanked the Committee for their valuable advice. Dr. Chin also highlighted why NCST investigations are so valuable in making buildings and communities more resilient, and gave examples of recent successes in implementing changes to codes and standards based on findings and recommendations from the Joplin tornado and World Trade Center NCST investigations. She summarized the key takeaways from the Hurricane Maria and Champlain Towers South investigations that were presented. Dr. Chin also emphasized the continued need and importance of the information submitted by the public for use in the investigations and encouraged additional submissions.

Following the closing remarks, Mr. Davis opened the public comment period. Mr. Martin Langesfeld, family member of Nicole Langesfeld who was killed in the Champlain Towers South collapse, spoke and described concern that the collapse site will have a new building built prior to NIST completing its investigation. Mr. Pablo Langesfeld, also a family member of Nicole Langesfeld, spoke of how the civil litigation has been completed but that the families still do not know why the collapse occurred. He asked about cooperation with other authorities, and echoed concerns about the safety of the underlying land on which a new building will be constructed.

VII. NCSTAC Preparation of Annual Report to Congress

The Committee used the remainder of the meeting time to review their progress on the annual report to Congress and to continue drafting portions of it based on the presentations given earlier in the meeting. They asked questions of NIST to aid in their preparation, and the appropriate staff responded as needed. Following the Committee's work, Mr. Davis adjourned the meeting at approximately 4:00 pm ET.