

PRA Application Supporting Statement

OMB Control #0693-0078

Expiration Date: 07/31/2025

NIST Generic Clearance for Community Resilience Data Collections

**National Construction Safety Team Investigation of the June 24, 2021
Champlain Towers South (CTS) Condominium Collapse in Surfside, FL**

INTERVIEW GUIDE COMPONENT 6: Maintenance Staff

FOUR STANDARD SURVEY QUESTIONS

This PRA application covers the Interview of CTS Maintenance Staff for the Evidence Collection component of the NCST investigation of the partial collapse of Champlain Towers South (henceforth the *CTS NCST Evidence Collection Project*).

1. Explain who will be surveyed and why the group is appropriate to survey.

NIST is conducting an interview of a purposive sample of CTS Maintenance Staff to learn about the condition of the building before its partial collapse, the timeline of events surrounding the collapse, the evacuation processes, emergency communications surrounding the building collapse, and the emergency response after the collapse. The semi-structured interviews target CTS Maintenance Staff who meet certain eligibility criteria. Criteria include (1) being on the contact list of CTS Maintenance Staff, (2) agreeing to participate in the study, and (3) being an adult (18 years of age or older). Interviews are sought to represent various perspectives of maintenance staff who worked at the CTS building at the time of collapse and before, etc. By targeting suitable CTS Maintenance Staff, the investigation will provide direct insight into the conditions and events leading up to the collapse and immediately following the building collapse.

Background: The National Institute of Standards and Technology (NIST) has the responsibility to investigate cases of serious failures of the built environment (buildings and infrastructure) under the National Construction Safety Team (NCST) Act, signed into law in 2002. On June 30, 2021, NIST launched a full technical investigation of the collapse of the Champlain Towers South Condominium in Surfside, FL that occurred on June 24, 2021, under the authority of the NCST Act. NCST duties include:

1. "...establish the likely technical cause or causes of the building failure;
2. evaluate the technical aspects of evacuation and emergency response procedures;

3. recommend, as necessary, improvements to building standards, codes, and practices based on the findings;
4. recommend any research and other appropriate actions needed to improve the structural safety of buildings, and improve evacuation and emergency response procedures, based on the findings of the investigation.”

NIST is conducting multiple projects that represent all these areas for investigation. There are millions of high-rise condominium units in Florida alone, many of them aging structures near the coast. While a NIST investigation is intended to identify the cause of the partial collapse of Champlain Towers South Condominium, it could also uncover important safety issues for similar building construction across the nation. As part of this work, NIST seeks to interview eyewitnesses, first responders, engineers, vendors, contractors, maintenance staff, construction workers, residents, condominium owners, government officials, and others who have first-hand knowledge about the building prior to collapse, who can describe experiences with the building before and/or during the collapse, and those who generally, can provide any information that may help explain the technical cause(s) of the building failure. This investigation is not considered research but is instead a fact-finding mission to establish the technical cause of the collapse and, if appropriate, to recommend changes to building codes, standards and practices, or other actions to improve the structural safety of buildings across the United States.

To complete this investigation, NIST has partnered with contractors who can utilize trained personnel local to South Florida to complete data collection activities. Data collection for this submission will target distinct stakeholder groups (e.g., CTS Maintenance Staff) that provide unique perspectives on the condition of the building throughout its lifetime and the details associated with the initiation/progression of collapse.

2. Explain how the survey was developed including consultation with interested parties, pre-testing, and responses to suggestions for improvement.

The interview instrument presented in this application was developed by an interdisciplinary group of social scientists from Florida International University (FIU) and Florida Atlantic University (FAU) with backgrounds in urban planning, public policy and administration, psychology, social work, anthropology, and history, in close collaboration with NIST scientists and engineers. It builds on best practices and lessons learned across these disciplines and is grounded in the interdisciplinary disaster literature. It is also informed by NIST’s social science evidence collection activities in its completed NCST investigations (e.g., World Trade Center), other ongoing NCST investigations (e.g., Hurricane Maria), and data collection conducted under a previous OMB clearance (# 0693-0087).

Two additional steps were taken to develop the instrument. *First*, a social science evidence needs assessment was conducted, which involved meeting with leaders and team members of the six technical projects of the CTS NCST investigation. The needs assessment helped identify the type of data collection required to evaluate the two dozen failure hypotheses of building-collapse initiation and progression that was identified by the investigative team. The needs assessment helped scope the types of questions relevant for the instrument guides for each stakeholder group identified for interviews. *Second*, an expert on memory-enhancing techniques¹ was consulted to ensure that the instrument is designed to aid memory (especially since nearly three years have passed since the collapse of the building) and improve the accuracy of interview data.

After a draft interview guide was developed, NIST researchers obtained feedback from subject matter experts in disaster science, sociology, structural engineering, geotechnical engineering, materials science, forensic chemistry, and civil engineering to better assess question wording, complexity, and overall burden. This review also included members of the contractor team that is closely working with NIST. Administration of a small pilot involving members of the NIST investigative team led to revisions that reduced the length and cognitive burden of the interviews. Other minor revisions were made to the interview questionnaire to enhance clarity and improve consistency in wording. These revisions included changes to word choice, formatting, scripting for interviewers, and ordering of questions, and elimination of ineffective questions.

3. Explain how the survey will be conducted, how customers will be sampled if fewer than all customers will be surveyed, expected response rate, and actions your agency plans to take to improve the response rate.

