

5.7.5 Audio Characteristics Based on Video Soundtracks

Three videos in the database included soundtracks that were used to investigate the audio signature associated with the period immediately prior to and during the collapse of WTC 7. All of these cameras were located at street level at least 640 m (2100 ft) from the building. Also, there were numerous other buildings between the cameras and WTC 7.

The most usable soundtrack was recorded by Camera 3, with its West Street location. This video ran for many minutes prior to and during the collapse. Even though sound was recorded by the camera, no interviews or commentary were recorded, and the microphone tended to pick up low level street sounds, such as sirens, traffic, and distant conversations. Occasionally, the camera operators located nearby were recorded at a much louder level. Since the collapse was recorded on the video, it was possible to coordinate the sound recording with the actual WTC 7 collapse.

A careful review of the audio clip did not reveal any sounds that could be associated with WTC 7 until the global collapse began. A low-level audio analysis was performed by creating a video showing the waveform for the audio signal using Aftereffects software. This video also did not reveal any features that could be associated with the collapse until after the global collapse began. In the analysis, the roughly 2 s delay in sound transmission between WTC 7 and the camera was accounted for. The amplitude of the sound signal increased while the global collapse was taking place, but there were no loud, explosive sounds when the collapse began.

The response of the camera operators provides another indication of the audio environment. Even though the east penthouse began to descend into the building 6.9 s prior to initiation of global collapse, there was no verbal response from the camera operators until 2.5 s after the global collapse began, when a loud shout of “whoa, whoa, whoa, whoa” was heard. There is no evidence that the operators heard something that attracted their attention prior to this time.

At the same time the Camera 3 video was being shot, a recorded street interview was being conducted a short distance away on West Street. In this video clip of the interview, WTC 7 is visible in the upper left hand corner of the frame. Even though the east penthouse can be seen disappearing into the building, neither the camera operator, interviewer, nor interviewee responded in any way until just over 3 s after the global collapse began. Again, there was no indication that sounds loud enough to attract attention or cause alarm were heard by people at the interview location prior to global collapse initiation.

The third video clip reviewed was a second street interview being conducted at West Broadway and Leonard Street. This camera was located near the Camera 4 location, roughly 650 m (2100 ft) from WTC 7. This clip does not show WTC 7 collapsing, but, by comparing events in the clip with those seen in the Camera 4 clip, it was possible to place the two videos on a common timeline. Review of the interview clip showed that people in the video responded to the WTC 7 collapse 1.4 s before the clip from Camera 4 started, or 1.3 s after the east penthouse began to descend into the building. Allowing 2 s for sound to reach the camera location, this is very close to the time that the east penthouse began to descend. People at this location were able to hear the collapse of the east penthouse, while observers on West Street did not hear loud noises until the global collapse started.

In the interview clip, it is possible to see dust and/or smoke being pushed across West Broadway, starting around 3 s before the East Penthouse began to descend. This suggests that structural changes inside