SCHULTE & ASSOCIATES
Building Code Consultants
880D Forest Avenue
Evanston, IL 60202
fpeschulte@aol.com
504/220-7475

FIRE CODE ENFORCEMENT

By Richard Schulte
Schulte & Associates

Recently I walked through an existing 4 story building which was constructed in the late 1800's. The first floor of the building was utilized as a sales floor, while the upper floors were utilized to manufacture the products sold by the firm. While the first floor was served by exterior doors in the storefront and in the rear of the building, the upper floors were only served by one stair. This stair connected the second through fourth floors and was partially enclosed in wood planking. The stair discharged into the second floor. Access to the first floor was via a single unenclosed stair located about 50 feet from the discharge of the partially enclosed stair into the second floor.

The only other egress (escape) route provided for the upper floors of the building was an unmarked access to a fire escape located on the adjacent building. The fire escape access was provided only at the fourth floor via a window opening. There were also what appeared to be fire escape landings located on the front exterior wall of the building, however, if a fire escape was provided at this location at one time, the stair portions of the fire escape have long since been removed.

While the building was protected by a sprinkler system, it was obvious that the system was antiquated. The end sprinklers on the branch lines were supplied by three-quarter inch steel piping. Given the egress facilities provided for the building, you might have expected that a fire alarm system would have at least been provided for the building, but no alarm system was provided.

I live in a 14 story apartment building located just a few blocks from the building described above. The building was originally constructed as an office building sometime in the late 1920's. About 10 years ago, the upper 11 floors of the building were converted to apartments with about 10 units on each floor. At the time of the conversion, the building was retrofitted with the fire safety features required for a new high rise building-sprinkler protection, a fire alarm system, voice evacuation instructions, pressurized stairs and enclosed elevator lobbies.

In early October (2006), there were problems with the elevators and only the freight elevator for the building worked. Given substantial delays in getting elevator service, many of the residents of the building began to utilize one of the exit stairs to gain access to their apartments. Since the stair doors are locked from the stair side, the stair doors had to be propped open so that the residents could use the stairs. After about 6 weeks, one of the two elevators which were down was repaired so that residents could use the elevators again in a timely fashion, but the stair doors remained blocked open.

The stair doors were not the only problem with fire doors in the building. When I moved into the building 7 years ago, the closer on my apartment door didn't work (and hasn't been replaced). Since I've never heard an apartment door on my floor slam in the last 7 years, I assume that there are problems with all of the closers on the corridor doors on the floor and my guess is that this problem is universal throughout the apartment floors of the building.

Perhaps you understand now why its my its my opinion that reductions in passive fire protection when sprinkler protection is installed make sense. Since the reliability of most passive fire protection systems is highly suspect with little maintenance provided for these passive features and little, if any, enforcement of the maintenance provisions contained in the building and fire codes, very little in the way of occupant fire safety is being given up when sprinkler system "trade-offs" are permitted. While a trade association of manufacturers of passive fire protection products, the Alliance for Fire and Smoke Containment and Control (AFSCC), questions the reliability of sprinkler systems, the one issue that the AFSCC never addresses is the reliability of the passive fire protection features which they actively promote.

Without the enforcement of the maintenance provisions contained in building and fire codes, is compliance with the fire safety provisions for new buildings almost pointless? The answer to that question seems obvious, at least to me. Who's responsible for the maintenance of compliance with code requirements? To answer that question, let's take a look at a few of code provisions addressing maintenance.

