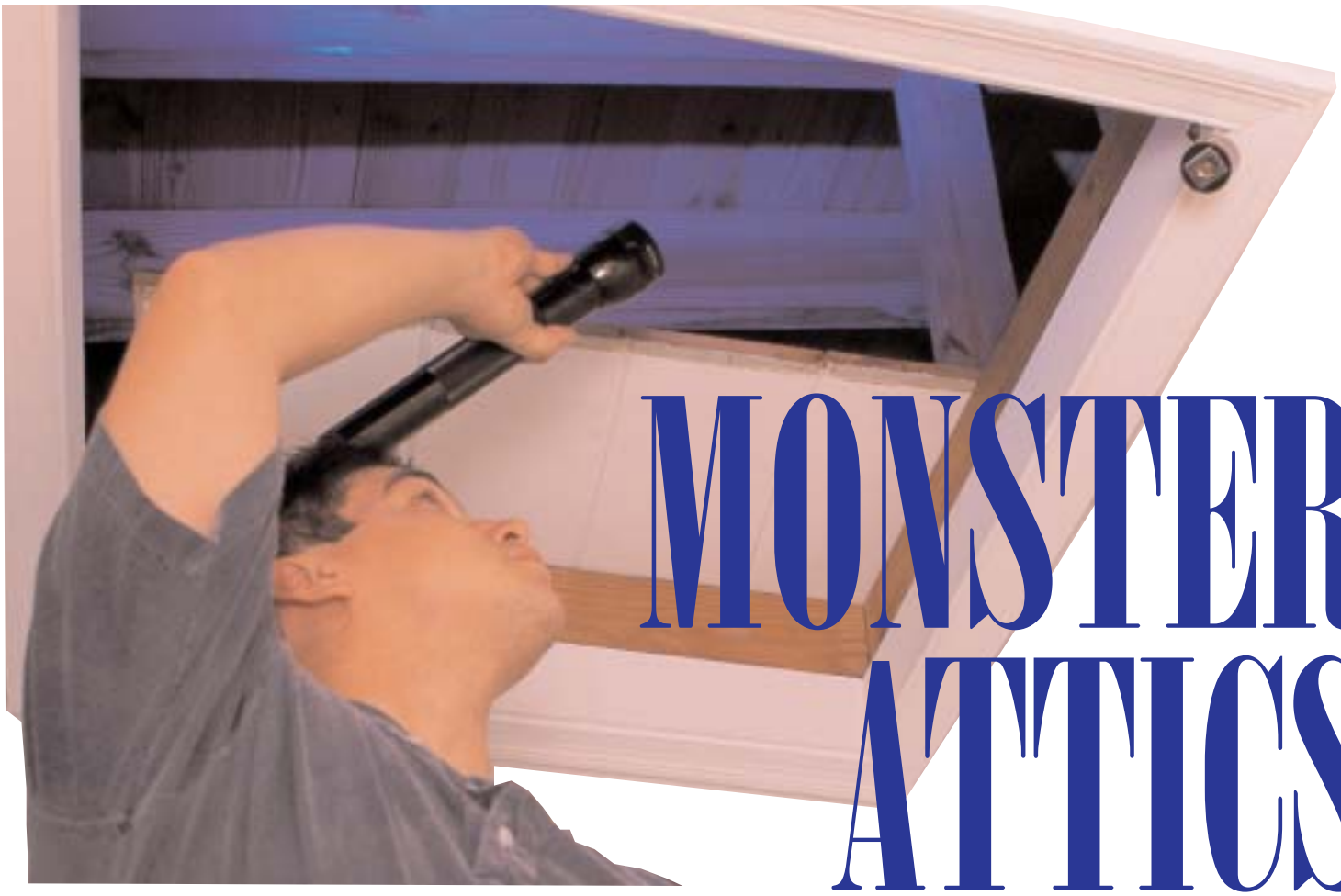

MONSTER ATTICS

Dealing With Attic Falls

by Jim. W. Sealy, FAIA

FOR THOSE OF YOU who have not been following the ICC code drafting process, you may be in for a surprise when you discover that the *International Residential Code*® has taken a major step in improving life safety by the way it addresses the construction of attics. In the past, a lot has been written about injuries and their associated costs, but nothing has been written about an occurrence which is becoming more and more commonplace: falls in and from attics in residential construction. A rash of these incidents began several years ago when home builders started the now-rampant trend of building the "Monster House."

I won't reveal my personal opinions of the aesthetics of these monsters, or the reasoning behind the construction and sale of these great behemoths, but in some instances these homes have brought about great pain and suffering rather than the pride of home ownership. I have investigated a number of these falls and in all but one, the root of the problem was mechanical and plumbing appliances being installed in the attic and having to access them for servicing, replacement etc. However, the bottom-line issue which created the problem is the "Monster House" with those "Monster Attics."

The problem began when the baby boomers initiated the trend of building a house that was bigger than their neighbor's. Bigger meant a house of more square footage and one that would literally blot out the sun and place the neighbor's house in permanent shade. Only height limitations imposed by zoning ordinances have prevented some young entrepreneurs from building a house of unlimited height just for the sake of being the first to do it. Not only have living spaces been stretched to the point of gargantuan proportions, the attics have followed suit and some of these attics are now larger and more spacious than any house my parents ever owned or lived in. Not to be critical of conspicuous consumption, but I fail to see a valid reason to build these huge volumes, other than to increase the visual presence of one's domicile. In a feeble attempt to offer explanations, some builders claim that these large attics are meant to contain those elements which have traditionally claimed valuable, saleable floor space; i.e. air conditioning units and water heaters. I hate to keep mentioning my parents but they did not own a house which had "rooms" that were devoted exclusively to the housing of mechanical and plumbing equipment until the mid 1970s (and even then they were noted on the floor plans as "equipment closets").

