



CHIEF'S FILE CABINET

Ronny J. Coleman

KNOW YOUR OCCUPANCIES

Standing Room Only (SRO). You will most often hear that term used in some form of entertainment venue that has a very popular act. Whenever a public assembly goes to standing room only, you always have the possibility of overcrowding. Depending upon the set of conditions that exist or the nature of an emergency that can occur, overcrowding can be either a real inconvenience or a total disaster. And we have had our disasters. Wooster is probably the most recent in US History. In that incident, 100 people died. A recent incident in Santa Maria Brazil is even more current, with a casualty rate of over 250.

The reaction by Marcel D'Amico, in Brazil that probably could be said in many parts of the world including our own various states was, "Such conditions are common across South America's largest nation." D'Amico, who is a native Brazilian Fire Protection Engineer and founder of the League City, Texas-based consulting firm Orcus Fire Protection, carries out work in Brazil.

D'Amico said minimum safety features are largely lacking in Brazil, such as illuminated exit signs, sufficient emergency exits and sprinkler systems. "I've been in high-rises in Brazil with no sprinklers or fire alarms," he said. "I looked for emergency exits and was scared out of my mind when I thought about what could happen if there was a fire."

He has accused Brazilian construction companies and building owners of being less concerned with safety codes than with esthetics and budgets. Have we heard that argument before?

But D'Amico puts the main blame on politicians, who he said "turn a blind eye to the fact that legislation must be updated and inspectors must go into buildings to make sure fire prevention measures are in place."

The government must adopt a "hard-line fire prevention approach and determine what has to be done and set specific deadlines to make the needed changes," he said.

"The installation of proper fire prevention mechanisms — sprinklers, alarms, exit doors — cost a lot of money and building owners are not motivated by spending money. They are motivated by making money."

We are motivated by saving lives. The lives on the line are our constituents and our own people. That is why we should be carefully monitoring the activities in our major public assemblies. In all cases, crowded conditions are very dangerous to occupants. This supports the idea that we have a tool in the



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code enforcement process. We already have a mechanism of calculating how many people should legally be allowed in a room. We should enforce it without prejudice.

The term for that determination is called an *occupant load*. There are a lot of different nuances about how you actually calculate an occupant load. But, once that occupant load has been calculated, it is used as a baseline to determine whether a facility is “overcrowded” or not.

So how do we do that? Let’s start with the simplest of formulas that could possibly be used and that is the single use occupancy that has a certain amount of room in it where occupants might find themselves. The first thing that you need to do is make sure that you have a proper determination of each square foot area in that occupancy with regard to what factor is going to be used to calculate. There are some occupancies where which the vast majority of the area would be under one calculation i.e. let’s use a dance floor or a public assembly area and perhaps a different calculation that would apply to areas behind closed doors, such as a kitchen or some other location. If you go to the table in the Uniform Building Code Table 1004.1.2, you will see that there are a variety of factors. When people are seated there is one factor. When they are standing up, there is another. Even the layout of the room will sometimes determine what that factor can and or should be. There is even a provision for increasing the occupant load under certain conditions. None of that means much when an actual fire occurs. It is what the conditions are at the time of the incident that counts.

Once you have calculated and posted that number, you can never be 100 percent sure that the area is not being compromised by something else, i.e. let’s say there is a stage in the middle of the room. That area may not be necessarily part of the occupant load but it may take up some of the square footage of the area. And improvised decorations can create havoc in minutes.

Planning for this problem is not the issue. The standard for developing this type of analysis is to develop the square footage account of the area in which occupants are allowed to maneuver. In some settings, the square footage number is modified by decoration and other types of architectural devices so you may have to exclude some areas from the square footage for which the calculation is going to occur.

The next step is to simply take the factor that has been identified in the building code and divide it into the square footage and you will receive a number. It is very important if you are doing this occupant load on a plan check that you make sure it follows through with the as built to make sure that the two number remain identical. What you don’t want to do is to assume that an area has an occupant load and find that it has been excluded from seating or standing which subsequently means you are going to have a higher occupant load for the building than it deserves.

Upon completion of the occupant load calculation, it is appropriate in most agencies to put that documentation into the record keeping system along with a brief notation as to who did the calculation and when it was performed.



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The posting of the occupant load generally has to meet certain criteria also. It needs to be somewhere where it is clearly visible so that management and a casual inspector can determine very quickly what the occupant load is and under what conditions that occupant load applies.

It is interesting to note that in the calculation of occupant loads, there can sometimes be multiple findings depending on the nature of the event occurring in that single use occupancy. For example, you might have a series of tables set up for a luncheon that creates one occupant load and you may have some chairs that are bonded together forming isles that creates another occupant load and there could be a third event which there is no furniture in the room whatsoever and have a third occupant load.

The primary reason for putting an occupant load in a building is to assure that the people have the ability to evacuate when there is a stressful set of circumstances. Allowing anybody in the community to exceed an occupant load is a very dangerous proposition. However, there are ground rules in which you can exceed an occupant load. This often includes the presence of a firefighter on standby or the presence of other mitigation measures to assure that a fire is not going to get out of control.

The implication too is that occupant load is directly related to egress and therefore once occupant load has been determined, it is very important for a fire prevention bureau to make sure that all of the indicated exits are being properly maintained and available in the event of an emergency.

The bottom line on this discussion is that SRO means CYA. If you have a few of those popular, but over-subscribed entertainment occupancies in your city, it is time to give them a visit. They should be a priority in the fire prevention planning workload for the foreseeable future.

Remember an hour of effective prevention is equal to years of litigation.