

X-RATED



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Sorry, this is not a movie review. X-rated is a description of drywall used in the construction of your building. It's important. It could save your life.

In all buildings, there are walls, ceilings, and floors designed and constructed to impede the passage of smoke and fire. They are called "rated" assemblies. They are classified by the length of time, in hours, they resist the passage of fire and heat that destroys structural elements and allows occupants to escape a burning building.

A typical condominium building with multiple units has, at a minimum, rated walls between units. Often the party wall is constructed of concrete block. A standard build with wood frame, are layers of gypsum drywall. Here it comes – labeled Type X, 5/8" fire rated. Depending on the number of layers installed, it provides one or more hours of protection. These rated separation walls must extend from the lowest level, including the basement, to the underside of the roof. Other areas requiring fire separation are between garages, utility rooms or trash rooms and residential living space. If your garage is beneath the building, at grade like many shore buildings, the ceiling/floor assembly is rated as well.

In multi-story buildings, it gets more complicated. Floor/ceilings between units are rated. Stair towers are rated, usually at a higher hour than party walls, because they are so crucial for occupant escape. Elevator shafts are too. Stairs and shafts are often constructed of a concrete block because a block can easily have a 2-hour or higher rating. Vertical utility shafts carrying

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water, electric, gas, and HVAC ducts between floors have rated walls as well. The building code specifies the hour rating required for the different configurations and types of separations. The code also allows lower ratings in many instances if the building is fully sprinklered.

As crucial as allowing time for occupants to escape, rated walls and ceilings also protect structural elements enabling them to carry the building loads for some time before failure. Steel loses considerable strength in a fire and

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must be sprayed with protective material or, as we often see in condominiums, encased in Type X gypsum. Trusses commonly used for floor or roof structures are made from light and quickly burned small wood sections. Type X is often the fireproofing.

How are ratings established and defined for construction? Independent testing organizations, such as Underwriters Laboratory, test wall, floor, and ceiling assemblies. Each assembly is assigned a rating and its materials and construction described in meticulous detail. For the assembly to be rated, it will include a layer of material, its description, method

of assembly, material size location, the spacing of fasteners, treatment of joints, and their location. These listed in order of assembly to be rated. If you have access to your building construction documents, you will find pages of wall sections with fire-rating and assembly numbers identified by the architect.

Penetrations in rated walls must be rated as well. If there is an interior hallway to your unit, the wall between the hall and your unit is rated. The door must be rated too. The edge of the door and the floor jamb should have a label showing their rating. Entries are usually allowed to have a lower rating than the wall; for example, a 3/4-hour door in a 1-hour rated wall. Electric outlets in rated walls have unique rules and may require gaskets or other means to main-

tain the wall rating. When you need access to the interior of a wall or ceiling cavity to operate a valve or inspect a utility component, it requires a special fire-rated panel.

As an owner or manager, what is essential to know?

Identify the location of the fire-rated wall, which for many simple buildings, is easy. For high rises, you will need building plans. An engineer or architect can help if documents are not available.

Have a policy that any contractor must fire stop any penetrations they make in installing utilities or making repairs. Often unseen are the holes in attic fire and smoke separations made by communications and cable installers.

Advise owners that any modification to a rated wall or door puts them in danger, and their neighbors as well. Establish a policy to inspect owner modifications. Even something as simple as putting a screw in a fire-rated door to hang a holiday decoration voids the door's fire rating. Painting over the rated label is as good as having no label at all.

Fire-rated assemblies have proven to save lives and significantly limit fire damage. Your knowledge of why and where they are located and how to keep them intact could avert a catastrophe. ■

Robert N. Roop is a Professional Engineer with over 45 years of experience in providing engineering services. He is responsible for the process and execution of all engineering projects at Lockatong Engineering. The firm's focus is comprehensive investigations and design of buildings and associated property.

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