As houses have grown in size, so has the size and number of the equipment and the floor space they consume. What better use for the monster attic than to put all of that stuff up there! So what's the problem? The problem is two-fold in that the attics have not been planned and have been poorly constructed! Back when we stored all of the Christmas ornaments in the attic, we knew we had to "be careful" when we went up there, because attics were nothing more than a glorified crawl space and you literally had to crawl from ceiling joist to ceiling joist in order to keep from losing your grip and falling through the ceiling. The monster attic not only permits a person to walk upright, you can walk upright through more than one half of the total space. Here again, that should not be bad, except that they are constructed to be spaces that are to be used for servicing equipment (frequently by trained service personnel only) and they are not intended for general use by the home owner. What's wrong with that picture? Try telling the average home owner they should not go into their own

attic, or that they must call a maintenance service every time a filter for the air conditioner needs to be checked. That is not going to happen. Neither is that same home owner going to ignore all of that valuable storage space and, in less than two weeks after moving in, the attic looks like Fibber McGee's closet. Still, that should not present a problem, except for one thing: the building codes have never made provisions for residential attics to be constructed in such a manner that they are safe to walk in.

Why? The answer is simple: attics were never intended for human occupancy. Originally, they were just spaces that became good for storage, if you could get in them. Not only can one get into today's attics, a person can stand upright and extend their arms over their head, but they can't safely walk about.

Traditionally, the codes have addressed only access into the attic, and accessing and servicing any equipment which may be placed there. Unfortunately, the provisions for servicing equipment was written only in the mechanical and plumbing codes and not in the building code. Why is that a problem? Answer: in general, the mechanical and plumbing craftsmen are not qualified to perform construction which is usually devoted to framing contractors and carpenters. There is also the problem of municipal inspectors (some, not all) who are more concerned with the proper installation of the equipment than they are with accessing and working in the space, and not with walking safely once a person is in the attic. Another problem has been that the method of getting in the attic, the passageway for walking, and the working platforms that are frequently not installed when the mechanical and plumbing inspectors make their inspections and they check only the installation and operation of the equipment. To compound that problem, the inspectors who are there for the overall final inspection sometimes do not go into the attic and rely on the fact that the mechanical and plumbing work has already being green-tagged. That is not a criticism of the inspector's work; that is just the way it is.

One of the arguments presented by defendants in lawsuits has been "the passageway is not a floor and it is only there so somebody can get to the appliance." Check your dictionary for the definition of passageway. My Webster says that a passageway is "a way of passing into, through, or out of something, as within a building or between buildings; a corridor, hall, alley, catwalk or the like." That says to me that if you have a passageway in an attic it was meant to be walked upon and if you can walk on it, the passageway must be designed and constructed just like any other floor.

Bingo! The new *International Residential Code*, in Chapter 5, states: "R501.1 Application. The provisions of this chapter shall control the design and construction of the floors of all buildings including floors of attic spaces used to house mechanical and/or plumbing fixtures and equipment." In Chapter 13 it states: "The passageway shall have continuous solid flooring, in accordance with Chapter 5, not less than 24 inches wide."

That should do the trick, but it also means that inspectors are going to have to be aware of these provisions and understand that they are going to have to check the attic for more than just the correct installation of the fixtures and equipment.

I had originally proposed that the *International Residential Code* contain more language pertaining to attic construction and equipment. It passed the drafting committee process, but was taken out by an ICC committee that felt it was not enforceable. Therefore, I'll just tell you about some of the problems we have encountered when we do attic inspections, and also give you some suggestions on how to reduce or completely eliminate the attic fall.

The mechanical and plumbing codes require the passageway to be "continuous" and the service space to be "level." I am not going to give you dictionary definitions of those words, but common sense should tell you that if piping, conduit, wiring, beams, joists or blocking, etc. interrupts the passageway or service space, those elements are not continuous and not level. To picture this in your mind, framers use members that they refer to as "strong backs" to align ceiling joists. If the passageway or the service space is interrupted by a strong back, or has plumbing or gas piping running across the floor, their continuity has been interrupted and they are no longer continuous or level, and that is a violation of the code.

Now I know that a little old gas line may not seem like such a big deal, but if a service person is making his or her way from the access point to the equipment, and if that person happens to be carrying a large tool box, they can easily trip over the pipe (strong back, etc.) and suffer a serious fall. I know of two such cases where one resulted in the person pitching forward, through the gypsum board ceiling, and they now are permanently disabled. Another lost his balance when he stepped on a pipe, fell backwards through the access opening to the floor nine feet below, and died.

I had proposed language for the *International Residential Code* which would have prevented the installation of such things that create passageways and service spaces which are not continuous and level, even if the passageway must be constructed above any obstruction. Common sense tells us that these elements must be continuous and level, and that same common sense is required when the contractor installs anything which could impact the passageway and the service space. Common sense is also required when the inspector makes his or her site visits.

Think about it: if you have to step over something in order to traverse the passageway, it is not continuous and that is a violation of the code. If there is something which interrupts the service space, it is not level and that is a violation of the code. Both of those violations can cause the attic space to become a dangerous and hazardous condition that can result in something which may be called a "Monster Attic," which can change a person's life forever.

About the Author

Jim. W. Sealy, FAIA, NCARB is an architect who consults with other design professionals, building owners and managers, developers, jurisdictions and attorneys in matters dealing with the built environment. His expertise ranges from zoning and conceptual designs to forensic architecture. He has been participating in the writing of building codes and standards since the early 1970s, and most recently served ICC as a member of the drafting committees of the International Performance Code® *and* International Residential Code.

Sealy