

FIRE SAFETY & FACILITY SECURITY



DEVIANT OLLAM

(HE/THEY)

ASSOCIATED LOCKSMITHS OF AMERICA #102347
INTERNATIONAL ASSOCIATION OF INVESTIGATIVE LOCKSMITHS #2468

SAFE AND VAULT TECHNICIANS OF AMERICA #SR26105
GSA SAFE AND VAULT TECHNICIAN AND INSPECTOR #42992
LIFE SAFETY NFPA & ADA CONSULTANT AND FIRE DOOR INSPECTOR #102347

HERE'S A COOL MOVIE PLOT IDEA



If you're a screenwriter or an author of thriller novels, this one's a freebie that you can use

FREE IDEA FOR SCRIPTWRITERS



[HTTPS://DEVIATING.NET](https://deviating.net)

Car chase, maybe some gunfire through rolled down windows It ends in a crash

FREE IDEA FOR SCRIPTWRITERS



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Our protagonist awakens in a hospital setting. Vague memories of the car wreck.

Unattended, but they know that people are going to be coming for them soon.

They gather themselves, quietly exit to the hallway.

FREE IDEA FOR SCRIPTWRITERS



[HTTPS://DEVIATING.NET](https://deviating.net)

Currently they're in a hospital gown.

There are people in this wing, but no one seems to be stationed outside their room. Does the hospital know they were being pursued? Maybe they're lucky and their guard is away on a brief break. They might be coming back from a vending machine in moments.

Our hero needs to not look like someone who belongs in a hospital bed

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They furtively move across the hall from their room and enter a linen storage area. They put on a set of hospital scrubs and grab a facemask. There's even a pair of white medical sneakers. Not exactly our protagonist's size, but beggars can't be choosers.

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Feeling as if they can walk with a bit more freedom of movement, even while others are in the hallway with them going from room to room.. our hero walks down a few corridors, looking for a way out. Overhead exit signage points them right and then left and ultimately to this door.

There's something distinctly odd about this door, in my view.

There's a person further down the hall in front of them

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There's a person 10 or 20 yards ahead of them, heading to the door. But then our protagonist notices that instead of merely pushing the touchbar on the door hardware...

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...the person presents a badge to the wall-mounted credential reader before exiting.

The door closes swiftly behind that employee, with our protagonist arriving at the door just as it settles back into place. Pushing on the touchbar does not release it; it remains locked.

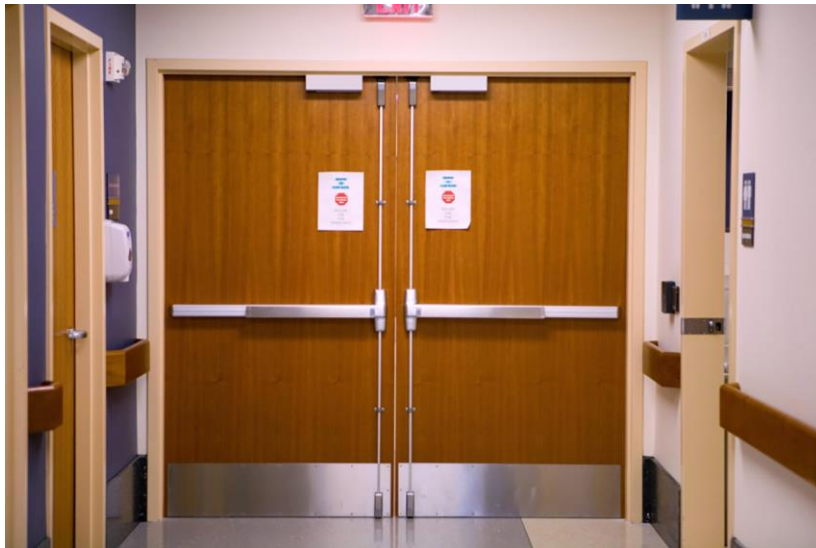
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When our hero ultimately arrives at the door (which has now already closed and re-locked) the signage on the door makes clear what some of you have already maybe noticed

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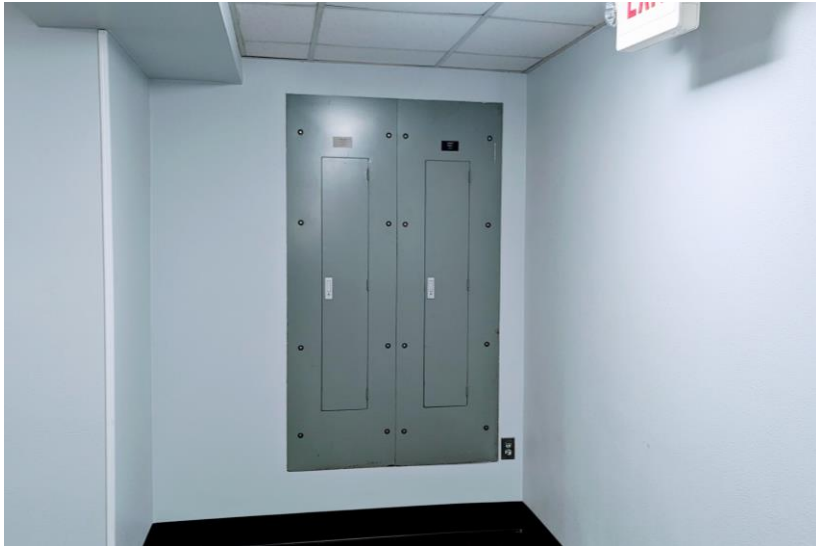
[HTTPS://DEVIATING.NET](https://deviating.net)

This is a mechanically-latching door but it ALSO is equipped with magnetic locks tied to the access control system. Without a badge, this door isn't opening, even though it's a designated exit. (This is an example of something known as "Controlled Egress" and only found in very specific places such as certain kinds of hospitals, rehab centers, and detention centers)

Our main character doesn't like standing here seemingly without an agenda. They want to get out... NOW.

So what do they do?

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Power failure is likely something that would cause the maglocks to deactivate. They look back down the hall for a wall-mounted breaker panel. No dice.

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The sign on the door to the side indicates a service closet. The door is locked, but our hero grabs a folder for containing patient charts.

The folder, made of a thick plastic, works as a door shim and they slip inside this small room

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No breaker panel in this small closet, either. But there's a mop and bucket.

They take the long mope handle, look up...

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...and BANG! they smash into the fire sprinkler head against the ceiling

Water starts to spurt and flow from the overhead pipe.

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Our protagonist quickly exits the closet, pulling it shut behind them, and...

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...and they enter this restroom directly across the hall. They make a brief show of using the sink to wash and dry their hands while some other staff member enters and uses one of the stalls.

In their head, our hero is simply counting to about 20 or 30 seconds. Then they exit back to the hallway...

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...just as they reach the door, strobes and sounders from the building's fire alarm start to go off.

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Our hero pushes against the egress bar and the door, with mag locks now deactivated, opens easily.

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As they proceed into a waiting room lobby area, the triage nurse has stood from their desk and is attempting to corral the various patients to the exit. Our hero grabs a coat that's draped over the nurse's chair and blends in with the various patients and now additional facility staff who are also discharging from that same doorway and walks directly outside.

Without looking back, they don the coat and proceed through the parking lot, feeling in the pockets for a car key fob.

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They press the panic button and hear the sound of a beeping horn off in the distance to one side. Casting their eyes that way, they can identify this as what appears to be the staff parking lot. They silence the alarm.

While employees and doctors and others are mustering at points of assembly and various section managers are doing headcounts, our hero walks through the staff lot, quietly pressing the unlock button sporadically and looking for which car's blinker lights flash.

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They enter the car, the ignition starts, and they quietly and calmly pull out of the lot...

