

## Considerations for Fire Department Responses to Strip Mall and Shopping Center Complexes.

Fire department responses to incidents occurring at Strip Mall and Shopping Center facilities can present many challenges to firefighters. Issues such as site access, “Flex-Space” construction, fire protection systems, along with inadequate or incorrect business contacts can often cause operational delays and create firefighter safety concerns.

### Site Access

Road access into shopping complexes is the first challenge firefighter’s face.

Development and construction ordinances often limit access to these facilities to control traffic flow and congestion.



Screening materials such as shrubbery and other landscaping can hamper the Fire Officers ability to see the building and make a quick size-up

These limits often require fire apparatus to drive past the occupancy to in order to access the property.

Requirements for the installation of site screening materials (such as plants, trees, shrubbery and fencing) along the building perimeter for aesthetic

reasons and beautification of the property can also hamper the ability of the Company Officer to perform a complete size-up of the building.

Both of these issues require firefighters to establish landmarks such as signs, trees and other objects when driving apparatus in order to anticipate when and where to turn their apparatus in order to safely access the property and allow for the Company Officer to conduct a thorough size up.

## Flex-Space

Shopping complex structures are often built as “Flex-Space” meaning the building is built in a generic manner where practically any type of business can rent and occupy the space. Buildings are often built with multiple entrances and exits in order to accommodate the varying exiting requirements of different occupancies.

Multiple doors needed or required for an Assembly occupancy may not be needed or required for a Business occupancy. In the latter case, doors not needed or required may be locked, blocked or removed.

Another characteristic of Flex-Space structures is for demising walls to be installed to separate one-occupancy

from another. These walls are non-load bearing walls (and non-fire rated depending upon the Building Code Occupancy Classification for the business type) and can be erected, breached or removed depending upon how much space potential tenants need in order to operate their business.

Fire operations in these spaces can possibly cause firefighter confusion, disorientation and create problems with ingress and egress from the structure. Where an aisle, door or wall may be this week, next week the layout may be totally different. Pre-Occupancy and Periodic Fire Inspections along with Pre-Incident planning must be conducted in order to keep up with continually changing floor plans of these structures.



This complex is built on a “Flex-Space” concept.

The vacant end space on this building (left) is separated from the pizza restaurant by an unfinished non-load bearing metal stud wall (right).



## Fire Protection Systems

The installation of fire protection systems are required by the Fire Code based upon the complexes size, number of floors and occupant loads. Numerous fire protection systems including; fire alarm, automatic fire-extinguishing systems and fire sprinkler systems can be installed throughout the entire complex.



This sprinkler riser covers six different tenant spaces located on one side of the complex.

If a sprinkler head were to activate firefighters would have to check each business in order to locate the flow.

business having to be checked by firefighters for fire, smoke or water flow.

The areas of the building protected by each system can often be difficult to determine. Fire alarm and sprinkler system zones can often cover multiple tenant

spaces creating problems when attempting to locate alarms for water flow or detector activation. This basically results in each

Fire Alarm Detection devices installed with point identification that gives the exact location of the device on the alarm panel can solve many of these issues. While this solution will take care of most fire alarm detector problems, sprinkler water flow activation alarms can still be issues. The normal installation of water flow switches is on the main riser above the sprinkler valve. In this configuration when water flows the switch transmits an alarm signal to the alarm panel which often does not delineate where the flow may be. A solution to this problem is to install additional flow switches with Point ID on cross-mains or branch-line locations in order to narrow down the area

of sprinkler flow (This may or may not be possible depending upon the systems design and layout).

### **Fire Hydrant, Sprinkler Valves and FDC Locations**

The location of fire hydrants, sprinkler valves and fire department connections (FDCs) can also be headaches for firefighters attempting to locate and connect to these devices. Often these devices are considered non-aesthetically pleasing and hidden, blocked or placed in areas out of the line of sight. In other cases hydrants, valves and FDCs are placed in the parking lot and are blocked by crash protection or access is obstructed by parked vehicles.

In both of these cases the Fire Code requires a clear area of three-feet in all directions around these devices in order to provide access. The Code also allows for the installation of Fire Lanes complete with pavement markings and No Parking signs for the enforcement of no parking restrictions.

As to the locations of these devices, pre-planning must be conducted in order for firefighters to know the locations of these devices for quick deployment and establishment of water supplies for fire operations.



The line of site to the Fire Department Connection on this building is impeded by shrubbery. A "FDC" sign has been placed on the building to indicate the location.

Note the Fire lane and No Parking Sign installed to enforce "No Parking" in front of the fire hydrant.

## Business and Property Contacts

With present economic conditions businesses and shopping centers can come and rapidly go. Firefighters often have problems with gaining access to businesses or contacting business or property contacts during false alarms and other incidents. This holds especially true after normal business hours or on holidays when businesses are closed. Even with routine conduction of periodic fire inspections there are still times when business contacts are not correct.

A solution to inadequate or incorrect occupancy contacts is to require Pre-Occupancy Inspections in conjunction with Zoning and Business License requirements. The implementation of local ordinances requiring pre-occupancy inspections can ensure that any business opening in a shopping complex is Code compliant prior to opening and current contact information can be collected. In order for this program to be successful, the inspection process should be required to be completed prior to having utilities such as water, sewer and electrical power turned on to the space.

Problems with gaining access to businesses during holidays or non-business hours can be rectified by instituting ordinances requiring key vaults to be installed on the exterior of buildings. However, for this requirement to be effective business keys must be consistently inspected for accuracy during pre-incident surveys and/or periodic and pre-occupancy fire inspections.



An exterior key vault has been installed beside a fire protection equipment room door to provide keys to firefighters for the facility.

## Conclusion

Incident responses to strip malls and shopping complexes are a common every day occurrence for fire departments throughout the country. Construction features along with changing occupancy types and other hazards associated with these types of

facilities can pose a great risk to firefighters during these incidents. Only through the diligent completion of pre-incident planning, pre-occupancy and periodic fire Inspections will the fire department be prepared to implement incident strategies and tactics to safely mitigate incidents occurring at these complexes.

Mark A. Brown

October 15, 2008