The High-Rise Death Trap
Citrus Heights, CA
Wednesday, January 19, 2011

TRIAD of DEATH PART 14

THE HIGH RISE DEATH TRAP

WHY A TRAGEDY IS NEEDED TO CREATE CHANGE: Whenever there is a terrible tragedy and, as a result a common sense solution is recommended, people always say, "Why does a disaster have to occur before corrections are made?" I may be the best person in this country to answer that question because my life has been devoted to proposing and sometimes creating solutions to the fire problem; and being attacked for doing so. There is an answer to that question and it is hiding in plain sight. The answer is; behind every fire code there are businesses and organizations that have helped create, promote and sell that code. Codes are mainly written by the organizations that benefit from the code. Sometimes the code increases safety. But very often the code becomes a barrier to better solutions and therefore the code contributes to the problem. The driving force behind every fire code of the NFPA is not to save Aunt Susan; it is to provide benefits to those who helped create the code.

A prime example, of course, is the code that made millionaires out of the smoke detector sellers. The code required the public to buy phony smoke detectors that have probably cost at least 35 thousand kids their lives. Anytime change for the better is proposed there are profiteers fighting against that change. And government bureaucrats nearly always are on the side of those who distribute the money and perks. The high rise building is another example. There are common sense solutions to the fire problems of the high rise. But there are special interests that are strongly opposed to making the buildings fire safe because the changes that would be required would be obstructions to their objectives. One major objective that has become a barrier to change is the desire of architects and builders to build ever taller buildings while fighting to control the costs. The pursuit of height and honors can push the safety considerations into the garbage bin. The inevitable result will be future disasters, not necessarily due to terrorists. A future high rise fire may result in far more deaths than the World Trade Center disaster. But, I do not blame the architects for pursuing their objectives. I blame the NFPA and especially the fire protection engineers (FPEs) for failing to require the obviously needed protections for the high rise.

A PROBLEM WITH ELEVATORS: On August 5, 1970 at 6 PM a fire started on the 33rd floor in a new skyscraper, 1 New York Plaza, in New York City. The following day the New York News included the following information. Charles Kuhn, a 29 year old telephone repair man was on the 39th floor and had this story to recite. He said he and some other men entered an elevator that stopped several times as it descended, encountering more and more smoke and taking on more passengers. It opened at the 33rd floor (the fire floor) and intense heat and smoke gushed into the elevator and the doors jammed. (The electric eye that prevents the doors closing when someone is entering was activated by the smoke.). "It was pure black" he stated. "It was just like night. It took all the oxygen out of the air. There was nothing to breath. I felt like I was dying." I cried, "Let me die". "Guys were yelling and screaming in terror" and someone yelled, fall to the floor. Finally we got the door closed"

Three men died and 68 others were injured in a four alarm fire in a newly built 47 story skyscraper at 919 Third Avenue (3rd avenue and 56th street) on December 4, 1970. The fire involved a 5th floor carpet showroom. Thousands of tenants reportedly were able to exit vie the elevators. The New York News included this account by Joan Cazie, a research

analyst who was at work on the 45th floor: "There were about 12 of us on the elevator. It headed up to the top floor and we thought we would go up and come down. It broke down between the 46th and 47th floor. It was shaking like crazy. It was completely filled with smoke. All the girls started crying. We were stuck about 5 minutes-it seemed like an hour. The elevator then went up to the top floor and they all went up to the roof. About 150 people went to the roof to wait out the fire.

During 1969 5 people died in a New York building attempting to exit vie elevators. As a result of these instances there was a demand to correct the problems with elevators during a fire. From the viewpoint of the elevator industry there were two possible solutions to the problem:

1. Correct the problems so that elevators become safe exits during a fire.

2. Create a new code to require that all elevators be automatically dropped to the ground floor when a fire alarm occurs manually or automatically.

Of course, the elevator industry was mainly concerned with two things which were costs and liability. They wanted a cheap solution. And they wanted freedom of liability under fire conditions. So they put together a committee of elevator industry representatives including suppliers to the industry. Then they created a code that required all elevators be automatically removed from service when an alarm sounds. They apparently had little trouble selling the code to the fire chiefs. The fire officials would gain control of all elevators during any fire. Typically, if there is a fire on the 20th floor for example, the fire fighters will take the elevator to the 19th or the 18th floor and then walk up the stairways to the fire floor. By never being above the fire the fire officials did not have to worry about the elevators stopping at the fire floor and tapping them in the face of the flames. It was a great solution for the chiefs and for the elevator industry, but this "solution" guaranteed that those above the fire floor would likely be trapped there to die if the fire was not controlled by the firefighters.

It should also be noted that, as there is honor among thieves (or so they say) there also is honor among the code writers. One special interest that writes a code to protect itself while shafting the public will invariably honor the other man's code that shafts the people. It seems to be the rules of the club.

