

Chapter 3

BUILDING INTERIOR AND COMBUSTIBLES

3.1 INTRODUCTION

The fires in WTC 7 were initiated following debris damage from the collapse of WTC 1 (Section 5.5). The specific ignition processes are not known, e.g., whether from flaming brands, electrical shorts, etc. The fires were fed by the furnishings, interior finish, and other combustibles within the building. Descriptions of the simulation of the fires and the resulting heating of the structure are presented in Chapters 9 and 10, respectively. As input to those simulations, this chapter documents the layout of the floors of interest and the combustibles that might have contributed to the fires.

3.2 FOCUS

In gathering information regarding the layout and furnishing of WTC 7, the Investigation Team focused its attention on the 5th through 13th floors:

- As will be seen in Section 5.6, there were sustained, though not always concurrent, visible fires only on Floors 7 through 9 and 11 through 13. There might have been fires on Floors 5 or 6 that were not visible (Section 3.3.2). An analysis of possible fires on these floors appears in Chapter 9.
- Above Floor 13, fires were observed on Floors 19, 22, 29 and 30, and these occurred early (i.e., were not observed for 3 hours prior to collapse) and were smaller and of shorter duration than those on the lower floors. Late in the afternoon, a small fire was observed briefly on Floor 14, which was vacant. Floors 15 and above were furnished office spaces.

The information NIST needed regarding the interiors of each of these nine floors was similar to the information needed for the reconstruction of the fires in the WTC towers:

- The nature and location of the interior walls. The interior walls could have acted as fire barriers, delaying the fire progression and subsequent exposure of structural components to the intense heat from the fires. The interior walls of perimeter offices or conference rooms could also have prevented photographs from recording fires in the building interior and kept flames and smoke from billowing out the windows.
- The nature of the suspended ceiling tile systems. The suspended ceiling tile system could have provided a (modest) time delay for access of the hot fire plume to the bottom of the floor structure above (Chapter 9). Smoke could also spread throughout the entire ceiling space, possibly emerging in remote locations and thus giving false impressions of the fire location.
- The nature and locations of any stairwells, elevators, shafts, or other passages between floors. Such passages could have provided a means for floor-to-floor fire spread.