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...and, like that. Poof. They're gone.

WHY DID THEY SMASH THE SPRINKLER HEAD?



WHY NOT A PULL STATION?



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Pull stations DO NOT HAVE TO unlock controlled egress doors in secure environments

WHY NOT A SMOKE DETECTOR?



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Smoke detector isn't a bad idea

But, again if this is a more secure environment, often it may take TWO OR MORE smoke detectors going off to trigger egress conditions

THIS IS JUST HOW MY BRAIN WORKS



Hi. I'M DEVIANT. I BREAK INTO THINGS.



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Normally I'm breaking INTO places, not out of them. But I have lots of knowledge like this.

IT'S SURPRISINGLY EASY TO BREAK INTO MANY PLACES



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In a lot of that footage (indeed, on a lot of my jobs overall) building code and fire code play a HUGE role in helping me slip into places.

We have plenty of other talks about that, however. And I can't give you a full breakdown of every entry technique we use. (I've done that in loads of other talks, not to mention a lot of you folk probably already know them!)

But what happens once you ARE inside somewhere and you get challenged or asked how you got in?

FIRE CODES HELP ME HERE



Building codes are written such that life safety is paramount. It is more important than controlling access.

Door hardware is built and installed with that priority in mind. Many of the techniques I showed in those previous examples generate responses like “oh my gosh, why did they install the hardware that way?! I would install it this other way...”

Those responses showcase an ignorance of fire code and building code regulations. Often, you **can't** install door hardware in ways that would be more “secure”

“EXCUSE ME... MAY I HELP YOU?”



“EXCUSE ME... MAY I HELP YOU?”



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Part of my job is also interacting with security guards and other staff who challenge me for being in secured areas. I've had to talk my way out of a number of situations because people were surprised to encounter me.

“EXCUSE ME... MAY I HELP YOU?”



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This is literally an employee calling his superiors because he didn't believe why my colleague and I were discovered in this factory building on a Sunday

FIRE CODES HELP ME HERE, TOO



HAVE A REASON TO BE THERE



“LOOK LIKE YOU BELONG THERE”



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“EXCUSE ME... MAY I HELP YOU?”



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“YEAH, I HAVE TO CHECK IN HERE”



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FIRE CODES AFFORD US FAKE PERSONAE



ROUTINE SERVICE & REGULATORY INSPECTION AS FAKE PERSONAE



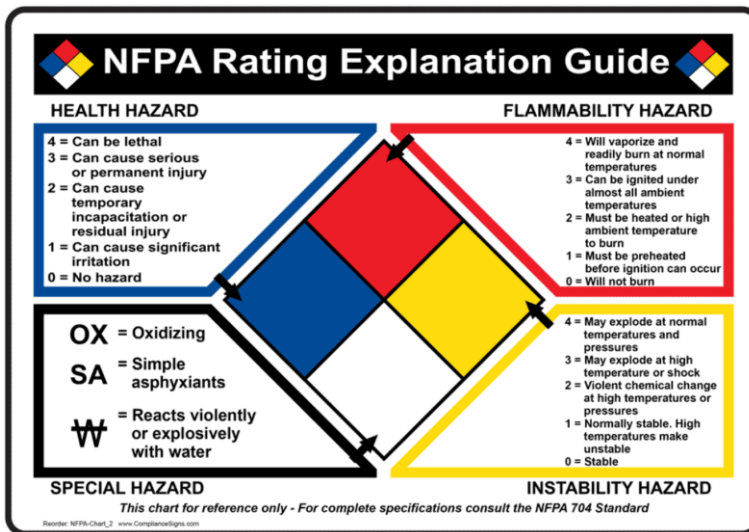
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NATIONAL FIRE PROTECTION ASSOCIATION



[HTTPS://DEVIATING.NET](https://deviating.net)

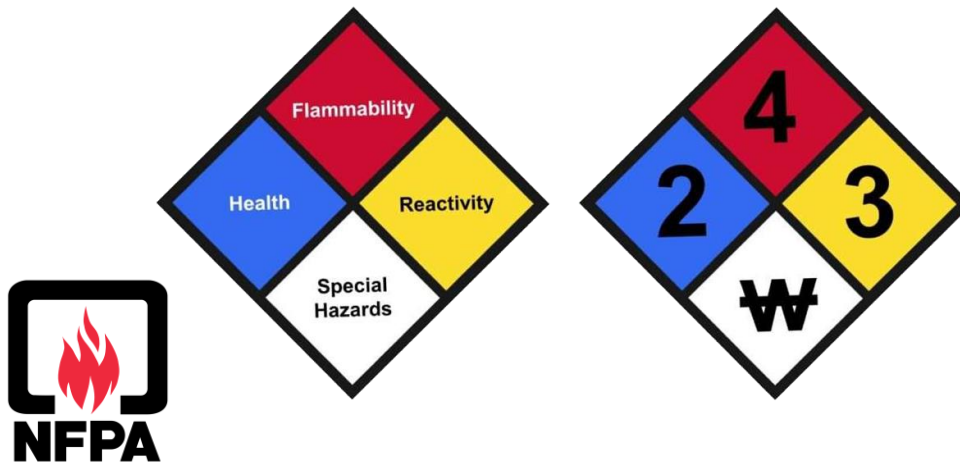
NATIONAL FIRE PROTECTION ASSOCIATION



[HTTPS://DEVIATING.NET](https://deviating.net)

Hazard Diamond

NATIONAL FIRE PROTECTION ASSOCIATION



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Hazard Diamond

NATIONAL FIRE PROTECTION ASSOCIATION



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<https://www.youtube.com/watch?v=kXSNA3cIYKs>

NATIONAL FIRE PROTECTION ASSOCIATION



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INTERNATIONAL CODE COUNCIL



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We speak of the "I-Codes"

THIS CAN BE DRY AND BORING BUT IT'S ALSO IMPORTANT AND FUN



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Knowing codes (or violating codes) can have major impacts for businesses... thousands if not hundreds of thousands in fines and other costs. People really do not want to play around with getting these things wrong.

For me, though, I just find this fun and interesting... not to mention useful at times!

LET'S TALK ABOUT NOT DYING IN FIRES

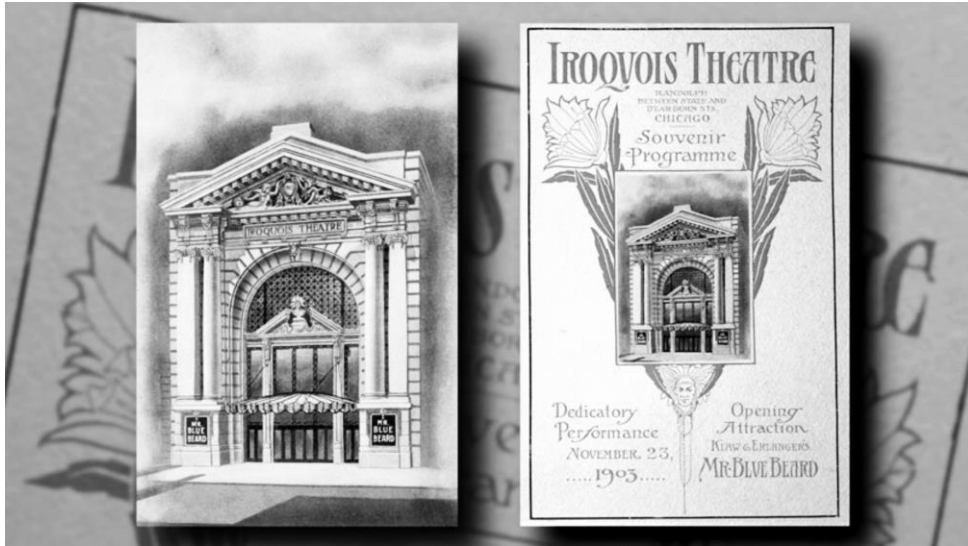


FIRES USED TO BE A LOT DEADLIER



[HTTPS://DEVIATING.NET](https://deviating.net)

FIRES USED TO BE A LOT DEADLIER



[HTTPS://DEVIATING.NET](https://deviating.net)

Iroquois Theatre Fire

December 30, 1903

In just 17 minutes... 602 deaths, 250 injuries

Not enough extinguishers (and no training), faulty fire curtain (and no training), ventilation hatches sealed.