During any high rise fire it is a near certainty that doors to the stairway shafts will be opened on the fire floor as people try to exit via the stairways. Also, stairway doors will be opened on the upper floors as occupants try to leave the building without the elevators in service. This will guarantee the normal "updraft" in vertical shafts will take effect. The updraft will draw the smoke from the floor on fire and whip it upwards thus making the stairway either dangerous or deadly. A tall stairway is a very difficult way out of a building to begin with and often is impossible when there is a fire. The World Trade Center fires were examples of stairways becoming untenable thus trapping the occupants above the fire floor.

Some fire engineers have recommended that blowers be installed at the roof to pressurize the stair shafts and thus preventing smoke from entering. This will not work because an open door to the shaft above the fire will allow the over-pressure to dissipate and then the stack effect will draw smoke into the shaft. But elevators shafts can be successfully pressurized. This is easily accomplished because when the elevator is at a floor with the elevator door open, the car blocks the opening. Thus maintaining the higher shaft pressure that prevents smoke from entering is easily accomplished during a fire, assuming proper corrective measures are ever taken. Incidentally, the pressures created by a fire are relatively low. Therefore, a blower at the top of an elevator shaft (any number of elevators) could create a higher pressure throughout the shaft and thus keep the shaft smoke free.

THE SAFETY CORE HIGH RISE: During 1976 I wrote Patton Report No. 45, The Safety Core Building. I recommend that high rise buildings be designed with a "safety core" to contain the elevators, stairways and emergency equipment. This "safety core" would have a fire rating that would withstand a fire exposure for hours and it would also withstand a serious impact. The details require, of course, proper research. The exits including fire safe elevators would be available to bring all persons to safety. Obviously, the elevator controls must be programmed so that those above the fire floors can be safely removed first. Those below the fire floor could use either the stairways or wait on the elevators.

Also, the standpipe that delivers water for firefighting and the sprinkler risers should be located within the core. The core lobby floors must be slightly raised to prevent sprinkler water from entering and going down the elevator shafts. This safety core must be completely devoid of combustibles. Emergency power to maintain all the elevators and all

safety equipment within the core in service is essential. Obviously, Fire department call boxes located every second floor in the stairways must be connected to the lobby fire control office. The circuitry must be of a "looped" type where one break anywhere will not disable the system. To my knowledge these required fire department call box system were not included in the safety design of the WTC and probably was the reason so many firefighters died.

If the World Trade Center Buildings had been properly designed for fire safety as I recommended years ago probably very few deaths would have resulted. Although my recommendations were ignored at the time, since the World Trade Center Building disasters this common sense fire solution for the high rise is now being seriously considered by some architects. Again, a proper solution was ignored until there was a national tragedy. Will I get any credit for recommending the safety core building decade ago? Of course not, the desire to cover-up past mistakes will take first place.

WHY HIGH RISE BUILDINGS CAN COLLAPSE: The material that allows a tall building to withstand the forces of gravity, wind and even earthquake is steel. Steel is what provides the strength that allows buildings to be tall. But, when steel is heated it loses strength. At about 1000 degrees Fahrenheit the safety factor is gone. Further heating can cause a failure of the structural system. A building fire can produce temperatures from 1500 degrees to above 2000 degrees. Clearly a fire will create enough heat to cause a failure of the structural system. The solution to a fire weakening the steel and causing a building collapse is to encase the steel within a material that slows the passage of heat from the hot environment to the steel. This is similar to insulation in the walls and ceiling of a home keeping the interior cool on a hot day.

Years ago the structural steel in buildings consisted mainly of thick and heavy steel "I" beams. These heavy structural members were protected against the heat of a fire by being enclosed in concrete or gypsum. But, the weight of the steel and the encasing materials limited the height of a building. The architects and the owners wanted to push the heights ever upward. Changes in the basic way to design the buildings had to evolve. The solution was light weight steel structural forms. For example, light weight structural trusses replaced the heavy I beams. Spray-on fireproofing materials replaced the concrete enclosures. The spray-on material can be knocked off the steel by workers or explosions and it is more difficult to be sure the thickness of the material on the steel members is adequate and uniform. Obviously, the contractor will skimp on the thickness if not carefully monitored.

As an engineer who has investigated the fire codes and the fire regulators for many years, I say with complete conviction that many high rise buildings are definitely not fire safe.

Further, I say that many of these buildings could be brought down by a fire involving the combustible contents and furnishings alone, no attacking aircraft needed. I say the two hour floor and ceiling ratings as prescribed by UL are not reliable and that the combustible contents within many of these buildings will produce a fire that can expose the steel for an excess of two hours. Further, I say that any terrorist with an IQ above 80 will know that the fire sprinkler systems can be taken out of service with ease. That means that if and when a serious fire occurs within an inadequately fireproofed building without sprinklers (or with the system out of service); whether or not the occupants survive will probably depend on the ability of the firefighters to control the fire. If the firefighters cannot control the fire, or if the potential for building collapse results in an abandonment of the building by the firefighters, all who are above the fire floor may die.

