

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Part IV: Fire Response to Modular Construction

Learning objective: The student shall be able to explain two unique considerations that a firefighter should be aware of when fighting a fire in a modular building.

Modular buildings have two unique features that may present unforeseen risks to firefighters. You should be aware of and alert to these differences—note the modular buildings in your community during your inspections and prefire planning.

First, there may be larger than expected concealed void spaces between each of the modules of the building. In multistory modular buildings, there is typically a void, or interstitial, space between each story and concealed cavities in the walls where two modules fit together. All of these concealed voids are larger than those found in most buildings constructed using traditional construction techniques, and they have the same potential for spreading fire inherent to all concealed spaces. Because of their larger size, they will have both more fuel available for a fire to burn, and more oxygen available to support combustion. This condition is not unique to modular construction—any structure where trusses are present has void spaces that are larger than found in structures where dimensional lumber is used to support floors, ceilings, and other surfaces.

Second, modular buildings are constructed using adhesives instead of nails or screws to attach drywall to the ceiling and wall studs. A fire in the concealed space behind the wall or above the ceiling will burn this adhesive, causing it to lose its ability to support the drywall or sheathing. If this happens, the ceiling could collapse progressively into the room. A collapse by itself could injure or trap a firefighter operating in the room; it also could result in a very rapid flashover condition.

In addition to the possibility of adhesive failure due to fire behind the wall or ceiling, there is a concern that the adhesives could fail as a result of heat conducted through the drywall. Results of small-scale testing **suggest** that the adhesive is protected from the fire while the drywall is sound. However, this test (UL-1715) was not intended to evaluate an adhesive's resistance to heat transmitted through drywall, and the results are not directly applicable to a room fire. In the absence of reliable test results, it is recommended that firefighters consider that the adhesive could fail earlier during a fire than nails or screws used to attach drywall to the framing, and that the drywall could detach from the wall.



Photo courtesy
Acushnet Fire Department, Massachusetts.

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