NIST, in partnership with contractors who can utilize trained personnel local to South Florida, will interview CTS Maintenance Staff. Semi-structured interviews shall be administered to a purposive sample of these individuals. The sampling strategy will identify the initial list of interviewees for CTS Maintenance Staff. The interviews, via a combination of open-and-close-ended questions, will allow for collecting detailed and in-depth information on particular topics, such as the building's condition prior to the building collapsing on June 24, 2021 and the collapse timeline. From this initial list of interviewees, the Contractor will follow non-probability sampling methods and use a combination of techniques listed below to identify the potential respondents:

¹ Fisher, R. P., & Geiselman, R. E. (1992). *Memory enhancing techniques for investigative interviewing: The cognitive interview*. Charles C Thomas Publisher.

- *Theoretical Sampling*: The sampling decisions will be mainly based on what social science evidence needs to be collected next considering our failure hypotheses. For this purpose, we have established a failure hypothesis database where team members can provide their feedback on which stakeholder groups/individuals need to be interviewed for each failure hypothesis (e.g., based on their review of archival research). The team members also rank these interviews in terms of their urgency/priority.
- *Volunteer Sampling*: We also plan to identify those who are willing to share information with us through our public outreach events and [NIST Disaster & Failure Studies' data submission portal](#). Several people have already expressed an interest in participating in an interview with us.
- *Snowball Sampling (Chain Referral)*: We plan to expand our theoretical and volunteer sample by asking study participants to make referrals as well.

Potential respondents will receive an introduction to the interview, including a description of the scope and objective of the interview.

If the respondent accepts the invitation to participate, an appointment for the 210-minute interview will be made (including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection). NIST contractors will contact the respondent at the predetermined time through the respondent's preferred mode. After obtaining verbal consent, NIST Contractors will administer the interview. For the interview conducted by phone using a teleconference platform, NIST contractors will telephone the respondent at a predetermined time and conduct the interview after obtaining verbal consent. For the interview conducted online via video conference, respondents will receive a confirmation email containing the video conference link and the interview date and time scheduled by the respondent. The confirmation email will also contain a unique ID and password. The respondent will be prompted to enter the unique meeting ID and meeting password to gain access to the virtual meeting space. Upon gaining access to the virtual meeting space, the respondent will be greeted by the interviewer(s), and the interviewer(s) will obtain consent and proceed with the interview. In-person data collection will also depend upon successful initial contact and a prior appointment with the respondent. NIST contractors will arrive at the predetermined location (e.g., on the contractor's university campus) and time to conduct the interview in a private setting after obtaining verbal consent. Based on previous interviews for NIST investigations, it is anticipated that 50% of respondents will opt to complete the interview in person; 5% of respondents will opt to complete the interview by phone using a teleconference platform; the remaining 45% of respondents are expected to complete the interview online via teleconference. Some in-person interviews that require the expertise of a non-local team member (e.g., an engineer from the NCST investigative team based outside of South Florida) will be conducted in a hybrid format. While our preference is to conduct

individual interviews, we may conduct some interviews with a group of individuals should they choose to do so (e.g., other CTS staff). Most of our interviews will be in English while others may be conducted in Spanish or Creole, depending on the preferences of the respondent.

Given the sensitive nature of the interview topic and the lack of a sample frame data source, the study adopts a purposive sampling approach. The sample methodology seeks to capture a range of experiences with the CTS building and site, and any required evacuations and rescues. However, certain criteria will be put in place to maximize representation across all failure hypotheses and establish recruitment priorities. To maximize representation across the failure hypotheses developed and actively considered by the investigative team, attempts will be made to conduct 20 interviews of CTS Maintenance Staff.

Time burden is calculated to be (20 respondents) * (average 210 min / respondent) * (1 hr / 60 min) = 70 burden hours.

The number of respondents for each group may be less than estimated and depends on the needs of the investigation. The interviews will be concluded upon reaching theoretical saturation, the point at which no new insights are likely to be gathered from collection of additional data^{2,3}. The theoretical saturation will be determined through conducting dedicated meetings with our investigative team to determine whether a theoretical saturation has been reached in terms of social science evidence.

Based on previous interviews conducted for the investigation, it is anticipated that half (65%) of potential respondents who are contacted will opt to complete the interview. A combination of proactive measures and alternative data collection procedures are planned to achieve the expected response rate:

- Outreach efforts including the creation of the NIST Champlain Towers South NCST Investigation webpage, creation of the FIU Champlain Towers South Evidence Collection Project webpage, and introductory emails sent to respondents;
- Weekly monitoring of response rates over the course of data collection;
- Multiple communication attempts to individuals as needed;
- A multi-mode approach for respondent completion (i.e., by telephone, online via video conference, in person).

The contractor will be responsible for linking appropriate data before transmission of information to NIST. Information obtained during the interviews is anonymized and not retrieved by personal Impact Assessment for this program's activity can be located at:

² Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., ... & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & quantity*, 52, 1893-1907.

³ Strauss A, Corbin J. (1998) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (2nd edition). Thousand Oaks: Sage.

4. Describe how the results of the survey will be analyzed and used to generalize the results to the entire customer population.

The aim of the semi-structured interview analysis is to identify the technical causes of the collapse of CTS building, as well as to evaluate the technical aspects of evacuation and emergency response procedures. This information will be joined with other secondary sources of data (e.g., newest reports) to develop a more complete picture of how the collapse initiated and progressed and how evacuation was carried out. Following the conclusion of data collection, the Contractor will transcribe the interviews verbatim and translate the Non-English interviews into English. The Contractor will enter interview transcriptions into a standard qualitative data software package (e.g., Atlas.ti, NVivo) for database construction and analysis. Descriptive coding techniques will be applied to interview content in order to identify key themes and constructs. Once formalized, the final codebook will be applied to all interview transcripts. Along with the secondary sources of data, the Contractor will deliver the raw interview and processed data to NIST personnel for further analysis. Ultimately, analysis of the interviews will support the investigation's ultimate recommendations on building safety, evacuation and emergency response across the United States.