WILL THE FIREFIGHTERS RISK THEIR OWN LIVES?: Based on the World Trade Center experience where so many firefighters were killed, it would not be surprising if those battling future high rise blazes were a little more concerned (relative their own lives) with the potential for the building to collapse . Recently A fire was intentionally started by what seems to have been a crazed arsonist in one store within the huge Roseville, California mall. This man waved a gun at the employees of the store, ignited the fire and the disappeared within the mall. He left a knapsack behind. There was some fear that the gunman was still in the mall when the firefighters arrived and apparently someone surmised that the knapsack might contain explosives. So the firefighters remained on the outside of the mall and the fire continued to burn. Then the sprinkler system was turned off for about an hour and enormous damage occurred. Fortunately no lives were lost.

Did the Roseville Mall fire signal that there is a different attitude among the fire services? When the fire occurred within the MGM Grand Hotel in Las Vegas during 1980, the fire that started in a restaurant suddenly went into the flashover mode and reportedly flashed across the huge casino floor at 14 feet per second, trapping and killing occupants in their tracks. Firefighters had just entered the casino when the fire flashed toward them like a tidal wave across the ceiling. They barely made it back out before they too became part of the inferno. They had to regroup and when they entered

again it was behind the cooling effect of the heavy fog nozzles.

During this enormous and intense fire at the MGM Grand Hotel about 5000 occupants were trapped on the upper floors during the entire fire. Due to the heroic actions of the firefighters nearly all of those trapped above the fire were eventually saved. But, if the fire had not been controlled (and it was a very close call) all those who were trapped and unable to make it to the roof would surely have perished. Will the same heroic behavior prevail among the firefighters of a high rise in the future? I believe it is not reasonable to depend entirely on a fire department to control a fire located high above street level when thousands of occupants are trapped above the fire.

Our so-called "fire experts" insist that it is not possible for a fire to take down a high rise. The reason they so believe are because they have allowed high rises to be designed and built in a way that defies logic. These egotistical "experts" are not about to admit that the testing and the calculations behind the fire resistance ratings, the fire loadings, the reliability of the spray-on fireproofing combined with the difficulties and hazards of fighting a fire high above the street can add up to disaster. But, despite the refusals to acknowledge reality, the fact is we can find examples of failures of the fire resistance ratings almost on a weekly basis in America. The "experts" simply close their eyes to what they do not want to know.

When the World Trade Towers were destroyed, what the public is generally not aware of is that Building No. 7, a 47 story structure near the twin towers suffered a fire and collapse. Apparently the fire was caused by hot debris from the towers penetrating Building No. 7. The fire burned for hours, no doubt seriously weakening the steel members. Finally the building collapsed. There is no evidence to prove this, or it has been maintained a government secret, but I suspect that the final blow to Building No. 7 was an internal combustion gas explosion. An internal explosion of the combustion gases (created due to an insufficiency of oxygen for clean burning) would explain why it came down within its footprint; not tilting to one side or the other as it collapsed. I believe the Feds have kept the lid on the causes of this event as best they could. Our so-called "experts" do not want the public to know that a normal fire (no plane crashes) can bring down a modern high rise. They especially do not want the public to realize that a fire may trap thousands above the fire floor with their deaths a near certainty if the firefighters cannot control the fire.

These are the reasons why I say it is essential to provide a safe way out for those above the fire floor in all high rises; office buildings, apartment buildings and hotels. But knowing the level of disinterest and dishonesty among the code makers, I am betting that it will take a couple of high rise fires where the loss of life is into the thousands before corrections are made.

EVIL WILL FLOURISH WHERE GOOD PEOPLE DO NOTHING

www.TheWorldFireSafetyFoundation.org â€¢ www.Firecrusade.com

www.AmericasHolocaust.org

RICHARD M. PATTON, FIRE PROTECTION ENGINEER

AUTHOR, THE AMERICAN HOME IS A FIRE TRAP

THE CRUSADE AGAINST FIRE DEATHS

rmpatton@surewest.net

Richard M Patton
President
Crusade Against Fire Deaths
Citrus Heights, CA
916-721-7700

Book Title: The America Home is a Firetrap

Journalists - Click here for a Review Copy of The America Home is a Firetrap

Order The America Home is a Firetrap

Ask a question with InterviewNet[SM]

Other experts on these topics

1.	Fire
2.	Building Codes
3.	Code Corruption
4.	Fire Life Safety
5.	Fire Regulations
6.	Fire Sprinklers
7.	High-Rise Fires
8.	Home Fire Safety
9.	Smoke Detectors

ExpertClick®