

SAFETY COMPARISON

Automatic Doors & Manual Doors

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The purpose of this article is to provide a basic comparison of the differences in the safe function and usage of automatic and manually operated doors of all kinds. More of Mike Panish's technical articles pertaining to door systems and operation are available at www.ConstructionWitness.com.

The most basic issue in determining whether a door is considered to be functioning safely has to do with the inherent design that was created by the manufacturer of every specific door system. Automated and semi-automatic doors of many types are ubiquitous throughout the world.

Most people come in contact with some form of self-powered doorways on a daily basis. Untrained usage of most door systems occurs without much conscious thought on the part of the user. The assumption upon encountering an opening with a door blocking your path is that it will either open by itself or you will have to push or pull upon the door handle to gain passage to the area you wish to access. Interactions with doors of all types are common to most people, and basic quick evaluations of most doorways are generally instantly made by the user.

The first logical reaction when approaching a door is that I will need to enter the building by passing through the doorway. My expectation is that this doorway is either automated or non-automatic because I have seen this type of door in many other locations during my lifetime. I have a stored sub conscious memory based upon my experiences from previous encounters with doorways that certain characteristics of appearance have specific related motive possibilities.

Secondly, I can determine and expect how the door should react to my approach. If no automatic operations are detected when I am within a few feet of the door then I make the quick determination that the door will require my physical exertion to operate and move through it.

Once either of these two options is determined I, as the user, understand my obligations to gain access to the desired area.

VISUAL CUES INDICATE THE TYPE OF DOOR

Visual cues that usually indicate that a doorway is non automatic include door knobs, handles, or panic hardware devices. If there are directional labels such as PUSH or PULL on the door, that generally will increase the speed with which a user can determine the personal obligations for passage through the doorway. On the other hand, if the door opens automatically as I am approaching it, my stored knowledge of memory triggers retained past scenarios where I have successfully walked through an opening without ever having to have touched the doors to gain access.

In every situation, personal decisions based upon visual clues provided result in some form of interaction with the doorway that we must pass through.

Whether the doorway is automatic or manually motivated, we are all accustomed, in some degree, to expect certain parameters be met. Those parameters include the concepts that every doorway we use is generally in good repair and properly functioning. Most people using doors are not aware of the potential for personal injury from a malfunctioning doorway.

I am consistently retained as the door expert witness on many injury cases that are attributable to malfunctioning door systems of both the automated and manual type. Generally included in this roster of personal injury cases are claims for wrongful death that have been created by negative interactions with various types of door systems. However, many times door injury claims are the result of the user improperly interacting with a properly maintained and safely operating doorway.

AUTOMATIC DOOR INJURIES

Of the hundreds of door injury claims that I have provided expert opinions for, the majority of injuries have been directly attributed to and proven to be related to the improperly maintained condition of the door systems. The most prevalent reason for these injuries is the lack of regularly scheduled and competent preventative maintenance and the owner's negligent decision to not inspect the door. Injuries related to automatic door systems have usually been due to some form of disconnected sensory integration or improperly adjusted door controls. However, in approximately 10% of the personal injury cases related to automated doors, the users of these doorways have been completely responsible for their injuries. People have walked into fixed panels of revolving doors while carrying on conversations on their mobile phones. They have been unaware of their obligations to observe other users as they share the rotating compartments, or have been impatient to wait for their turn to use the door. I have witnessed, while observing surveillance video, elderly people falling in a "flinch" response or anticipated anxiety to a sliding door system that never made contact with them. Other users have improperly activated switches that operated adjacent doorways, and out of frustration, impatience, or lack of understanding, incorrectly pulled on doors that were meant to open in opposite directions leading to injuries that were solely the fault of the user and not an equipment defect of any kind.

AUTOMATIC DOORS or MANUAL DOORS – Which is safer?

It is very difficult to determine which kind of door is the safest. My observations as a door expert witness are that there are so many independent variables in each case that there are no trends or repeated specific causes that any definitive comparison can be made.

Door and door hardware manufacturers have their products evaluated by independent testing labs to assure that they meet or exceed minimum safety standards prior to providing them to the public. Independent testing labs abuse and torture these devices to the point of failure, and

generally will not endorse the products, or accept the design until the functions greatly exceed the minimum standards.

Given a specific set of requirements, product placement and the location of the door installation, certain door systems may offer an increased level of performance over another. However, in general, there has not been an application where either kind of door, automatic or manual cannot function interchangeably, appropriately and safely if kept in proper repair and maintained per the manufacturers requirements. If a doorway is compliant for function and meets the needs of industry standards for design, both manual and automatic doors are acceptable choices for usage by the general public. If either manual or automatic doorways are not properly maintained, then both of these options become potentially dangerous.

CONVENIENCE OF PASSAGE?

In the case of an opening where heavy or cumbersome objects are routinely moved through an opening, such as in a big box store environment, automated doors that are properly functioning may be a better choice. It is probable that the store would benefit from the lower rate of damage that would be created by collision of carts with a non automatic doorway, and the patrons may feel that shopping is easier if doors open for them without effort, if automatic.

