

no witness reports of such a loud noise, nor was such a noise heard on the audio tracks of video recordings of the WTC 7 collapse.

There were no serious injuries or fatalities, because the estimated 4,000 occupants of WTC 7 reacted to the airplane impacts on the two WTC towers and began evacuating before there was significant damage to WTC 7. The occupants were able to use both the elevators and the stairs, which were as yet not damaged, obstructed, or smoke-filled. Evacuation of the building took just over an hour. The potential for injuries to people leaving the building was mitigated by building management personnel holding the occupants in the lobby until they identified an exit path that was safe from the debris falling from WTC 1. The decision not to continue evaluating the building and not to fight the fires was made hours before the building collapsed, so no emergency responders were in or near the building when the collapse occurred.

The design of WTC 7 was generally consistent² with the New York City Building Code of 1968 (NYCBC), with which, by PANYNJ policy, it was to comply. The installed thicknesses of the thermal insulation was consistent with the fire rating required by the NYCBC. The stairwells were narrower than those required by the NYCBC, but, combined with the elevators, were adequate for a timely evacuation on September 11, 2001, since the number of building occupants was only about half that expected during normal business hours.

The collapse of WTC 7 could not have been prevented without controlling the fires before most of the combustible building contents were consumed. There were two sources of water (gravity fed overhead tanks and the city water main) for the standpipe and automatic sprinkler systems serving Floor 21 and above, and some of the early fires on those upper floors might have actually been controlled in this manner. However, consistent with the NYCBC, both the primary and back-up source of water for the sprinkler system in the lower 20 floors of WTC 7 was the city water main. Since the collapses of the WTC towers had damaged the water main, there was no secondary supply of water available (such as from the gravity-fed overhead tanks that supplied water to Floor 21 and above) to control those fires that eventually led to the building collapse.

Other than initiating the fires in WTC 7, the damage from the debris from WTC 1 had little effect on initiating the collapse of WTC 7. The building withstood debris impact damage that resulted in seven exterior columns being severed and subsequently withstood fires involving typical office combustibles on several floors for almost seven hours. The debris damaged the spray-applied fire resistive material that was applied to the steel columns, girders, and beams, only in the vicinity of the structural damage from the collapse of WTC 1. This was near the west side of the south face of the building and was far removed from the buckled column that initiated the collapse. Even without the structural damage, WTC 7 would have collapsed from fires having the same characteristics as those experienced on September 11, 2001. The transfer elements such as trusses, girders, and cantilever overhangs that were used to support the office building over the Con Edison substation did not play a significant role in the collapse of WTC 7.

² NIST did not conduct an exhaustive review of the plans and specifications for WTC 7 to determine compliance with the NYCBC, for the reasons stated in Disclaimer No. 4 (see page ii).