Not enough exits, exits locked, and doors inoperable/hidden/decorative.

Horrible exterior fire escape. no sprinklers, alarms, telephones, or water connections.

No emergency lighting, no exit signs, never had fire drills.

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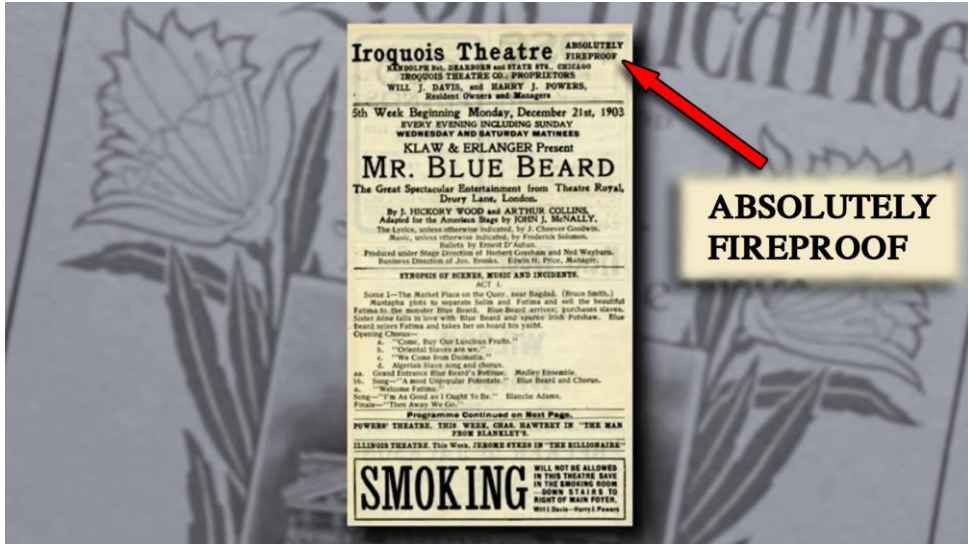
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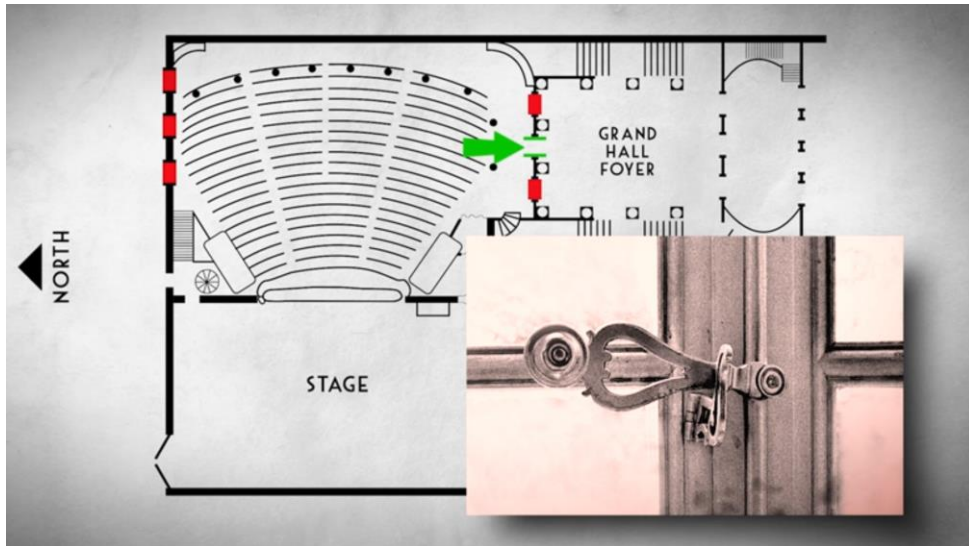
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Bascule-type latch on many doors (the ones that were real doors) unknown to many Americans

FIRES USED TO BE A LOT DEADLIER



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Iroquois Theatre Fire

December 30, 1903

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[HTTPS://DEVIATING.NET](https://deviating.net)

Lake View School fire

March 4, 1908

172 students, 2 teachers, and 1 rescuer (almost half of the children)

building had only two exits
front vestibule was a bottleneck
path to the rear door exit narrowed

FIRES USED TO BE A LOT DEADLIER



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Lake View School fire

March 4, 1908

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Triangle Shirtwaist Factory Fire

March 25, 1911

146 (mostly young women) perished

stairwells too narrow

only one fire exit (flimsy, led to back garden)

too few exits, and most kept locked (to deter unscheduled breaks)

Firefighters couldn't get water up that high (7 or 8 floors then, as today)

Firefighter ladders couldn't go high enough (7 or 8 floors even today w/105' ladder)

In the US most ladder trucks are 75 to 105 feet. There may be some specialty ladder trucks around that reach to 125 feet.

GRIEF LED TO DEVELOPMENT OF NEW HARDWARE

ARCHITECTURE xxxx

TRADE MARK
 REG. U. S.
 PAT. OFFICE
 MAR. 20, 1911

Von Duprin

Self-Releasing Fire Exit Latches

Specify and demand Von Duprin
 Self-Releasing Latches on your next school, school, hospital, department store or factory entrance or exit doors. Cost a little more, perhaps—but why take your life or the lives of others in your hands? You, yourself, or perhaps your family might be here at the crucial moment.

Thirty-three Designs
 Make no matter of choice in the Von Duprin line. We will make any design to suit your needs. Specify, send us a rough sketch of your fixture, and we will specify for you, recommend and inventory.

Facts Regarding Von Duprin Latches

1. Absolutely positive against fire flames.
2. Simple to operate.
3. Operates by automatic action.
4. Strong in withstood severe handling.
5. Maintenance is not required after a correct installation.
6. **Complete fixtures designed by architect or designer.**
7. Easy set on doors, opens easily and the door will always shut on its own.
8. Release by simple touch.
9. We make special fixtures for every special condition.
10. Made of solid steel.
11. Thousands of them have been used on schools, hospitals, department stores, factories, and other buildings.
12. Thousands of them have been used on schools, hospitals, department stores, factories, and other buildings.

Let us show you more than good points. Any hardware dealer can furnish them.

If your hardware man is not positive, write us direct or call on our branch office. For phone number see "Branches" below. For full pages of specifications and prices.

"Order with us in confidence!"

Ask for
VON DUPRIN
 Catalogue 12E.

VONNEGUT HARDWARE CO.
 DISTRIBUTERS

120-124 East Washington St., Indianapolis, Ind., U. S. A.



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Carl Prinzler

Manager of the Builders Hardware Department at the **Vonnegut Hardware Company**

Henry H. DuPont

architect and engineer neighbor

In 1965, Vonnegut Hardware Company was sold to Schlage (now Allegion)

GRIEF LED TO DEVELOPMENT OF NEW HARDWARE

ARCHITECTURE xxxx

TRADE MARK
 REG. U.S. PAT. OFFICE
 PAT. 1,000,000

Von Duprin

Self-Releasing Fire Exit Latches

Specify and demand Von Duprin
 Self-Releasing. Discuss with your next client's architect, electrician, hardware department, door or factory entrance or exit doors. Get a little more, perhaps, but why take your time considering the consequences on time, cost, yourself, or perhaps your family might be here at the crucial moment.

