

From a “Slightly Different Perspective”

Simply put, a fire needs three things, fuel, heat and oxygen. If you take away any one of those three things a fire can't sustain itself. How does this apply to the requirements of the building code?

In this article I want to focus on Fire Stopping – sometimes overlooked during construction or renovations. The code requires fire stopping to be installed in vertical concealed spaces in interior and exterior walls to separate them from one another and from horizontal concealed spaces etc etc. We have all read 9.10.16 and 3.1.11., but what does it mean in a fire situation. Fire needs a path of travel and loves nothing better than combustible concealed spaces which are connected to other concealed spaces that contain more fuel and more oxygen. Fire doesn't just lazily find its way through un-stopped combustible spaces. It will be drawn through very rapidly looking for fuel and oxygen, propelled by the pressure build-up caused by rapid heat increase in the area of origin. Remember the formula $PV=NRT$ from High School Physics, which simply stated means that when you increase the temperature of a gas the pressure increases.

I witnessed the aftermath of a fire which happened within a residential suite on the second floor of a three storey apartment building. The fire hall was just around the corner which allowed for a rapid response time. When the firefighters arrived the flames were already showing at the eaves of the penthouse two floors up. How did this happen so quickly? The stacked bathtubs in the bathrooms of the suites on each floor level had dropped ceilings to accommodate the plumbing traps. The fire within the wall space simply bypassed the bottom and top wall plates at each floor level by way of the dropped ceiling spaces simply because the dropped ceilings were not fire stopped. At the top wall plate at ceiling level of the penthouse a considerably oversized hole had been cut through the plates to allow the passage of the plumbing vent pipe. This permitted the fire to travel within connected concealed spaces both vertical and horizontal up two floor levels and out the eaves within a matter of minutes. The firefighters said they were looking and listening for fires within wall and ceiling spaces trying to find it. The bottom line was considerable fire damage spread over three floor levels, which could and should have been contained within the one suite. (Unfortunately this situation repeats itself in many older buildings where little or no attention was paid to fire stopping.)

It was discovered that considerably oversized holes had been cut throughout the framing to accommodate plumbing, electrical and heating components, often with a chainsaw. Quick and efficient for the sub-trades, but with severe consequences in a fire situation. The practical application here is that a fire can't sustain itself without oxygen. Fire within a concealed space that is properly fire stopped very quickly runs out of oxygen and a continued and unfettered path of travel. Poorly installed or no fire stopping allows for rapid fire spread through concealed spaces. The term “Good Enough” simply doesn't cut it when it comes to properly installed, tight fitting fire stopping. Fortunately, in recent years much more attention is being paid to fire stopping, and this will reap huge dividends as some of these newer buildings are involved in fire situations.

From a “slightly different perspective” I can't stress strongly enough the importance of properly installed fire stopping.

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