

In contrast with WTC 1, in WTC 2 there was less movement of the fires. The major burning occurred along the east side, with some spread to the north. There was no significant burning on the west side of the tower.

Also unlike WTC 1, changing the combustible load in WTC 2 had a noticeable effect on the outcome of the simulations. Because so many windows on the impact floors in WTC 2 were broken out by the aircraft debris and the ensuing fireballs, there was an adequate supply of air for the fires. Thus, the burning rate of the fires was determined by the fuel supply. In the Case D simulation, the office furnishings and aircraft debris were spread out over a wider area, and the furnishings away from the impact area were undamaged. Both of these factors enabled a higher burning rate for the combustibles.

In general, the Case D simulations more closely approximated the observations in the photographs and videos, although there was still some prediction of burning too close to the perimeter, especially on the east side of the 78<sup>th</sup>, 79<sup>th</sup>, 81<sup>st</sup> and 83<sup>rd</sup> floors. The burning in the northeast corner of the 81<sup>st</sup> and 82<sup>nd</sup> floors was more intense in Case D than in Case C. The fire in the east side of the 79<sup>th</sup> floor burned more intensely and reached the south face sooner.

Nothing in the simulations explained the absence of fires in the “cold spot,” the 10-window expanse toward the east of the north face of the 80<sup>th</sup>, 81<sup>st</sup>, and 82<sup>nd</sup> floors.

#### 6.10.5 Global Heat Release Rates

Much of the information needed to simulate the fires came from laboratory-scale tests. While some of these involved enclosures several meters in dimension and fires that reached heat release rates of 10 MW and 12 GJ in total heat output, they were still far smaller than the fires that burned in the WTC towers. Figure 6–38 shows the heat release rates from the FDS simulations of the WTC fires. The peak plateau heat release rates were about 2 GW for WTC 1 and 1 GW for WTC 2. Integrating the areas under these curves produced total heat outputs from the simulated fires of about 8,000 GJ from WTC 1 and 3,000 GJ from WTC 2.

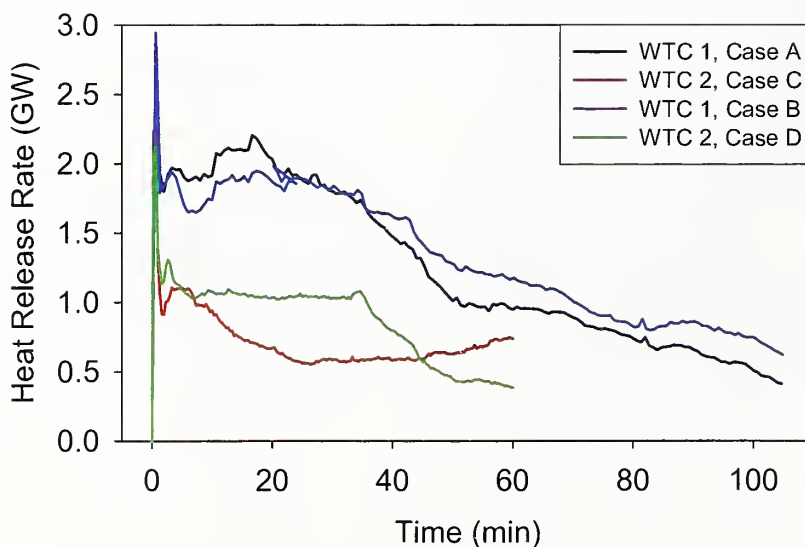


Figure 6–38. Predicted heat release rates for fires in WTC 1 and WTC 2.