Thirty-three Designs
 Make no matter of choice in the Von Duprin line. We have the right one for you. Specify, and we will specify for you, rationally and correctly.

When in doubt regarding the device you should specify, send us a rough sketch of your device, and we will specify for you, rationally and correctly.

Facts Regarding Von Duprin Devices

1. Absolutely positive against fire flames.
2. Simple to operate.
3. Operates in emergency.
4. Strong in withstood service handling.
5. Maintenance is not required after a normal life span.
6. **Patent Rights Reserved by inventor or design.**
7. Easy set on hand, simple set up, and the door will always function as built to provide a safe exit to your premises.
8. Return to original position.
9. We make special devices for special conditions.
10. Made of steel or brass.
11. Finished of steel has the same appearance, strength, appearance, and service life as brass.
12. Thousands of these devices in use in schools, hospitals, churches, and other public buildings.

Let us show you more good points. Any hardware dealer can furnish them.

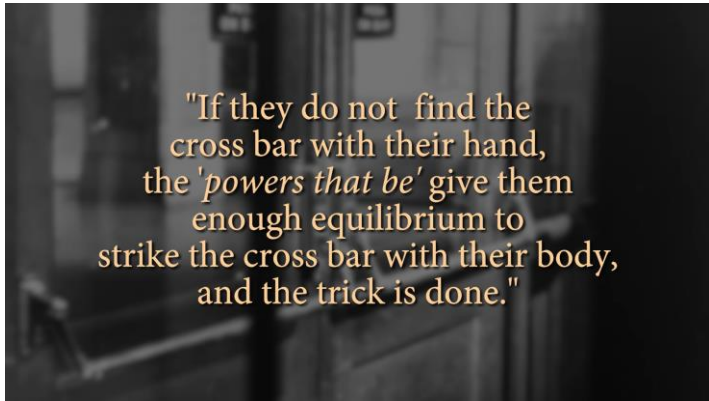
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"Order made in a non-union plant."

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PUBLIC OUTCRY LED TO CHANGES IN POLICY AND LAW

The Chicago Daily Tribune

CHICAGO
MEDICAL
SOCIETY

VOLUME LXIII—NO. 1.
FRIDAY, JANUARY 1, 1904—TWENTY-FOUR PAGES.
PRICE TWO CENTS.

ARREST 12 MEN FOR FIRE HORROR AT THE IROQUOIS

Stage Manager, Assistant, Carpenter, 4 Hands, and 4 Actors Charged with Manslaughter.

GRAVE FACTS DISCLOSED.

London Curtain Was Consumed by the Flames—Exits Were Not Open—There Were No Sprinklers.

Chicago, Jan. 1, 1904.

The following letter is sent this morning by THE TRIBUNE to leading architects, engineers and building contractors of the City of Chicago:

By Dear Sir: "The Tribune" desires to engage your professional services to make a thorough examination of each and every theater in the City of Chicago, both in regard to the construction of the building and the arrangement of the exits, and to report thereon to the City of Chicago, in order that the same may be brought up to the standard of safety now in vogue in the best theaters of the world.

THE TRIBUNE COMPANY.

THE TRIBUNE does not desire to interfere in any way with the various improvements now being made by various managers and owners of theaters in Chicago, but it desires to call attention to the fact that the exits of the theaters in this city are in many instances so arranged as to be a source of danger to the patrons of the same. It is the duty of the City of Chicago to see that the exits of the theaters are so arranged as to be a source of safety to the patrons of the same. It is the duty of the City of Chicago to see that the exits of the theaters are so arranged as to be a source of safety to the patrons of the same.

WHERE THE DEAD ARE.

The distribution of the victims recorded rapidly during the day, and it is difficult to give the exact number of the bodies which were killed. Details of the deaths are given in the following table, which is compiled from the reports of the coroner, the police and the various hospitals. It is believed that the total number of deaths will be found in the following table:

| Name | Age | Sex | Occupation |
|--------------|-----|-----|------------|
| James J. ... | 35 | M | ... |
| John ... | 40 | M | ... |
| ... | ... | ... | ... |

SILENCE USHERS IN THE NEW YEAR

Usual Din at Midnight Lacking, Streets Deserted, and in Restaurants Merriment is Subdued.

DISASTER IS LIKE CLOUD

Mayor by Proclamation Has Averted Saturday for City to Mourn the Dead, and Ask Reprieve to Ours.

The New Year morn in Chicago with a gloom which is not to be compared with that of any other city in the world. The streets were deserted, and the usual din of the New Year was lacking. The people were silent, and the merriment of the New Year was subdued. The disaster is like a cloud which hangs over the city, and the people are asking for a reprieve to mourn the dead.

FIRE SAFETY TODAY IS SERIOUS BUSINESS



Modern fire codes are pretty much a product of the 19teens and 1920s and beyond, always evolving

1. FIRE SUPPRESSION SYSTEMS



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2. EGRESS RULES



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3. FIRE RESISTANT CONSTRUCTION



HERE'S HOW TO SOUND LIKE YOU KNOW
ABOUT ALL THREE OF THOSE TOPICS



PART 1 - SPRINKLER SYSTEMS



FIRE SUPPRESSION SPRINKLER SYSTEMS



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1812 - Sir William Congreve (UK) – perforated pipes with valve outside

1873 – Hiram Maxim (of the machine gun) – “automated” system involving carbonic acid (CO₂ production) and a kind of heat sensor

1874 - Henry S. Parmalee (New Haven, CT) – first automatic fire sprinkler system using solder that melted in a fire to unplug holes. 10 customers

1881 - Frederick Grinnell (Mass and Rhode Island) – licensed and sold Parmalee design but then improved it... increased sensitivity by removing the fusible joint from all contact with the water

FIRE SUPPRESSION SPRINKLER SYSTEMS



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If you've ever been in a back stairwell of a large building, etc etc

This is the main assembly. See the red boxes: the pressure switch triggered by the alarm check valve (top) and the supervisory switch (near the gate valve controls)

FIRE SUPPRESSION SPRINKLER SYSTEMS



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WATER PRESSURE GAUGES



[HTTPS://DEVIATING.NET](https://deviating.net)

You'll often see gauges. These show pressure in the system pipes and also pressure from the main supply pipes.

GATE VALVE



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These large valves that you see are called Gate Valves, as you can imagine they control water flow

GATE VALVE SUPERVISORY SENSOR SWITCH



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If you mess with them, there will be an alarm, as they are monitored

CHECK VALVE



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There are also automated valves and other monitoring systems. This check valve (if water starts flowing)

CHECK VALVE ALARM SENSOR SWITCH



[HTTPS://DEVIATING.NET](https://deviating.net)

