

southwest corner. This smoke appeared to be flowing from a location on the lower level of the mechanical equipment room on the 108th and 109th floors, where there was a nearby fresh air intake for the 107th floor observation area, suggesting that the smoke was back flowing from the 107th floor. There was still no indication of fire burning on this side of the tower.

In summary, during this period, new areas of fire appeared on the 79th and 83rd floors of the north face. Extensive new areas of fire were also present on the 79th and 80th floors of the east face. It should be remembered that a significant fraction of the observed fire on these floors was associated with the three roughly one-minute-long periods of heavy smoke flow from these floors.

9:45 a.m. to Collapse of WTC 2 at 9:58:59 a.m.

Near the start of the period several small fires were observed for the first time near the center of the cold spot on the north face at the 81st and 82nd floors. Fires elsewhere on the face were generally dying down at this time. During the period, the fire burning on the 79th floor continued to spread to the west. By the time of collapse, the flames were approaching, but had not yet reached, the west face. Around 9:54 a.m. a fire grew just to the west of the cold spot on the 82nd floor and began to spread westward, covering eight windows by the time of collapse. The fire that had earlier spread in the same direction on the 83rd did not appear to migrate further. A small spot fire was observed near the center of the 84th floor, suggesting that the fire on the 83rd floor had spread upward. Close-up photographs and videos during the period revealed a distinct outward bulge of the steel columns in the vicinity of the debris pile near the center of the 79th floor. Just before 9:52 a.m., puffs of smoke and/or dust were expelled from multiple locations on the north face near the east edge. Almost immediately a bright spot appeared at the top of a window on the 80th floor four windows removed from the east edge, and a glowing liquid began to pour from this location. This flow lasted approximately 4 s before subsiding. Many such liquid flows were observed from near this location prior to the collapse of the tower. Several were accompanied by puffs of dust and smoke that were now occurring frequently. The composition of the flowing material can only be hypothesized, but it is considered likely that it was molten aluminum that came from aircraft debris located immediately above on the 81st floor and had been heated by the fire burning on that floor. Shortly after 9:53 a.m. the fire that had been burning on the eastern edge of the 81st floor since the aircraft impact suddenly died down, revealing the windows above on the 82nd floor. A hanging object was visible through these windows that appeared to be a dislodged corner section of the 83rd floor slab. The hanging objects present in and near the cold spot were also visible in images taken during the period. At 9:58:59 a.m. WTC 2 began to collapse. Videos show that the only place flames were pushed out of windows on the north face was from the burning area near the western edge of the 79th floor.

A fourth short-lived (again roughly a minute) release of heavy smoke and flame from windows on the 79th and 80th floors of the east face occurred around 9:45 a.m. Three additional, somewhat less intense, releases lasting similar lengths of time occurred around 9:47 a.m., around 9:52 a.m., and just before 9:56 a.m. Smoke puffs, similar to those seen earlier, occurred multiple times during the period. At the start of the period the fire located at the center of the northern half of the face on the 79th floor continued to burn vigorously, only dying down near the end. A similar burning area became visible on the 80th floor just to the south of the fire on the 79th floor around 9:55 a.m. Much of this area had been hidden up to this time by smoke coming from below. A substantial fire continued to burn on the 82nd floor near the northern edge of the face. The fire in the northeast corner of the 81st floor was generally gently burning, but would occasionally flare up. During the period, the position of the hanging object visible through