The 2006 edition of the International Building Code (IBC) addresses the maintenance issue in a number of sections in the code. The scope statement provided in the code, section 101.2, reads as follows:

> *"**Scope.** The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures."*

The issue of maintenance of sprinkler systems and fire alarm systems are addressed in sections 903.5 and 907.19 of the IBC as follows:

"***Testing and maintenance.*** *Sprinkler systems shall be tested and maintained in accordance with the International Fire Code.*"

"***Inspection, testing and maintenance.*** *The maintenance and testing schedules and procedures for fire alarm and fire detection systems shall be in accordance with the International Fire Code.*"

The issue of the maintenance of the egress system serving buildings is addressed in section 1001.3 in the IBC as follows:

"***Maintenance.*** *Means of egress shall be maintained in accordance with the International Fire Code.*"

The maintenance issue is further addressed in the chapter dealing with existing buildings, Chapter 34. Section 3401.2 reads as follows:

"***Maintenance.*** *Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the building official shall have the authority to require a building or structure to be reinspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures.*"

Based upon the provisions of the International Building Code, the specific requirements dealing with the maintenance of fire safety features in existing buildings are contained in the International Fire Code (IFC). The following are a number of excerpts regarding maintenance from the 2006 edition of the IFC:

"**101.3** ***Intent.*** *The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations."*

"**102.2** ***Administrative, operational and maintenance provisions.*** *The administrative, operational and maintenance provisions of this code shall apply to:*

1. *Conditions and operations arising after the adoption of this code.*

2. *Existing conditions and operations.*"

"**103.1 *General.*** *The department of fire prevention is established within the jurisdiction under the direction of the fire code official. The function of the department shall be the implementation, administration and enforcement of the provisions of this code.*"

"**104.2 *Applications and permits.*** *The fire code official is authorized to receive applications, review construction documents and issue permits for construction regulated by this code, issue permits for operations regulated by this code, inspect the premises for which such permits have been issued and enforce compliance with the provisions of this code.*"

"**604.1 *Installation.*** *Emergency and standby power systems required by this code or the International Building Code shall be installed in accordance with this code, NFPA110 and NFPA 111. Existing installations shall be maintained in accordance with the original approval."*

"**701.1 *Scope.*** *The provisions of this chapter shall specify the requirements for and the maintenance of fire-resistance-rated construction and requirements for enclosing floor openings and shafts in existing buildings."*

"**703.1 *Maintenance.*** *The required fire-resistance rating of fire-resistance-rated construction (including walls, firestops, shaft enclosures, partitions, smoke barriers, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems) shall be maintained. Such elements shall be properly repaired, restored or replaced when damaged, altered, breached or penetrated. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.*"

"**703.1.1 *Fireblocking and draftstopping.*** *Required fireblocking and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction."*

"**703.1.2 *Smoke barriers.*** *Required smoke barriers shall be maintained to prevent the passage of smoke and all openings protected with approved smoke barrier doors or smoke dampers."*

"**703.2 *Opening protectives.*** *Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. Fire doors and smoke barrier doors shall not be blocked or obstructed or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. Fire door assemblies shall not be modified."*

"**803.7 *Foam plastic materials.*** *Foam plastic materials shall not be used as interior wall and ceiling finish unless specifically allowed by Section 803.7.1 or 803.7.2. Foam plastic materials shall not be used as interior trim unless specifically allowed by Section 803.7.3.*"

"**901.1 *Scope.*** *The provisions of this chapter shall specify where fire protection systems are required and shall apply to the design, installation, inspection, operation, testing and maintenance of all fire protection systems."*

"**901.4 *Installation.*** *Fire protection systems shall be maintained in accordance with the original installation standards for that system. . . . .*"

"**901.4.1 *Required fire protection systems.*** *Fire protection systems required by this code or the International Building Code shall be installed, repaired, operated, tested and maintained in accordance with this code.*"

"**901.6 *Inspection, testing and maintenance.*** *Fire detection, alarm and extinguishing systems shall be maintained in an operative condition at all times, and shall be replaced or repaired where defective. Nonrequired fire protection systems and equipment shall be inspected, tested and maintained or removed.*"

"**901.6.2 *Records.*** *Records of all system inspections, tests and maintenance required by the referenced standards shall be maintained on the premises for a minimum of three years and shall be copied to the fire code official upon request.*"