Releases water to the side pipe and triggers this sensor

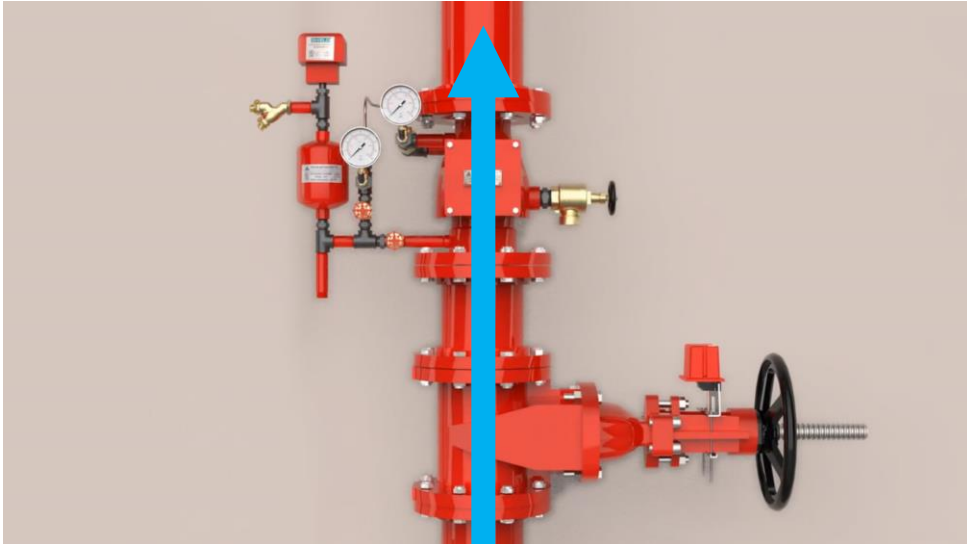
FIRE SUPPRESSION SPRINKLER SYSTEMS



[HTTPS://DEVIATING.NET](https://deviating.net)

Normally water would be flowing “up” if a sprinkler system activates. That causes the check valve to pop up, sending pressurized water flowing through the side assembly (there’s a small chamber to prevent natural water pressure fluctuations from triggering alarms) and ultimately the alarm sensor will trip (20 to 30 seconds is common, but can be as much as 90 seconds. Should never be over 90)

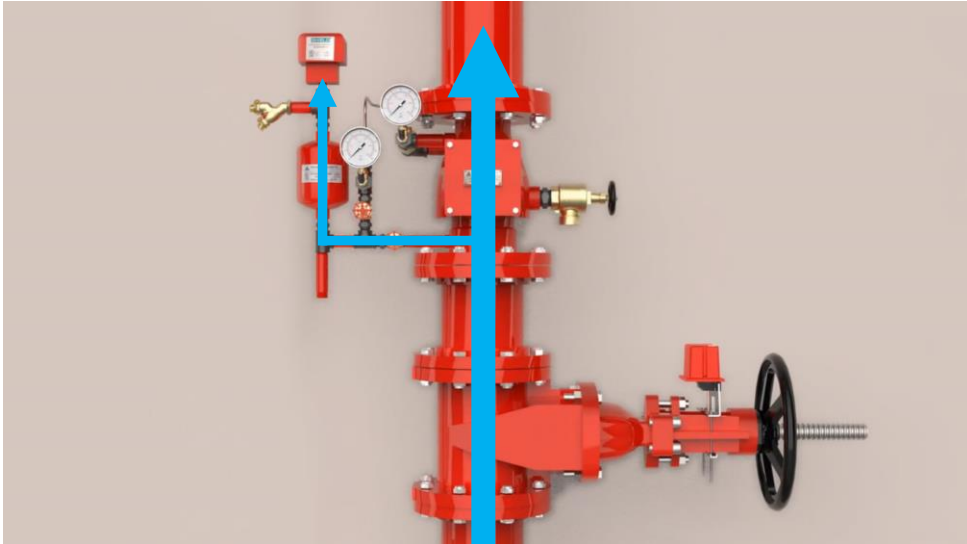
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FIRE SUPPRESSION SPRINKLER SYSTEMS



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So, yes... discharge from a sprinkler head should set off the fire alarms and send alerts to systems elsewhere in the building. FACP, bacNET, etc. And that can unlock doors.

“SOUND LIKE YOU ARE KNOWLEDGEABLE”



These systems get tested. That's a good reason to have an excuse to look around buildings, be in "non public" areas, etc.

FIRE SUPPRESSION SPRINKLER HEADS



UPRIGHT



SIDEWALL
(HORIZONTAL)



RECESSED



PENDENT



SIDEWALL
(VERTICAL)



CONCEALED

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Recessed “skirt”

Concealed fusible links on the cover disc, it falls off the escutcheon at a rated temp, there’s a very thin gap between it and the ceiling where heat can seep in

FIRE SUPPRESSION SPRINKLER HEADS



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Concealed fusible links on the cover disc, it falls off the escutcheon at a rated temp, there's a very thin gap between it and the ceiling where heat can seep in

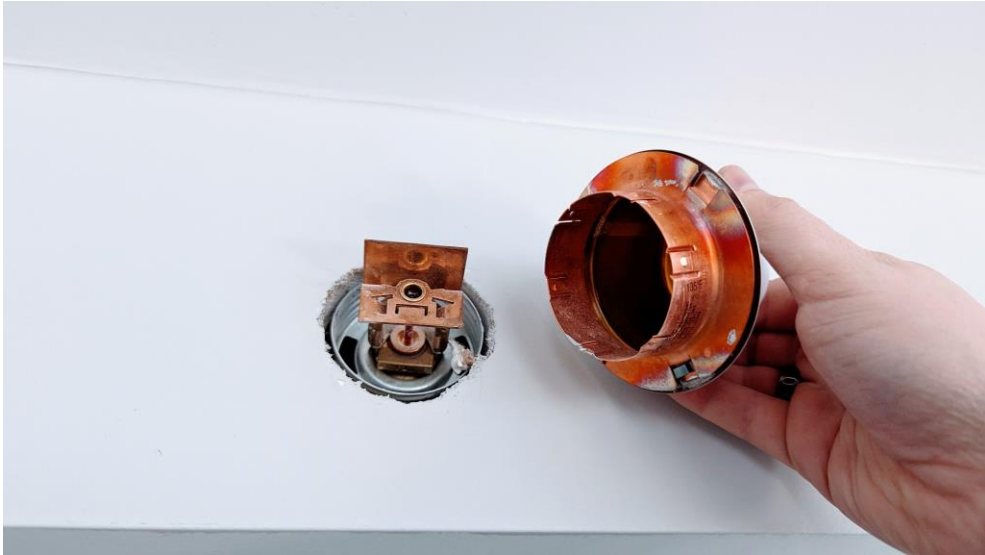
FIRE SUPPRESSION SPRINKLER HEADS



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FIRE SUPPRESSION SPRINKLER HEADS



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FIRE SUPPRESSION SPRINKLER HEADS



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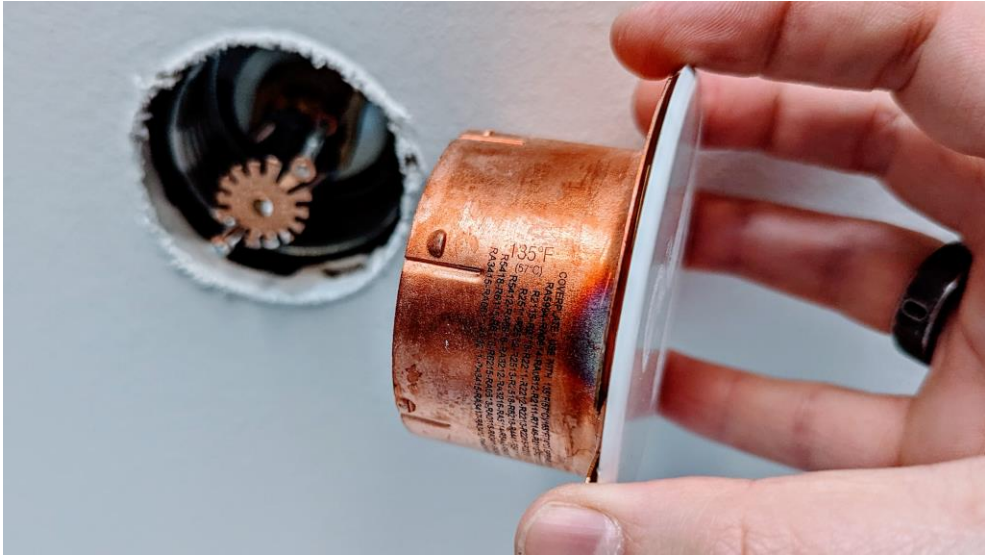
FIRE SUPPRESSION SPRINKLER HEADS



[HTTPS://DEVIATING.NET](https://deviating.net)

Concealed fusible links on the cover disc, it falls off the escutcheon at a rated temp, there's a very thin gap between it and the ceiling where heat can seep in

FIRE SUPPRESSION SPRINKLER HEADS



[HTTPS://DEVIATING.NET](https://deviating.net)

Concealed fusible links on the cover disc, it falls off the escutcheon at a rated temp, there's a very thin gap between it and the ceiling where heat can seep in

FIRE SUPPRESSION SPRINKLER BULBS

ORDINARY

ORDINARY

INTERMEDIATE

INTERMEDIATE

HIGH

EXTRA HIGH



135°F (57°C)

155°F (68°C)

175°F (79°C)

200°F (93°C)

286°F (141°C)

360°F (182°C)



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Yes, orange is before red. That annoys the crap out of me, too.

