

**THE FEASIBILITY OF RETROFITTING HIGH RISES,
COLLEGE DORMS, AND CERTAIN OTHER BUILDINGS
WITH FIRE SPRINKLERS**

Report Highlights

Senate Resolution 132 requires the LB&FC to assess the feasibility of requiring high-rises, college dorms, and “other buildings of public access housing individuals” to be retrofitted with fire sprinkler systems. The LB&FC contracted with FIREPRO Incorporated to conduct this study.

- Overall, the number of civilian deaths in PA due to fire in the occupancy classes covered in this study has fallen by 51 percent over the past two decades.

<u>Civilian Fire Deaths in PA</u>		
	<u>1980s</u>	<u>1990s</u>
Dormitories	0	0
Fraternities/Sororities ...	1	7
Institutions	24	19
Lodging.....	63	20
High-rises.....	<u>11</u>	<u>3</u>
Total.....	99	49

- The sharp drop in deaths is due to several factors, including a 1990 federal law requiring federal employees to stay in sprinklered hotels; PA’s Fire and Panic Act of 1984 which requires sprinklers in new and renovated high-rises; municipalities having adopted building codes over the years requiring buildings to have sprinklers and other fire safety features; and sprinkler retrofit ordinances in several PA municipalities. In addition, the newly adopted statewide building code now requires sprinklers in most new and renovated multi-occupancy residential buildings, including dormitories, fraternities/sororities, and hotels/motels.
- Automatic sprinkler systems have proven to be highly effective, though not perfect, in reducing deaths, injuries and property damage due to fire. Using nursing homes as an example, nationally an annual average of 10.8 civilian deaths occurred per thousand fires in unsprinklered buildings compared to an annual average of only 1.9 deaths per thousand fires in sprinklered buildings.

- The cost to retrofit a building with sprinklers varies from \$3.50 to \$8.50/sq.ft. plus engineering costs of 10-12%. The table below shows low and high-end estimates of the statewide total cost to install sprinklers in the unsprinklered and partially sprinklered buildings in the occupancy classes listed. Additional detail is provided in the report.

<u>Estimated Cost to Install Sprinklers</u>		
	<u>Low-end (in millions)</u>	<u>High-end (in millions)</u>
Dormitories.....	\$141	\$328
Fraternities/Sororities..	\$21	\$40
Nursing Homes	\$132	\$248
Lodging.....	\$148	\$281
High-rises.....	\$595	\$1,183

Recommendations:

- ❖ The General Assembly may wish to consider two options: (1) require sprinklers be retrofitted in one or more occupancy classes of concern or (2) require that existing buildings in selected occupancy classes meet the IBC’s Chapter 34 fire safety equivalency requirements. The second option would ensure a reasonable level of fire protection, but would not necessarily require sprinklers.
- ❖ The State Fire Commissioner’s Office should begin reporting fire incident data to the National Fire Protection Agency. Such data will be valuable in assessing the need for future mitigation efforts.