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“Station Design: Single Story vs. Multi Story”

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“Station Design: Single Story vs. Multi Story

“Should our station be two floors or one floor?” That is a question that we have heard many times over the years while working with public safety officials on new and renovated stations. There are numerous factors to consider before making your decision. The best decisions are well-informed decisions. So let's look at a few items that will help to get you informed.

Americans with Disabilities Act (ADA)

Many station owners are under the impression that the ADA does not apply to public safety facilities, or at least the living quarters of public safety facilities. That is incorrect! The ADA applies to all public buildings including Fire/EMS stations. It is possible that a local building inspector has allowed a station to be built without all or part of the station following the guidelines of the ADA. However, each building owner can be held liable by the US Department of Justice for not following the ADA. I have heard rumors over the last two years that there is pending, federal legislation to exempt the living areas of public safety facilities from the ADA. I have called officials from coast to coast and have found no one who is familiar with such legislation.

So how does the ADA's application affect our discussion of multi story stations? Elevators and accessible stairways. You must assume that any department member or visitor can be temporarily or permanently disabled. Disabled persons cannot be separated from activity areas by providing similar areas on the ground floor.

There is one important side note regarding the ADA. It is a federal law that is required in every local jurisdiction. However, besides being combined with required building codes, the most common means of ADA enforcement is when you are sued by *anyone* who discovers that you have not followed the ADA.

Reasons for Multi Story Stations

Site. The earliest fire stations were built in very crowded cities and on very small pieces of property. Because of this, the only choice was to build multi story. The actual fire fighting equipment was located on the ground floor while the quarters were overhead, thus the long history of the fire pole. The same scenario happens time and again today. The available site is so small that all building and site requirements cannot be accommodated on ground level. If this is your case, you often have no choice but to go up.

Some rural sites are so steep that filling the needed area to one elevation would be cost prohibitive. In this case a smaller area of the available property can be leveled to build a multi story station that would possibly be less expensive than a single story facility.

Renovations. If an existing, multi story building is to be used for the station, it may very well be necessary to renovate the upper floors in order to house programmed space. Or, a multi story addition may have to be added to an existing building due to a lack of usable property. We are currently involved with a new headquarters station in Texas that utilizes the 3 story shell of an historic, masonry structure. Here it was necessary and practical to upfit the shell into a 2 story station.

Aesthetics. Often, the Owner desires to respond to adjacent buildings or achieve a “design look” that requires an unusually tall structure. This only makes sense if the tall structure can be designed to accommodate usable space.

Nostalgia. As expensive as it may be, some Owners have the desire to build a multi story station for nostalgia’s sake. This reflects back to the history of urban stations as discussed previously. Without seriously considering the costs, some have the insatiable need to slide down a fire pole when the alarm sounds.

Mechanical or storage mezzanines do not constitute a multi story station. Only “occupied” space falls under the definition. Also, some stations have floor levels that may step just a few feet from one building area to another. As long as occupied spaces are not stacked, the building is still one story.

Reasons for Single Story Stations

Building Maintenance. Multiple floors usually require duplication of some spaces such as toilets, janitors closets, etc. Many two story stations have their showers on the top floor with living spaces. Imagine coming back filthy from a call and tracking through two floors of the building to get to the shower.

Cost. The single most important reason to build single story is budget. Except for a couple of the previously stated scenarios, **it is almost always less expensive to build out than to build up.** There are several reasons for this.

The first item affecting the cost is the ADA. The cost of an elevator for two floors is usually between \$40,000 and \$60,000. Two, remote stairways will occupy approximately 800 square feet. The elevator and equipment room will occupy roughly 200 square feet. 1,000 square feet at, say \$100 per square foot is \$100,000. So you are spending over \$140,000 just to get up and down in the building. This expense would not be necessary on a one story station.

The second item affecting cost is required fire separations. The major fire separation for a one story station is the single wall that separates vehicles from occupied spaces. If you have occupied spaces above the apparatus bays, you will be required to provide fire separation between floors as well. Vertical fire separations are never inexpensive.

Conclusion

There are certainly several legitimate reasons to build a multi story station. If you fall into one of those categories, proceed knowing the reasons behind your decision. However, if cost is the single largest factor in your selection, a single story station is likely your best choice.