Ordinary - Orange and Red – residential and many commercial settings

Intermediate - Yellow – higher risk, warehouses

Intermediate - Green – high risk, chemical storage areas

High - Blue – very high risk, boiler rooms and furnaces

Extra High - Purple – flammable liquid storage areas

Very Extra and Ultra High - Black – Industrial ovens and furnaces

FIRE SUPPRESSION SPRINKLER BULBS

ORDINARY

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INTERMEDIATE

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HIGH

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135°F (57°C)

155°F (68°C)

175°F (79°C)

200°F (93°C)

286°F (141°C)

360°F (182°C)



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There are even black bulbs that range from 375°F (191°C) to 625°F (329°C) called “very extra high” and “ultra high” etc etc

Ordinary - Orange and Red – residential and many commercial settings

Intermediate - Yellow – higher risk, warehouses

Intermediate - Green – high risk, chemical storage areas

High - Blue – very high risk, boiler rooms and furnaces

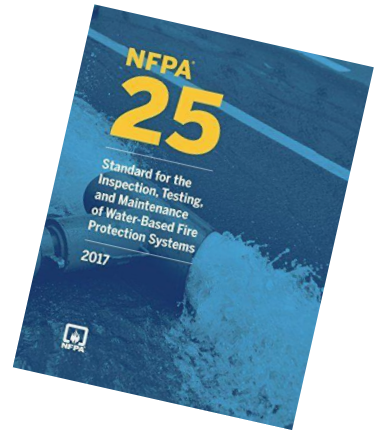
Extra High - Purple – flammable liquid storage areas

Very Extra and Ultra High - Black – Industrial ovens and furnaces

(Sprinkler heads aren't thought of as a serviced and replaceable part but they technically are due to be replaced every 95 years)

FIRE SUPPRESSION SPRINKLER SYSTEM SERVICE AND TESTING

- TESTING IS REQUIRED ANNUALLY
 - SENIOR CARE CENTERS: QUARTERLY
- ACCESS THE “RISER ROOM”
- TEST CONTROL VALVES AND TAMPER SENSORS
- NOTE THE WATER PRESSURE
- “INSPECTOR’S TEST” OF WATER ALARM SENSOR
 - CAUTION: WATER WOULD FLOW AND ALARMS WOULD SOUND!
- TAG AND DOCUMENT
- OFTEN DONE IN TWO-PERSON TEAMS



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Not advocating you actually do the inspection test unless you know what you're doing... alarm sounders and strobes not to mention very likely an automated signal to their monitoring company

FIRE SUPPRESSION SPRINKLER SYSTEM TESTING COVER STORIES



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Certain Inspections are typically done by two people, so this works best as a two-person team... but you can often fool unknowing members of the public. Especially if you're not actually doing tests, just doing "preliminary site survey" or other made up things. In general, there are four kinds of inspectors...

Annual sprinkler testers (going into the flow control rooms)

Annual fire detector testers (using testing spray)

Annual extinguisher inspectors (tags, etc. If a space can be occupied, it should have an extinguisher) **NFPA10**

Twice Annual special hazards inspectors (kitchens, combustible goods, chemicals, etc)

In larger buildings, it's less common to remember the previous appointment techs

If you ever encounter software or a control pad that wants you to authenticate... try 111111 or 123456

FIRE SUPPRESSION SPRINKLER SYSTEM TESTING COVER STORIES



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Asking to be let into the riser room is a good reason to interact with building management or security. Or saying that you're looking for the riser room is a good reason to be outside sniffing around

FIRE SUPPRESSION SPRINKLER SYSTEM TESTING COVER STORIES



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You don't generally want to touch stuff in the riser room (enabling/disabling controls for the main pump, the jockey pump, or the diesel pump.)

in this case we have a supplemental diesel-powered pump to augment the water pressure. (Those are covered in NFPA 20.)

FIRE SUPPRESSION SPRINKLER SYSTEM TESTING COVER STORIES



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Saying that you're trying to identify the main drain is another decent reason to be in service areas or otherwise "not sure where you're going"

FIRE SUPPRESSION SPRINKLER SYSTEM TESTING COVER STORIES



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Main drains for testing often discharge outside. Can be inconspicuous... again, good reason to be poking around. “we have to be sure the water won’t discharge onto anything that’s a problem” (like these power cables)

FIRE SUPPRESSION SPRINKLER SYSTEM TESTING COVER STORIES



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Can be out front, too. Again, you can say you're ensuring safety and no damage, etc.

A NOTE ABOUT SPRINKLER VALVE LOCKS



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A NOTE ABOUT SPRINKLER VALVE LOCKS



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Main assembly. See the red boxes: the pressure switch triggered by the alarm check valve (top) and the supervisory switch (near the gate valve controls)

A NOTE ABOUT SPRINKLER VALVE LOCKS



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This is a Zone Control Valve portion of the system

Sprinkler valve chain and lock correctly installed

A NOTE ABOUT SPRINKLER VALVE LOCKS



[HTTPS://DEVIATING.NET](https://deviating.net)

Sprinkler valve chain and lock correctly installed

A NOTE ABOUT SPRINKLER VALVE LOCKS



[HTTPS://DEVIATING.NET](https://deviating.net)

Sprinkler valve chain and lock Anything looking wrong here?

A NOTE ABOUT SPRINKLER VALVE LOCKS



[HTTPS://DEVIATING.NET](https://deviating.net)

Sprinkler valve chain and lock Anything looking wrong here?

Yeah... it's not going through the valve wheel at all.

THESE VALVES WILL VERY FREQUENTLY HAVE SENSORS



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INSPECTION OF OUTDOOR FIRE DEPARTMENT CONNECTION & VALVES



[HTTPS://DEVIATING.NET](https://deviating.net)

INSPECTION OF OUTDOOR FIRE DEPARTMENT CONNECTION & VALVES



[HTTPS://DEVIATING.NET](https://deviating.net)

gate valve (indicating variety)

INSPECTION OF OUTDOOR FIRE DEPARTMENT CONNECTION & VALVES



[HTTPS://DEVIATING.NET](https://deviating.net)

post valve (indicating variety) and some kind of siamese connection behind that

“LOOK LIKE YOU BELONG THERE”



SERVICE AND INSPECTION AS A FAKE PERSONA



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“blue collar guy” or “polo shirt and matching hat guy”

A NOTE ABOUT HANDHELD (A.K.A. “PORTABLE”) EXTINGUISHERS



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handheld (a.k.a. “portable”) fire extinguishers are covered under NFPA 10 and that’s a separate possible pretext you can use if you want to walk around to other areas in the building.

annual inspections

extinguisher signage should be visible from about 50’ away

I HAVE A FEW GENERIC BLUE COLLAR OUTFITS



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POLO SHIRT STYLE OUTFIT CAN ALSO WORK



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GREETING AND PROCEDURE



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Companies like Siemens or Johnson Controls are generally not optimal at communicating in advance to customers. Service folk will often just kind of “show up”

1. Go to reception
2. Ask for building engineer or facilities
3. “I’m here for the annual inspection of [insert thing]”
4. Show a work order if you have one (own company paperwork, not Johnson Controls or Siemens paperwork)
- ...
5. Leaving the site “alright, we’re all done... we’ll send you paperwork” (or digital signature for High Hazard)
6. Leave keys at reception or with your point of contact on the way out

ACCESSORIES: CONTRACTOR CLIPBOARD



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ACCESSORIES: CONTRACTOR CLIPBOARD



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ACCESSORIES: TAGS



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Inspection tags. Good source of intel on who is their Fire Service contractor.