CONVENIENCE IS NOT EQUIVALENT TO SAFE USAGE

When manual doorways are the only source of entry and exit, there has been no study of any validity that store patron traffic has been decreased as a result of the lack of automated door systems or lessened convenience. A manual doorway that is more difficult to use due to the lack of automation does not make it unsafe, if it is properly operating. So, there is no negligence on the part of the store management not choosing to install automatic doors in place of the existing properly operating manual door system. If a manual doorway is compliant to ADA, ANSI Standards, local codes, and life safety requirements, a building owner has met the requirements for normal standard of care.

MARKETING PROPAGANDA

I have observed that some manufacturer's organizations suggest that automated doors are preferred over manual doors. This is done solely in self-promotion of the organization. They are simply trying to increase the automatic door product placement in the door marketplace. It seems that the advertising is self-serving and is primarily in the interests of the organization membership who will directly benefit from increased sales of automated door systems, without generally showing any advantage when it comes to increased safe usage.

Trends in building practices have changed over the years, and older stores and buildings often do not include automated systems. They may contain the same sort of entry door systems that are non-automatic. An example would be many older hotels that have revolving doors used for the primary entrance to the lobby area. Some doors of this type are considered "period correct" to the building, and the owners have opted to maintain the original "feel" of the environment and

may be opposed to modernizing the opening with a fully automated doorway. That is not a sub-standard condition.

CASE EXAMPLES

I have been retained as door expert witness on many automatic and manual revolving door injury claims where users have sustained significant injuries. In most of these cases, the user interactions with the revolving doors would not have been any different whether they were fully automated or strictly manual revolving doors. Due to the specific conditions that were particular to these door systems, the types of injuries would not have been any less severe if the doors were automated and functioning with all of the modern safety systems installed or manually operated.

Automated swinging doors are still present in many locations throughout the country. These door types were among the first automated door systems to be placed in retail locations. The most noticeable difference in these door systems since original installation are the change in sensor design, type, and integration. Originally, many of these swinging doors relied upon pressure sensitive mats to motivate the operation of the door. Today, improperly functioning swing doors, even with the modern sensor packages, are responsible for many of the injuries on my current list of active cases across the country. In many locations, these doorways were originally equipped with a manual door closer of some kind. The desire to automate the opening was promoted as a safer and more convenient way for shoppers to enter and leave a store. While automation assists a shopper passing through an opening, an improperly functioning system is a significant detriment to a user and far more dangerous than any manually operated doorway.

In comparison, if the original manual door operator was in place, functioning correctly, and properly maintained, a shopper using the doorway in the exact same manner as with the defective automated operator, the manual door closer would provide more safety than an out of adjustment or malfunctioning automated door operator.

Malfunctioning manually operated swing doors have been responsible for severe ligament injuries and major contusions. Frequently, manual door closers that are out of adjustment or not maintained have created significant forces that have broken bones, torn Achilles tendons, and amputated fingers and toes. They have inflicted injuries that have resulted in several deaths.

Due to the variety of problems that are inherent to swing doors, many store locations have opted to replace them with sliding door systems that are fully automated. However, sliding doors that are not maintained correctly have been responsible for many wrongful death claims. Also, many common injuries sustained in automated sliding door systems include broken bones, blunt force trauma leading to blood clots and strokes, and crushing types of forces that have created significant head, neck, and back problems.

GARAGE DOORS, OVERHEAD DOORS, & GATES

Another major source of automatic and manual door injury claims arise from improperly maintained and functioning overhead garage doors and parking access gate systems. Both automated and manually operated systems have resulted in major injuries. In some cases the automated garage door operator was being used without any of the available safety features that the manufacturer designed into the system. In an effort to bypass the safety features and/or save the repair costs associated with the proper repairs, owners of homes, condos, and apartment buildings have become responsible for injuries and the death of their occupants due to poor decisions that were made about required maintenance and repair.

Commercial overhead door systems are also a major source for injuries in the workplace. In almost every case where maintenance has been deferred or the doorways are never checked, some component or combination of components fail, and that has ultimately resulted in a personal injury or wrongful death claim.

From my extensive involvement as a door contractor and automatic door expert for hundreds of door injury cases of all types, it is my current opinion that there is no absolute defining difference between automated and manual controlled door system safety issues.

- Both types of door systems need to be evaluated and maintained on a regular scheduled basis.
- When defective, users are equally exposed to potential harm in both types of door systems.
- Trade industry claims made to promote one product over another are generally without any merit and have not proven any safety advantage to the user of any type of doorway.
- The only real way to assure that every doorway is safe is to be aware of the door system as you are using it. Observe the functions of the doorway in advance of passing through it, and pay attention the entire time you are interacting with the door systems of every kind.

Michael Panish is the nation's leading expert for door injury and wrongful death claims. Mr. Panish has offices in California and New England and is available for nationwide inspection and testimony. He is retained by plaintiff, defense, door and sensor manufacturers, and door service providers. Mike is the only door expert that has over 35 years of working experience providing sales, service, fabrication, and installation for door systems in commercial, industrial, and residential buildings. He has been the retained expert on cases that involve automatic and manual door system injuries for retail, commercial, medical, penal, governmental, residential, cruise ships, automotive, and overhead door installed products. Mike Panish is a California licensed Door, Door Hardware, and Security Contractor. His staff offers immediate support for your case needs. His expert services are unparalleled and unbiased and he is the most dependable and accommodating expert in this field.