Department of Commerce & Insurance | State Fire Marshal's Office

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Codes Review Newsletter
June 2021

Sevierville Primary School Fire Success Story

At approximately noon on Friday, April 23rd, a fire broke out in the laundry room of Sevierville Primary School in Sevierville, TN. A sprinkler head in the laundry room activated, extinguishing the fire immediately and preventing the spread of the fire to the rest of the school.

The fire started due to a chemical reaction within a pile of oily rags that were placed near an electrical dryer. Under certain conditions, combustible materials can ignite on their own due to their temperature, moisture level and chemical makeup. These particular rags were used to clean kitchen frying equipment.

Due to the presence of a commercial fire sprinkler in the laundry room, which was required by building codes, this fire resulted in minimum damage to the school. The principal and staff at the school responded immediately to the fire alarm, evacuating the school in one minute and thirty seconds. No injuries were reported in the incident.

This is yet another case where codes requirements helped reduce the cost and impact of fire in our schools.

Spray applied fire blocking vs. fire stopping

by: Jeremy Tipton, Codes Supervisor

When conduit, piping, cables, etc., penetrate fire-rated walls, floors or roofs, the building and fire codes require the opening to be protected with special products called firestopping systems. This ensures that a fire does not spread across fire barriers.

Unfortunately, there are products that are commonly mistaken for firestopping. Firestopping systems must pass ASTM E 814 or UL 1479. These determine the performance of a firestop system with respect to exposure to a standard time-temperature fire test.

Some common products found being improperly used for firestopping are Great Stuff™ Fireblock Insulating Foam Sealant or 3M™ Fire Block FB 136. While these products have passed several ASTM and UL tests, they have not been tested to ASTM E 814 or UL 1479, so they can't be used for through penetrations of fire-rated assemblies. They can be used as fireblocking in accordance with the product instructions. Click here for an article about the difference between firestopping and fireblocking.

We don't want to ask contractors to spend time removing material from an improper firestopping installation, so it is critical to read the fine print of the product being used. For instance, the Material Data Sheet for 3M™ Fire Block Foam FB-Foam states, "To be used as a fireblock and/or draftstop in Type V and other non-rated construction only (not for use as a commercial firestop)."

Employee Spotlight: George Smith, Fire and Building Codes Inspector Manager

This month we are highlighting George Smith, Codes Enforcement Section Fire and Building Codes Inspector Manager. George transferred to the State Fire Marshal's Office from the Tennessee Department of Corrections in 2005 after twenty years in security and fire safety positions in Bledsoe County.

George has held positions in our office ranging from Fire Inspector to Fire Inspector Supervisor. He was promoted to Fire and Building Code Inspector Manager in early 2020 after the retirement of Fred Garbler.

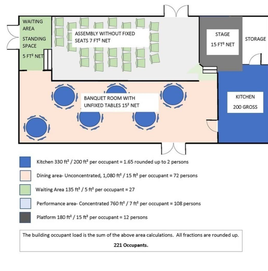
George is an avid boater and enjoys spending time on the Tennessee River with his family and friends in East Tennessee. He also enjoys working with his fellow team members and providing great service to the citizens of Tennessee.

Codes Corner: Occupancy Load

by: Philip Cameron, Plans Examiner Manager

Ensuring that everyone can quickly and safely get out of a building in an emergency relies on its egress system. Means of egress components, such as the required number of exits and widths for stairways and corridors, are established by a building's occupant load. Occupant load is not the number of persons intended to occupy a building; it is a calculation based on the use of a space. It is also a factor in determining if a sprinkler system or fire alarm is required.

The International Building Code (IBC) assigns load factors (gross or net) given the amount of square footage per person. A gross load factor includes the entire floor area, while a net load factor does not count fixed furnishings or unoccupied accessory areas like toilet rooms, corridors or closets. Calculation is made by dividing a space's square footage by its appropriate load factor. The sum of all areas is the building's occupant load.



It is always the use of a space that determines the load factor, even within a single occupancy classification. A high school might have classrooms calculated at 20 net ft² per person, vocational rooms at 50 net and an exercise room at 50 gross. Assembly rooms may have a variety of configurations. Assembly areas that have fixed seating are simply calculated by the number of seats provided. Where loose tables surrounded by chairs are used, the use may be considered unconcentrated, having a load factor of 15 net. Areas set up with loose chairs only is considered concentrated and is assigned a load factor of 7 net. Standing room is calculated using a load factor of 5 net.

When there will be more than one use for a room or space, the load factor for the most dense use of a space should be used to determine means of egress elements and critical life safety systems. Occupant load factors are contained in IBC Table 1004.1.2.

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