We have our own that we made to match our polos and hats, etc

but you can just buy them

ACCESSORIES: TAGS

XpressTAGS (800) 952-1457 Free Shipping* for orders of \$25.00 and more

Home Custom Paper Plastic Metal Manila Warehouse Inspection Repair Price Fire Extinguisher

XpressTags > Fire Extinguisher Tags > Sprinkler

Fire Sprinkler Tags

★★★★★ based on 6 customer reviews

It is required by your fire marshal to have a weather-proof, durable tag to mark the inspection of your Fire Sprinkler Inspection system. That's why our signature Fire Sprinkler Tags can be used for a variety of sprinkler systems, including those that use a "wet" system, a "dry" system, use-deluge valves or anti-freeze. No matter what kind of system you have, you need a thorough and lasting record of inspections, so you can prove that you're ready for a fire emergency. Get the job done with the best selection of fire sprinkler tags in the business.

- All tags are 100% customizable.
- Tags are compliant with state-specific sprinkler inspection guidelines.
- Tear-resistant plastic tags last for years.
- Tags can be easily affixed to equipment with prepunched holes.

Manila Repair Tags with Perforation & Attached String
Strings are pre-topped onto each tag. Tag and tear-off stub is pre-numbered. Starting number not selectable.

Free Samples
Order now and receive them within 2-3 days!

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Free Regular Shipping for orders of \$39.95 or more!

We are open and ready to serve.

California California Florida Florida Florida Texas

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Green inspection tag – system is in full compliance with the appropriate NFPA standard.

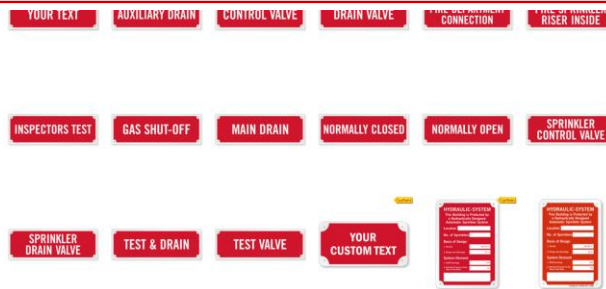
Yellow noncompliance inspection tag – system found with items of noncompliance, but still in a state of operational readiness. System may be out of compliance with appropriate NFPA standard.

Red impairment tag- system is impaired and non-operational, causing the system to be out of service and out of compliance with NFPA standards.

Yellow tags require that a letter of noncompliant conditions be sent to the building owner/authorized representative within five days of the inspection.

Red tags require a letter of emergency of impairment conditions be sent to the building owner/authorized representative and to the building occupant within 24 hours of inspection.

ACCESSORIES: TAGS



Other Fire Related Inspection Tags & Signs



Customer Reviews



May 25, 2023

★★★★★

Good Product

Tags are exact as picture and arrived promptly

2 Sided Green Florida Fire... 2 Sided Green Custom Florida Fire...

Part #: 10-1018 © 2023 True-Proof Polypropylene Products, Inc. ✓ Verified Purchase

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They have all kinds of accessories. Having some signs and such on your clipboard, etc.

ACCESSORIES: SERVICE VEHICLE



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What if you want to pull up in a service vehicle?

ACCESSORIES: SERVICE VEHICLE



[HTTPS://DEVIATING.NET](https://deviating.net)

When you choose a rental car...

ACCESSORIES: SERVICE VEHICLE



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... maybe go for a nice mid-size white pickup

ACCESSORIES: SERVICE VEHICLE

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Custom Car Magnets

★★★★★ 4.1 7772 Reviews

New Low Price

Promote on the go with a fade-resistant, PVC-free car magnet, available in custom sizes and shapes for your vehicle. [See details](#)

Size 11.5" x 17.6"

Quantity 2 (\$29.50 / unit)

2 starting at \$58.99

Get it as soon as **Wednesday, Feb 28th** to (248)

Free shipping on orders over \$100

PayPal Pay in 4 interest-free payments of \$14.75. [Learn more](#)

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Turn your rental car into a “field service vehicle”

ACCESSORIES: SERVICE VEHICLE

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Automotive > Lights & Lighting Accessories > Warning & Emergency Lights > Emergency Strobe Lights

DIMENSION

3.7inch

3.7inch

3.03inch

Roll over image to zoom in

Nilight LED Strobe Light 40 LED Amber Warning safety Flash Beacon Lights 12V-24V with Magnetic and 16ft Straight Cord for Forklift Truck Tractor Golf Carts UTV Car Bus, 2 Years Warranty

Visit the Nilight Store

4.4 ★★★★★ 64 ratings

Amazon's Choice in Automotive Emergency Strobe Lights by Nilight

50+ bought in past month

Deal

-14% **\$19.99**

List Price: \$22.99

Get Fast, Free Shipping with Amazon Prime

FREE Returns

Get \$50 off instantly. Pay \$0.00 \$49.99 upon approval for Amazon Visa. No annual fee.

Colour: ABS Base

Brand: Nilight

Colour: ABS Base

Specific Uses For Product: Exterior

Vehicle Service Type: All vehicles

Special Feature: Waterproof

See more

Light Source Type: LED

Voltage: 12 volts

prime

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Delivery Pickup

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Get Fast, Free Shipping with Amazon Prime

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FREE delivery Friday, February 23 on orders shipped by Amazon over \$55

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Sold by Amazon.com

Returns: Eligible for Return, Refund or Replacement within 30 days of receipt

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Cherry on top (literally) is an amber blinky (don't even have to turn it on)

THERE IS MUCH MORE TO LEARN, BUT THOSE ARE SOME BASICS



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This section covered wet pipe, basically. There are others which we didn't talk about. Mental device I have...

Wet pipe: concerns about budget

Dry pipe: concerns about freezing

Pre-Action: concerns about damage

Deluge: concerns about disaster

(this image is a gaseous (non-water) system, using FM-200. deployed between 6% and 9%, no mandatory evac time, suppresses fire by absorbing heat energy at its molecular level faster than the heat can be generated and forming free radicals to chemically interfere with the combustion chain reaction)

THERE IS MUCH MORE TO LEARN, BUT THOSE ARE SOME BASICS



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gaseous (non-water) system, using FM-200

deployed between 6% and 9%, no mandatory evac time, suppresses fire by absorbing heat energy at its molecular level faster than the heat can be generated and forming free radicals to chemically interfere with the combustion chain reaction

JUST REMEMBER... YOU'RE NOT ACTUALLY A SERVICE TECH!



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You can't actually remove other people's tags. You can't install your own.

And you personally can't flag a facility for a violation.

PART 2 - EXIT AND EGRESS REGULATIONS



YOU BE THE AHJ: IS THIS A PROBLEM?



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2660 Main St Bridgeport CT

Medical Building. Video starts upstairs. The elevator leads directly to their lobby check-in area. Public building, staff and patients coming and going for doctor's appointments, etc.