"**901.9 *Recall of fire protection components.*** *Any fire protection system component regulated by this code that is the subject of a voluntary or mandatory recall under federal law shall be replaced with approved, listed components in compliance with the referenced standards of this code. The fire code official shall be notified in writing by the building owner when the recalled component parts have been replaced.*"

"**904.1 *General.*** *Automatic fire-extinguishing systems, other than automatic sprinkler systems, shall be designed, installed, inspected, tested and maintained in accordance with the provisions of this section and the applicable referenced standards.*"

"**1001.2 *Minimum requirements.*** *It shall be unlawful to alter a building or structure in a manner that will reduce the number of exits or the capacity of the means of egress to less than required by this code.*"

"**1028.2 *Reliability.*** *Required exit accesses, exits or exit discharges shall be continuously maintained free from obstructions or impediments to full instant use in the case of fire or other emergency when the areas served by such exits are occupied. Security devices affecting means of egress shall be subject to approval of the fire code official."*

"**1028.3 *Obstructions.*** *A means of egress shall be free from obstructions that would prevent its use, including the accumulation of snow and ice.*"

While section 3401.2 in the IBC specifically states that it is the building owner's responsibility to maintain a building in compliance with the code requirements which were applicable at the time a building permit was issued, like any other legal requirement, enforcement of the maintenance provisions contained in the IBC and IFC is necessary. (If enforcement of legal requirements wasn't necessary, we could do with a lot fewer police officers, judges, attorneys and prisons and we could even abolish the IRS.) And who is responsible for the enforcement of the maintenance provisions contained in the IBC and the IFC? With respect to the fire safety provisions contained in the building code, section 103.1 in the IFC clearly indicates that the Department of Fire Prevention is responsible. In most cities with paid fire departments, the Department of Fire Prevention is part of the fire department. Hence, in jurisdictions with paid fire departments, it is the fire department who is responsible for enforcing the maintenance provisions contained in the IFC.

As a former member of the San Jose (California) Fire Department (fire protection engineer, 1980-1982), I am familiar with the enforcement of fire prevention code for a large city. In the early 1980's, the SJFD fire prevention bureau consisted of roughly 25 members, including a total of 8 fire prevention inspectors (and two inspection supervisors), for a city with a population of approximately 800,000 people. Twenty-five years ago, there was little interest in the fire prevention activities of the department and the only way that the inspection section of the bureau could be staffed was to require that any firefighter who wanted to advance in rank in the department had to serve at least 1 year as a fire prevention inspector. Despite the limited number of fire inspectors on staff, the SJFD fire prevention bureau still managed to make routine annual inspections of many occupancies which required permits to operate (i.e. assembly occupancies).

With respect to fire prevention activities, little has changed with the fire service in the 25 years since I left the SJFD. Fire prevention is still the "step-child" of the fire service and many fire departments simply say that they don't have sufficient manpower to be involved in fire prevention activities. At a meeting of the International Code Council (ICC) Code Technology Committee (CTC) in Orlando in early February 2006, some members of the fire service in attendance (including a representative of the National Association of State Fire Marshals (NASFM), Chief Robert Polk) even stated that it wasn't the fire service's responsibility to enforce the fire code. Well, if it's not the fire services' responsibility to enforce the fire code, who's responsibility is it?

Columns published six months or so ago in Plumbing Engineer discussed the issue of firefighter safety. One of the ways to reduce the number of firefighter fatalities and injuries each year is to develop an effective fire prevention code enforcement program. The fire service can't have it both ways-ignoring the enforcement of the fire code, while at the same time lobbying for more restrictive code requirements. It's time for the fire service to actually start taking the enforcement of the fire code seriously. Yes, code enforcement isn't as exciting as firefighting, but with an effective code enforcement program, there will be a whole lot less excitement in the fire service and that's a good thing. Code enforcement is a whole lot safer than fire fighting.

* * * * *