

- Only one elevator in each building was of use to the responders. To gain access to the injured and trapped occupants, firefighters had to climb the stairs, carrying the equipment with them.
- NIST estimated that emergency responder climbing rates varied between approximately 1.4 min per floor for personnel not carrying extra equipment to approximately 2.0 min per floor for personnel wearing protective clothing and carrying extra equipment.
- Intense smoke and heat conditions on the top of the two WTC buildings prevented the NYPD helicopters from conducting roof evacuations.
- NYPD aviation unit personnel reported critical information about degrading building conditions before WTC 2 collapsed and critical information about the impending collapse of WTC 1 several minutes prior to its collapse. No evidence has been found to suggest that the information was further communicated to all emergency responders at the scene.
- There were roughly 1,000 emergency responders on the site. The Command Board approach to managing operations became overwhelmed with this large number of personnel and units reporting in for operations. The responding units generally followed good practices as related to accountability of staff. However, there were cases where individuals and ambulances did not report to the Command Posts. There was no way to locate or track units and individuals once they had departed to accomplish their tasks.
- Generally, the equipment used by the emergency responders was adequate for the operations being carried out. Flashlights were valuable, since the stairwells were generally dark and many areas were opaque with smoke and dust, especially in WTC 1 after the collapse of WTC 2. Self-contained breathing apparatus enabled responders to breathe when they were in the zones where the air was contaminated.
- For PAPD and NYPD, radio equipment did not appear to be a major problem during the operations. The PAPD's new radio antenna system provided it with a reasonable quality of radio communications until the collapse of WTC 2, at which time personnel were forced to switch to point-to-point communications. NYPD experienced successful operations with its radio equipment, mainly since only a few entered the WTC towers and the location of the mobilization point (a city block or more away from the towers) provided an unobstructed line of sight route for radio signals to enter and exit the building's windows.
- The overall emergency response was hampered by the loss of the Office of Emergency Management Command Center.
- The FDNY Incident Command Desk was hampered by the lack of a fully functional Field Communications unit, poor radio communications, and limited access to shared information critical to operations.
- The FDNY radio system was inadequate for locating and tracking the large number of personnel at the site. The FDNY relied heavily on hand-held units and knew that even the new handie-talkie radios did not work well in high-rise buildings where the signals were attenuated by the large amounts of metal and steel-reinforced concrete. Thus, the location of