

Chapter 4

UPDATE ON THE WTC DISSEMINATION AND TECHNICAL ASSISTANCE PROGRAM

4.1 OBJECTIVES OF THE WTC DISSEMINATION AND TECHNICAL ASSISTANCE PROGRAM (DTAP)

An industry-led dissemination and technical assistance program (DTAP) is the third part of the National Institute of Standards and Technology (NIST) response plan. The DTAP is designed to engage leaders of the construction and building community in assuring timely implementation of proposed changes to practices, standards, and codes. It also will provide practical guidance and tools to better prepare facility owners, contractors, architects, engineers, emergency responders, and regulatory authorities to respond to future disasters. The DTAP is an important component of the World Trade Center (WTC) Response Plan because it will facilitate the timely adoption and widespread use of proposed changes to practice, standards, and codes resulting from the WTC Investigation and the research and development (R&D) program.

4.2 BACKGROUND AND DESIRED OUTCOME OF DTAP

NIST is working closely with other government agencies; with the engineering and architecture professions; with the construction and manufacturing industries; with authorities having jurisdiction over building and fire code enforcement; and with national code-making organizations to target building safety issues (including those identified in the Federal Emergency Management Agency (FEMA) Building Performance Study) that (1) could be addressed by expeditious revision to national building codes, standards, and practices based upon current knowledge, and (2) would benefit from additional research. The mechanism by which this is being done is through contracts to the private sector. About \$1 M has been spent to date since the start of the WTC Investigation. The objectives of each contract are described in the following section. Note that these contracts are over and above those in direct support of the Investigation and that the DTAP will continue beyond the completion of the WTC Investigation.

4.3 ACCOMPLISHMENTS OF THE DTAP

Contracts have been issued to the following organizations: the Civil Engineering Research Foundation (CERF), the National Institute of Building Sciences (NIBS), the National Conference of States on Building Codes & Standards, Inc. (NCSBCS), the Construction Industry Institute (CII), Integrated Manufacturing Technology (IMTI), the Society of Fire Protection Engineering (SFPE), and the Wharton School of Business.

National Workshop on Progressive Collapse (NIBS)

The Multihazard Mitigation Council of NIBS conducted a workshop in February 2004 that brought together national experts who have an interest in mitigating the threat of progressive collapse. The two-

day workshop included presentation of ten white papers to frame the issues associated with mitigation of progressive collapse with respect to guidelines, codes, design of new buildings, and retrofit of existing buildings. The workshop also included breakout sessions on the topics of development of codes and guidelines, structural systems and analytical methods, and existing buildings. The breakout sessions resulted in identification of research needs and included estimation of costs to address each of those needs. The workshop also provided an opportunity for industry to review and comment on draft guidelines for retrofit of existing buildings and design of new buildings to resist progressive collapse.

Information Technology in the Building Regulatory Process (NCSBCS)

The National Alliance for Building Regulatory Reform in the Digital Age, a public-private partnership, will continue action on its agenda to stimulate economic recovery, enhance public safety, and increase the security of buildings. The agenda focuses on the use of information technology and the development and use by state and local jurisdictions of products, guidelines, model processes and procedures that enable jurisdictions to better respond to natural and manmade disasters and reduce the regulatory cost of construction by up to 60 percent. This effort includes support for the development and initial testing of a prototype secure database for first responders of as-built designs, evacuation plans, and other contact information.

National Alliance Interoperability Project (NCSBCS)

The objective of this project is to speed the development of technologies and requirements needed to advance the creation of a state-of-the-art integrated and interoperable building regulatory system by developing, in collaboration with New York City, an interoperability statement. This statement is to be included in their fall 2003 request for proposals for permitting software services and holding a national summit workshop with the software industry to identify common data requirements for currently available software component systems, common data/information formats, and recognized standards and best practices. The workshop will also identify actions that the industry and the National Alliance and state and local jurisdictions can take together to generate national standards for interoperable hardware and software for use in the building codes adoption, administration, and enforcement processes.

Strategies, Candidate Liaison Teams, and Actions to Conduct and Implement the NIST Response Plan (NIBS)

The NIST response plan and R&D program and the NIST outputs will be reviewed. Strategies will be suggested for achieving the private sector and state and local involvement needed to assure the likelihood of implementing each of the final products and for assessing their impacts in use. Synergistic benefits will be identified beyond those relevant to homeland security for which the outputs and strategies hold promise. The contractor will identify potential liaison teams and develop action plans for implementation of each product, or group of products. The liaison teams will include potential advocates, and those with serious concerns from public and private sector organizations most likely to be affected by the product.

Capital Projects Technology Roadmap (IMTI)

The baseline Capital Projects Technology Roadmap is being updated to address technological issues and solution paths related to homeland security and economic development. An outcome of this effort will be

a detailed plan for the necessary R&D to support the deployment of technological solutions. Specific tasks include a workshop with FIATECH, follow-on meetings with technical experts, and review and teambuilding with top-level executives from the construction/capital facilities industry.

Benchmarking Homeland Security Construction Practices (CII)

The goal of this effort is to collect information on 9/11-driven security initiatives from industry leaders in the areas of chemical manufacturing, oil production and refining, natural gas processing and distribution, water treatment, and other critical industries needed to support the Nation's infrastructure. Information collected as part of a series of regional workshops and field site visits shall establish a basis for identifying best practices related to the security of capital facilities projects, and provide the basis for assessing the impacts of these practices on the key project outcomes of cost, schedule, and safety.

Best Practices Guidelines for the Mitigation of Progressive Collapse of Buildings (NIBS)

NIBS has begun to formulate a course of action that will increase the design and construction community's understanding of progressive collapse and provide practitioners with appropriate guidance. Draft guidelines have been completed and were reviewed by national experts during a February 2004 workshop. The draft is currently being revised, and a complete draft is planned for publication in September 2004. Following publication of the draft guidelines, a series of regional seminars is planned to educate practitioners and gather additional input that will be used to finalize the guidelines.

Workshop on Structural Fire Resistance (SFPE)

An international group of experts was convened in early October, 2003, to examine different technical aspects associated with structural fire resistance and to develop a detailed roadmap identifying research gaps to be filled to meet industry needs. Ten detailed white papers were presented by leading national and international experts on topics relevant to fire resistance of building structures. Workshop attendees supported the development of a best-practices manual for structural fire protection, including design and analysis tools, to add to the knowledge base and aid building officials in evaluating the adequacy of performance-based rather than "prescriptive" designs. The participants also developed a list of actions/research needs having the highest priority in developing best practices for fire design and retrofit of structures.

Accelerating Technologies/Systems for Fire Protection of Structural Steel in High Rise Buildings (CERF)

There are a number of objectives for this study. The first is to conduct a brief review of the types of materials and systems that are in use, in development or proposed for fire safety protection of structural steel in high-rise buildings. A second objective is to identify the performance requirements for such systems, including fire resistance, durability, impact and/or vibration resistance. A workshop was held in February 2004. In preparation for the workshop, white papers were developed on the topics cited above to frame the issues. Participants developed a prioritized set of recommendations to address technical and procedural/organizational issues.

Cost-Effective Risk Management (Wharton, CII)

The Wharton Risk Management and Decision Processes Center is expected to deliver in October 2004 a draft report covering (1) economic incentives for mitigation of consequences of extreme events (e.g., natural disasters and terrorism) and (2) procedures for estimating potential benefits and costs of alternative mitigation measures. The CII has developed a security rating index for industrial facilities. It is planned to be published by October 2004 in a report entitled *Best Practices for Project Security*.