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## **The importance of upgrading/replacing and maintaining fire alarm/live safety systems**

April 13, 2010 - Construction Design & Engineering

In Greater Boston, there are more aging commercial structures than perhaps any city in the US. While many of our commercial buildings, hospitals, hotels, and educational facilities have upgraded their fire alarm and life safety systems to be national and state fire code-compliant, many are still in need of renovation. This article explores the importance of keeping life safety systems up-to-date, the selection of a contractor, the options of a new system vs. upgrading an existing one, and the importance of an ongoing maintenance and testing program.

Keeping a building's life safety/fire alarm system up-to-date and up-to-code is of critical concern to every commercial building owner and manager. With ongoing technological advancements in fire alarm and life safety systems designed to make commercial buildings safer for their occupants as well as to protect the properties, the average life span of a fire alarm and life safety system is 10 to 15 years. Since the national fire codes are updated and revised every three years, certain aspects and components of the system may require updating even more frequently.

There is a tendency to leave life safety systems alone until a major upgrade is mandated by local authorities. The reasons for delaying the process often include both budgetary constraints and the perceived inconvenience associated with a major retrofit. However, life safety systems should be upgraded with at least the same frequency as other major building systems, as budgeting issues and inconvenience are typically very manageable when employing the services of an experienced, reputable contractor.

As buildings age, the life safety system ages with it - the older the structure, the more outdated the system. As life safety systems become outdated, they are increasingly susceptible to malfunctioning. Smoke detectors become more sensitive. Waterflow switches, which sense a sprinkler flow in the building, become erratic or worse, do not work at all. All of this poses a risk of serious danger to people and property. The audible and visual devices installed in buildings as little as five years ago are no longer compliant with present day codes. Older audible visual signals did not require the amount of power that today's code-compliant devices require. Furthermore, the number of devices has increased threefold due to changes in the code. Older systems simply do not have the circuit capacity to support all the audible visual signals required today.

What's more, a significant non-compliance issue in many older fire alarm systems is that existing electric/telephone closets and cabling often do not meet 2-hour fire ratings. It is to be noted that wiring in older systems may not be compatible with the newer systems.

### **Evaluating the Facility For An Upgrade or A New System**

Prior to initiating a fire alarm system upgrade, an evaluation of the existing system must be undertaken. This preliminary work is performed by a fire protection engineer or a design/build fire alarm contractor. Upon evaluating the system, the engineer or contractor will address two very

important questions. First, is an upgraded system most appropriate for the facility or should an entirely new system be installed? Secondly, what is the most beneficial approach to upgrading the building's life safety/fire alarm system in order to minimize disruption to the facility's daily operations?

If building management hires a fire protection engineer to evaluate the system, the engineer will typically provide design documents, and manage the process for selecting the most qualified system installer. In those instances in which a design/build fire alarm contractor is hired to evaluate the system, it is very important that the firm have extensive experience in providing design/build services for buildings of a construction type and occupancy use similar to the building in question.

#### A New Fire Alarm System

Once the need to upgrade the existing system is acknowledged, the first step is to determine a systematic approach for the retrofit. The most common approach to updating a system is to replace the system in its entirety and decommission the old system. This approach tends to be the more costly option. It requires the installation of a complete parallel system that must be fully operational and tested prior to disengaging and removing the old system. In some cases, this is the only practical solution due to the age and condition of the system.

#### The Practicality Of A Phased Upgrade

The other and sometimes more practical approach is to replace the system in phases, spreading the cost over a number of years. If cost is a factor in determining which type of upgrade is most suitable, keep in mind that major tenant build-outs can be a great opportunity to incorporate the fire alarm retrofit costs into the tenant construction project. Under these circumstances, however, it is critical to separate the fire alarm work from the electrical work to ensure the quality and consistency of the installation and a seamless tie-in to the base building fire alarm system.

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