chapter four

Non-Residential Properties

This chapter addresses non-residential properties over the 10-year period from 1992 to 2001, with specific focus on 2001. Major variations from the last published statistics on non-residential properties—the 12th Edition, 1989–1998—are noted. Non-residential properties are discussed in three sections: structures, vehicles, and outside/other fires.

The non-residential property category includes industrial and commercial properties, institutions (such as hospitals, nursing homes, prisons), educational establishments (from preschool through university), mobile properties, and storage properties. Each category corresponds to one of the major divisions of property types. Each is quite different, and their cause profiles and magnitudes need to be examined separately.

Several changes in non-residential structure property types are reflected in this edition. Detached residential garages, a subset of non-residential storage properties, are included in this chapter. Vacant and under construction properties are no longer considered as a separate property type. Fires that occur on non-residential properties that are vacant or under construction are included in a separate discussion.

NON-RESIDENTIAL STRUCTURES

The terrorists' attacks on the World Trade Center and the Pentagon on September 11, 2001, killed 2,451 civilians (i.e., non-firefighters), injured 800, and caused $33.4 billion in property loss.[1] In large part, these losses are excluded from the following analysis of non-residential structures. The magnitude of such losses from a single event must be considered an outlier when studying fire events across an entire year and even 10 years. The omission of the September 11 losses from this report, however, is in no way meant to diminish the enormity of the event.

Magnitude and Trends

Significant public and private fire prevention efforts have focused on protecting non-residential structures. The results have proven effective in the main, especially relative to the residential fire problem. Non-residential structures annually account for only 7 percent of fires,

[1] NFPA's annual survey, 2001.

2 percent of deaths, and 8 percent of injuries. These properties, however, account for a disproportionately large annual dollar loss, 31 percent.[2]

The 10-year trends for fires, deaths, and injuries decreased from the 1989–1998 period, while property losses increased. Figure 55 shows that the trend for each of these measures is downward (fires, 22 percent; deaths, 48 percent; injuries, 46 percent; and dollar loss, 15 percent). In absolute numbers, fires, deaths, and injuries reached 10-year lows in 2001.

There were an estimated 80 deaths in non-residential structure fires in 2001. The 1995 peak (290 deaths) is attributed to the 168 people killed in the bombing of the Federal Building in Oklahoma City in 1995. The peak in injuries (3,950) in 1993 includes 1,024 injuries that occurred at the World Trade Center explosion and fire in New York City. Although difficult to discern from the chart, the $3.8 billion peak in property losses in 1995 includes $135 million for the Oklahoma City building, $200 million at a Georgia manufacturing plant fire, and $500 million at a Massachusetts industrial complex fire (values in 1995 dollars).

Figure 56 shows the relative magnitude of the fire problem in non-residential structures by each of ten property categories.[3] The eating/drinking property types are actually a subset of public assembly, and detached residential garages are a subset of storage properties, but it is useful to highlight these properties separately.

Fires in other/outside structures lead the property categories in 2001 at 23 percent, replacing stores and office fires, which led in 1994, 1996, and 1998. Stores/offices and storage facilities were the next highest property types for fires. Together, these three groupings represent 59 percent of all non-residential fires.

Fatalities were greatest at storage facilities in 2001 at 23 percent, notably higher than the 13 percent reported in 1998. Such a change, however, is not as drastic as might be first imagined because the total number of non-residential structure deaths reported in NFIRS in 2001 was quite small (47).

Stores/offices was the leading property type for both injuries (22 percent) and property loss (28 percent). Stores/offices, storage, and manufacturing properties accounted for over half of injuries (52 percent) and 65 percent of dollar loss in non-residential fires. Table 17 shows the per-fire property losses at each property type. The highest loss per fire was at manufacturing sites ($56,000). Industrial fires resulted in the second highest loss per fire ($45,000). Institutional fires had the smallest loss per fire at $5,000. The rankings (highest/lowest) of these three property types are unchanged from 1998. Only storage and outside/unknown structures had a lower loss per fire in 2001 than in 1998.

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[2] These percentages are derived from summary data presented in NFPA's annual survey, 2001.

[3] In previous editions, vacant and under construction was a separate property category. In NFIRS 5.0, however, fires at under construction sites are allocated to the property category for which the building will be primarily used. Likewise, at vacant sites, the fire is allocated to the category for which it was once primarily used.