Concrete and Masonry Industry Firesafety Committee
Position Statement
on Firesafety in Low-Rise Multifamily Residential Buildings

1. Building code provisions for firesafety in low-rise multifamily residential buildings must be upgraded.

Low-rise multifamily buildings, whether rentals or condominiums, are built to essentially the same firesafety standards as single family dwellings, in spite of the substantially increased risk arising from the proximity of individual units and the dependence of an occupant on the actions of his neighbors.

National Fire Protection Association statistics indicate that fire kills almost 7800 people per year, injures over 31,000 civilians and 96,000 firefighters, and causes almost 5 billion dollars in property damage. Of these, 1180 deaths, 4175 civilian injuries, and 343 million dollars of direct property loss are incurred in multifamily homes. The magnitude of such losses and the potential for even greater loss due to a projected increased percentage of low-rise multifamily residences makes it imperative to take steps to improve the fire integrity of these constructions:

2. Direct and indirect costs of property losses should be a major consideration when evaluating building code provisions.

While code writers may consider the added cost to new construction due to code revisions, they seldom consider direct and indirect costs resulting from property losses due to fire.

In a recent study conducted at Princeton University it was estimated that total indirect cost of residential fires is between $220 million and $322 million per year. Out-of-pocket expenses to households were estimated to be between $105 million and $153 million per year.

Fires also result in significant losses to which monetary values cannot be assigned. According to the study, in 1976 almost 170,000 households experienced fires that caused at least one member of the household to seek temporary shelter. These relocations averaged more than 27 days each. The survey estimated that 115,000 persons experience emotional problems each year as a result of residential fires. In almost 92,000 households one or more members must miss work, either due to injury or to help arrange for the household’s recovery. Finally, in almost 100,000 households a year fires have destroyed such irreplaceable items as photographs, paintings, antiques, pets, and family heirlooms.

3. New building code provisions should require increased use of fire-rated noncombustible construction to improve firesafety.

A recent study of fire losses in low-rise multifamily residences carried out by the University of Maryland shows a clear relationship between type of construction used and magnitude of fire losses sustained. Fire losses substantially decrease as the fire-resistive qualities of construction increase. Noncombustible construction reduces fire hazards in the following ways:

- **Reduces fire-development.** Controls or prevents substantial fire development because it reduces the total fire load and the rate of energy release. Noncombustible construction of exterior walls, balconies, and roofs also reduces building fires from external causes such as forest fires, barbecues, exposure fires, flying sparks, and some forms of arson.

- **Containment.** An adequate degree of fire resistance of structural elements, walls, and roofs prevents the rapid spread of fire by providing containment.

- **Starvation.** Will not support fire in concealed spaces of wall, floor, or roof assemblies.

- **Structural integrity.** Maintains the fire-resistive integrity of exit corridors and stair shafts to allow for the escape of occupants and provide access and refuge for firefighters.

- **Smoke suppression.** Reduces the consequences of fire because it does not produce toxic gases nor add to smoke generation that can reduce the visibility required for the safe evacuation of building occupants and for fighting the fire.

In low-rise multifamily buildings an adequate fire-resistance rating should be required for floors wherever there is one dwelling unit above another. Walls between dwelling units or suites, walls of service and storage rooms, and walls of public corridors and stair shafts should have an adequate fire-resistive rating. Fire walls should be of masonry or concrete construction with a rating of not less than two hours and should be required to separate buildings into small containment areas. Sprinklering of high risk areas should be encouraged; however, in no case should the required fire-resistance ratings be traded off for sprinklers.
4. Use of highly flammable construction materials, finishes, and building contents should be carefully restricted and controlled.

The need for energy conservation has resulted in an increased use of foam plastic insulation in buildings. Such highly flammable and toxic-gas-producing materials must be covered with concrete, masonry, or other type of fire-resistant barrier that has the demonstrated ability to stay in place during fire exposure. Furniture and wall and floor coverings with similar high-hazard characteristics may not be regulated by building codes. Therefore, the enactment of fire codes or other legislation controlling their use should be supported. The imposition and enforcement of fire code requirements and building rules prohibiting storage of significant amounts of highly flammable fuels, solvents, and paints in residential buildings should also be encouraged.

5. Installation and maintenance of fire detection and early-warning devices should be required by building codes.

Safe evacuation of residents and prompt response of municipal firefighting services can be greatly enhanced if early-fire-warning devices are present. This is of particular importance in dwelling units where people are normally asleep for one-third of the time, where solid-fuel-burning heating appliances are used, and where cooking is done. Regular inspection to assure that smoke detectors and similar devices are operational should also be required by fire code. Such alarms should not be considered as a tradeoff for other firesafety measures, but rather as an added safety feature.

6. Adequate resources are needed to permit improved checking of plans and inspection of construction to assure that building code firesafety requirements are not violated.

Because many communities do not provide adequate building department services, low-rise residential buildings are often given minimal inspection, during both planning and construction. This frequently results in violations, often inadvertent, of firesafety requirements such as breaching of fire separations by building services, omission of fire stopping, and improper construction of firewalls. Some building inspection authorities recognize that these problems occur much more frequently in wood-frame construction and require a greater degree of inspection for fire-rated construction of this type than for concrete or masonry construction.

7. The development and enforcement of a comprehensive fire code by municipal authorities should be actively supported.

Fire drills and building inspections both fall within the realm of fire codes rather than building codes. Building inspections are necessary to assure that exits are not blocked, storage rooms and chutes are in a safe condition, emergency systems are operational, fire extinguishers are present and filled, and so on. Fire drills are of proven value in the prevention of panic and the orderly evacuation of buildings.

Organizations represented on the Concrete and Masonry Industry Firesafety Committee are

- Brick Institute of America
- Concrete Reinforcing Steel Institute
- Expanded Shale Clay and Slate Institute
- National Concrete Masonry Association
- National Ready Mixed Concrete Association
- Portland Cement Association
- Prestressed Concrete Institute

MS302.01B