

on the north, east, and south faces. During the following few minutes, only minor changes in these initial fire distributions were observed. After this lull, fires began to appear, grow, and spread on all four faces of the tower.

Within a few minutes of the aircraft impact a substantial fire grew on the north face of the 97th floor to the immediate west of the aircraft impact cavity. Starting around 8:51 a.m. external flames also appeared on this floor from windows located a short distance to the east of the cavity and rapidly grew to fill several nearby windows. Around 8:57 a.m. smoke and flames suddenly came from windows on the east side of the 96th floor below the burning area on the 97th floor. The three fires on the 96th and 97th floors began spreading toward the edges of the face, with the fire on the west side of the 97th floor reaching the western edge of the tower by 9:03 a.m. and the two fires on the east side of the impact cavity spreading to the east before pausing outside of the walls of rooms located in the northeast corners of these floors. During the period, several small isolated fires were visible on other floors impacted by the aircraft.

On the east face of the tower the fire that was originally visible toward the center of the 94th floor spread and grew substantially. By 9:03 a.m. an intense fire was visible burning over a length of open windows that covered roughly a quarter of the face from a position on the north side to near the center of the face. Just before 8:57 a.m. flames appeared from windows on the 97th floor located just to the south of the internal wall of the room in the northeast corner of this floor. This fire appeared to spread and grow rapidly, covering more than a quarter of the length of the floor by 9:03 a.m. By this time several small fires were also visible on the northern sides of the 92nd, 93rd, and 95th floors and had just appeared on the 96th floor. Near the end of the period numerous people were observed falling from the 92nd and 93rd floors over short periods of time, which may be an indication that conditions at these locations on the east side were becoming untenable at this time.

The primary fire activity on the south face during the period was on the 96th floor. The fire on the western side of the face had grown and spread to cover nearly the entire western half of the floor. Flames were visible in the southwest corner of the floor where an aluminum panel covering the area had been removed during the aircraft impact. Near the end of the period relatively small fires began to appear on the western sides of the 95th and 97th floors.

No fires were visible on the west face until just after 8:55 a.m., when external flames and heavy smoke first appeared from a window on the 97th floor near the center of the face and then seemed to spread very rapidly in both directions. Within a minute, external flames were visible over a length of windows covering nearly a quarter of the face near the center. A second period of apparent rapid fire spread just after 9:01 a.m. increased this length to the south by roughly 50 percent in 8 s. Shortly after 9:02:15 a.m. another period of rapid fire spread appeared to fill in the remaining length between the existing fire and the north edge of the face. No fires were observed on other floors of this face during the period.

The most extensive fire growth took place on the 97th floor. The apparent rapid development of these fires, particularly on the west face, may be an indication that the fire growth and spread was accelerated by the presence of initially unburned aviation fuel that may have been dispersed over this floor during the aircraft impact.

Observations suggest that smoke from the developing fires was rapidly transported to the upper regions of the tower. Smoke was observed almost immediately coming from vents near the center of the north side of the mechanical equipment room on the 108th and 109th floors. Starting around 8:52 a.m., it appeared