

the building, but referred to the entire building. In other words, a fire detected in any fire alarm zone in the building would have resulted in the same AREA 1 identification at the monitoring station. The time, 10:00:52 a.m., is shortly after the collapse of WTC 2. NIST could not determine whether this fire alarm was triggered by smoke from a fire or by dust entering smoke detectors. None of the interviews conducted by the Investigation Team contained any mention of an alarm received at the Fire Command Station.

At 2:47:21 p.m. and 2:47:22 p.m. (14:47:21 hr and 14:47:22 hr), at the time the eight hour “TEST: ALL” condition was set to expire, additional actions were recorded that ended in an operator (DYJ) entry to “FULL CLEAR.” Since there were several large fires in the building at this time (Section 5.6), it appears that either the building alarm system was not functioning after about 2:47 p.m. (and probably after 10:01 a.m.), or that the offsite monitoring system or its link to WTC 7 was incapacitated in some way.

A much greater amount of information would have been collected and recorded by the fire alarm equipment within WTC 7. None of that information was recovered from the building systems, which were destroyed in the collapse. Typically, and in the case of WTC 7, specific fire information beyond the fact that a fire condition has been detected is rarely sent to the monitoring site.

4.3 SMOKE MANAGEMENT SYSTEMS

In the event of fire in WTC 7, there were two primary means to control smoke movement throughout the building:

- Smoke barriers, which were typically integrated into the architecture of the building, as well as into the ductwork through which heating, ventilation, and air-conditioning (HVAC) air flowed. The use of smoke barriers is referred to as compartmentation, and walls and smoke dampers are used to form these compartments.
- Air movement equipment, either dedicated for smoke management or used to provide HVAC air to the building.

The design of the smoke management systems was guided by local building code requirements, widely used and accepted installation standards, and fire protection engineering practice. The design and installation of the smoke management systems in WTC 1, WTC 2 and WTC 7 have been documented in NCSTAR 1-4D; this section provides an overview of the systems in WTC 7.

The original building layout consisted of a mechanical equipment room located on each floor. Building ventilation was provided on the tenant floors (Floors 7 through 47) for the base building configuration in WTC 7 by supply air fans located on each floor. As shown in Figure 4–2, conditioned air was distributed to the floor in two zones, corresponding to the north/east, and south/west portions of the building. The fan room served as a return plenum. Return air was drawn into the fan room via ducts that connected the fan room to the return air plenums above the occupied space of each floor. Make-up (outdoor) air was drawn into the fan room via make-up air shafts that connected to the exterior of the building either at the roof or at the 6th floor via louvers through the side of the building.