

Recommendation J (NIST NCSTAR 1 Recommendation 27). NIST recommends that building codes incorporate a provision that requires building owners to retain documents, including supporting calculations and test data, related to building design, construction, maintenance and modifications over the entire life of the building.⁸ Means should be developed for offsite storage and maintenance of the documents. In addition, NIST recommends that relevant building information be made available in suitably designed hard copy or electronic format for use by emergency responders. Such information should be easily accessible by responders during emergencies.

Relevance to WTC 7: The efforts required in locating and acquiring drawings, specifications, tenant layouts, and material certifications, and especially shop fabrication drawings, significantly lengthened the investigation into the collapse of WTC 7.

Recommendation K (NIST NCSTAR 1 Recommendation 28). NIST recommends that the role of the “Design Professional in Responsible Charge”⁹ be clarified to ensure that: (1) all appropriate design professionals (including, e.g., the fire protection engineer) are part of the design team providing the standard of care when designing buildings employing innovative or unusual fire safety systems, and (2) all appropriate design professionals (including, e.g., the structural engineer and the fire protection engineer) are part of the design team providing the standard of care when designing the structure to resist fires, in buildings that employ innovative or unusual structural and fire safety systems.

Relevance to WTC 7: Following typical practice, none of the design professionals in charge of the WTC 7 project (i.e., architect, structural engineer, and fire protection engineer) was assigned the responsibility to explicitly evaluate the fire performance of the structural system. Holistic consideration of thermal and structural factors during the design or review stage could have identified the potential for the failure and might have prevented the collapse of the building.

5.2.7 Group 8. Education and Training

The professional skills of building and fire safety professionals should be upgraded through a national education and training effort for fire protection engineers, structural engineers, and architects. The skills of the building regulatory and fire service personnel should also be upgraded to provide sufficient understanding and the necessary skills to conduct the review, inspection, and approval tasks for which they are responsible.

Recommendation L (NIST NCSTAR 1 Recommendation 29). NIST recommends that continuing education curricula be developed and programs be implemented for (1) training fire protection engineers and architects in structural engineering principles and design, and (2) training structural engineers, architects, fire protection engineers, and code enforcement officials in modern fire protection principles and technologies, including fire-resistance design

⁸ The availability of inexpensive electronic storage media and tools for creating large searchable databases make this feasible.

⁹ In projects involving a design team, the “Design Professional in Responsible Charge”—usually the lead architect—ensures that the team members use consistent design data and assumptions, coordinates overlapping specifications, and serves as the liaison to the enforcement and reviewing officials and to the owner. The term is defined in the International Building Code and in the ICC Performance Code for Buildings and Facilities (where it is the Principal Design Professional).