

Prepared Remarks by Dr. Arden Bement
Director, National Institute of Standards and Technology (NIST)
NIST Building and Fire Safety Investigation of the World Trade Center Disaster
News Media Briefing
December 9, 2002

This morning, we will update you on progress made by the National Institute of Standards and Technology—NIST—in our federal building and fire safety investigation into the World Trade Center disaster.

It is still very early in our 24-month investigation, and we have a long way to go in what is an enormous undertaking—but I am pleased to report that we have made good progress since we launched this investigation in late August. We are off to a solid start.

We intend to update you and the public at least quarterly, and more often if we have something major to share. We will be as open as possible.

Dr. Shyam Sunder will get into the details of our work, but first I will provide you with some perspective and a summary of the key developments and issues to date.

I want to emphasize that NIST is not a regulatory agency. So, our investigations always focus on finding facts and deriving lessons learned—not on finding fault. The findings and recommendations of our investigations are given serious consideration by the communities we serve and have led to important changes in practices, standards, and codes. We hope that will be the case here. The results from our work will not be eligible for use in any litigation.

The WTC investigation is one part of a three-part NIST response to the WTC disaster. These concurrent programs are:

- a building and fire safety investigation into the probable causes of the World Trade Center disaster, which will take an estimated 24 months;
- a multi-year R&D program to provide the technical basis for improved building and fire codes, standards, and practices; and
- an industry-led program that engages leaders of the construction and building community in implementing proposed changes to practices, standards and codes. This also will provide technical guidance and tools to better prepare authorities to respond to future disasters.

Each of these efforts is critical, and each is moving ahead. Obviously, we are concentrating most of our energies and our resources on the investigation right now. Our investigation will yield important insights into what happened to the collapsed buildings and to the occupants and first responders, which will result in specific findings and recommendations.

We aim to learn enough so that we can point to recommended improvements in the way in which we design, construct, maintain, and use our buildings, especially high-rises.

Let me update you about our funding. In fiscal year 2002, NIST redirected \$3.4 million to begin this three-part program. In September, we received \$16 million for the investigation from the Fiscal Year 2002 supplemental appropriation. The President requested \$4 million from Congress in FY 2003 to support the R&D and information dissemination programs. That request—and it's important—is pending in Congress since there has not yet been any final congressional action on our appropriations for this year.

Our objectives in the technical investigation—which goes well beyond a previous public-private assessment of the WTC collapses—are to determine:

- why and how the World Trade Center buildings collapsed following the impact of the aircraft;
- why the number of injuries and fatalities were so low or high depending on location, including all technical aspects of fire protection, occupant behavior, evacuation, and emergency response;
- what procedures and practices were used in the design, construction, operation, and maintenance of the World Trade Center buildings; and
- which building and fire codes, standards, and practices warrant revision and are still in use.

Since we launched the investigation in August, Congress gave NIST additional authorities—beyond those we already had—for this and future investigations through the National Construction Safety Team Act. The legislation, which is modeled in many ways on the National Transportation Safety Board, was signed into law by President Bush on October 1.

That law established NIST as the lead agency to investigate building performance, emergency response, and evacuation procedures in the wake of building failures, and it applies to the ongoing World Trade Center investigation as well as investigations we may conduct in the future. The act calls for NIST to establish investigative teams including public and private-sector experts. We have begun to develop explicit agreements for future investigations with other federal agencies and with private-sector organizations so that we can be ready to quickly and effectively deploy investigation teams.

With the new law in place, we now have chartered a federal advisory committee to advise me on all aspects of the WTC investigation and in ensuring its successful completion. I expect to soon appoint individuals to this committee who are recognized for distinguished professional service, possess broad technical expertise and experience, and have a reputation for independence, objectivity, and impartiality. The committee will reflect a balance of the diverse disciplines relevant to our investigation. During the nomination period, which ended November 27, we received 84 nominations. I am in the process of making my selections soon, which will go through the required vetting process for federal advisory committees.

We said we would maintain active liaison with the professional community, the general public, and local authorities throughout the investigation via briefings, meetings, and other means of information exchange. We have been working very hard to do that. We have a special liaison to the families of building occupants and first responders through the Skyscraper Safety Campaign, and I have kept in touch with them directly. Led by Dr. Jack Snell, Director of our Building and Fire Research Laboratory, who has developed and overseen the NIST World Trade Center response plan, we have consulted from the very start—and extensively—with local authorities in New York about our plans and our work. These include the Port Authority of New York and New Jersey, the Fire Department of New York, the New York City Police Department and the New York City Department of Buildings, the New York City Department of Design and Construction, and the New York City Office of Emergency Management.

We have asked for—and have already received—considerable cooperation and large volumes of information from these agencies and from the organizations representing the building designers, owners, leaseholders, suppliers, contractors, and insurers. Dr. Sunder will describe for you the variety of information and materials we have collected to date.

We still need more information that has yet to be located from these and other organizations, and we are working closely with them to ensure that we have every possible piece of critical information. Many documents may have been destroyed in the collapses, but copies of some documents may still be available.

We still are seeking photographic and video images that could help to better document the initial damage and subsequent fire growth in the WTC towers and WTC 7. We are especially interested in WTC 7 and views from the South and West faces of the WTC towers. In particular, there is a dearth of photos of the south side of WTC 7. It has been suggested that it is the south side of WTC 7 that was struck by debris from the collapse of WTC 1, and that debris may have ignited the fires that led to the ultimate collapse of WTC 7. If the public and the news media have unpublished photos and video footage of these critical scenes, they could significantly assist this public safety investigation by sharing them with us.

We are moving ahead with our systematic collection of first-hand information from survivors, families of victims, and first responders. We will be using the information we collect to evaluate the role of occupant behavior and the evacuation and emergency response technologies and practices for tall buildings.

We soon will release a solicitation for help in collecting data, along with a white paper outlining our methodology. This includes face-to-face interviews, paper and web-based questionnaires, and focus group interviews. We developed this methodology with the advice of world-class experts who are augmenting our investigation team. We will let you and the public know when we are about to begin the actual data collection; we are counting on strong participation in order to assist our investigation.

As I said at the outset, we are still early in our investigation. It's just three months old. We have begun some of the computer modeling and physical testing, including testing on the steel, which Dr. Sunder will describe in more detail.

We have some early insights from those tests and analyses that are helping to guide our work.

There have been three or four hypotheses proposed for the exact collapse scenarios. Each has some merit. Each requires more analysis to determine which are the most probable, either individually or in combination. We have concluded that it is too early to exclude any potential sequence of events between the aircrafts' impact and the collapse of the WTC towers.

Again, we plan to share significant results when we have them and feel that they are helpful to the larger building community and public in understanding how to improve building safety.

From the investigation we are conducting, we expect to derive-and pass on-many, many lessons in several different areas, including structural fire protection, life safety, and engineering practice. While the investigation portion of our three-part response plan will focus on three World Trade Center buildings, we expect that lessons to be learned can and will be applied much more broadly.

We expect the results of the investigation and the companion R&D program to lead to

- improvements in the way buildings are designed, constructed, and used;
- better tools and guidance for industry and safety officials;
- revisions to building and fire codes, standards, and practices; and
- improved public safety.

When we first launched this investigation, I said that the bottom line is to make all buildings safer for occupants and for those who must respond to emergencies in these buildings. That has been, and will continue to be, our focus.