Maybe they want to encourage elevator use, not the stairwell, but the stairwell is clearly the marked emergency exit. And in a fire, that elevator will recall to the lobby and be out of service.

YOU BE THE AHJ: IS THIS A PROBLEM?



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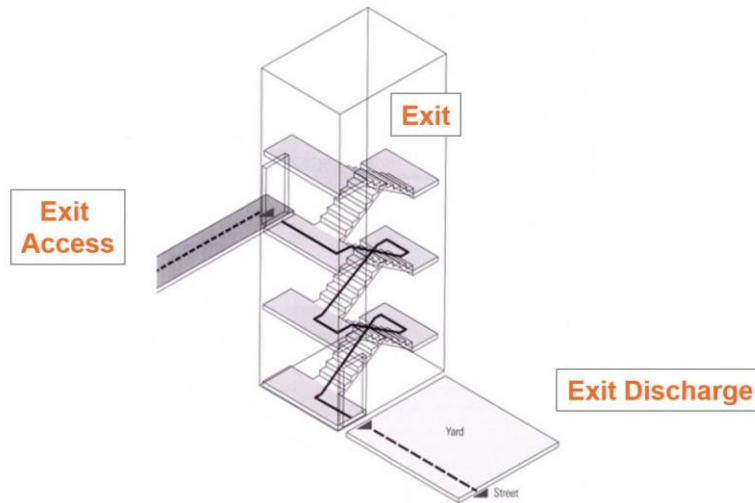
“PEOPLE ARE DUMB, PANICKY, DANGEROUS ANIMALS”



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Humans are unpredictable under duress, humans need validation

“EXIT” VS “EGRESS”



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Exit Access --> Exit --> Exit Discharge (all these together are the "Egress" or "Egress Path")

“A **continuous** and **unobstructed** way of travel from any point in a building or structure to a public way consisting of three separate and distinct parts: (1) the exit access, (2) the exit, and (3) the exit discharge” NFPA 101, §3.3.172

Egress paths need certain things...

SIGNAGE

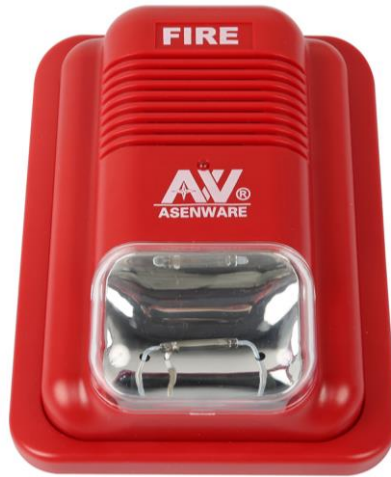


ILLUMINATION



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SIGNALING DEVICES



HEADROOM

7' 6"
IS THE
GENERAL
RULE



6' 8"
ALLOWED
BRIEFLY FOR
PROJECTIONS

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UNOBSTRUCTED DISCHARGE



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Another excuse to be up against buildings, etc. A great way to compliment staff (most building exits are unobstructed)

"SHALL NOT BE USED FOR ANY OTHER PURPOSE"



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You will find *lots* of violations here.

This one, in a hotel in NYC where I was staying in Oct of 2023, is particularly egregious

"SHALL NOT BE USED FOR ANY OTHER PURPOSE"



PHOTO CREDIT: LORI GREENE
[HTTPS://IDIGHARDWARE.COM](https://idighardware.com)

[HTTPS://DEVIATING.NET](https://deviating.net)

Lori Greene posted this photo which is from a Fire Dept training facility

“storage under stairs, in stair enclosure.” I-Codes 1023.1 General

FURNISHINGS AND DECORATIONS CANNOT OBSTRUCT OR CONFUSE



PHOTO CREDIT: LORI GREENE
[HTTPS://IDIGHARDWARE.COM](https://idighardware.com)

[HTTPS://DEVIATING.NET](https://deviating.net)

IBC: Doors in the means of egress shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

NFPA 101: Exit access and exit doors shall be designed and arranged to be clearly recognizable. Hangings or draperies shall not be placed over exit doors or located so that they conceal or obscure any exit, unless otherwise provided in 7.5.2.2.2.

“Door must be distinguishable and readily identifiable”
(the NFPA allows for some circumstances of disguising doors to deter egress-seeking by patients. IBC doesn’t speak to this)

Photo: Lori Greene

FURNISHINGS AND DECORATIONS CANNOT OBSTRUCT OR CONFUSE



PHOTO CREDIT: LORI GREENE
[HTTPS://IDIGHARDWARE.COM](https://idighardware.com)

[HTTPS://DEVIATING.NET](https://deviating.net)

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“Door must be distinguishable and readily identifiable”

Photo: Lori Greene

MIRRORS AREN'T ALLOWED



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Can't have mirrors on emergency exits

CONTINUOUS MAINTENANCE AND INSPECTION



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Again... not a bad social engineering cover story: “we’re verifying safe operation of the emergency exits” etc etc

Emergency lighting is often tested by either the fire alarm testers or fire extinguisher inspectors

- Square pushbutton to test
- Voltage test the batteries with a standalone tester

OPERATING DEVICES (HANDLES AND LATCHES AND SUCH)

- RELEASING HARDWARE BETWEEN 34" AND 48" ABOVE THE FLOOR
- OPERABLE WITH ONE HAND
- SHOULD *NOT* REQUIRE:
 - TIGHT GRASPING
 - TIGHT PINCHING
 - TWISTING OF THE WRIST
- SHALL BE OPERABLE *WITHOUT*:
 - KEYS OR TOOLS
 - ANY SPECIAL KNOWLEDGE
 - ANY SPECIAL EFFORT
- METHOD MUST BE "INTUITIVE AND FAMILIAR"
- ONLY ONE "RELEASING MOTION"



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note - "unlatching" is not "opening" (so like pressure on a lever handle in a rotating manner unlatches the door, but then you have to push on the door perhaps)

there are exceptions to low occupancy residencies like apartments, hotel rooms, etc... occupant load often 3 or less

OPERATING DEVICES (HANDLES AND LATCHES AND SUCH)



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This is why Under Door Attacks are so feasible nowadays

OPERATING DEVICES (HANDLES AND LATCHES AND SUCH)



[HTTPS://DEVIATING.NET](https://deviating.net)

This is why Under Door Attacks are so feasible nowadays

HOW MUCH STRENGTH IS NEEDED? (SPOILER: NOT MUCH)



[HTTPS://DEVIATING.NET](https://deviating.net)

HOW MUCH STRENGTH IS NEEDED? (SPOILER: NOT MUCH)

- ADA ON OPERABLE FORCES...

- 15 LBS TO RELEASE LATCH ON AN EXTERNAL DOOR
- 30 LBS TO START OPENING MOVEMENT
 - 5 LBS TO OPEN AN INTERIOR DOOR (WITHOUT A CLOSER)
- 50 LBS POWERED DOOR IF THE POWER IS OUT (AND IT MUST BE ABLE TO FULLY OPEN)

- I-CODES ON OPERABLE FORCES...

- 15 POUNDS OF PUSHING OR PULLING MOTION
- 28 INCH-POUNDS OF ROTATIONAL MOTION



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ADA Standard for Accessible Design states that interior door hardware should be operable with 5 pounds of force, maximum. It's an aggressive target and not everyone meets it yet, but that's the trend in the industry... trend toward increasing accessibility, always


MEASURING DOOR OPERATING FORCE

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Industrial & Scientific Jarvis Facilities Safety Supplies Medical Supplies Food Service Diagnostic Equipment Material Handling Educational Supplies Sealants and Lubricants Additive Manufacturing Laboratory Supplies FSA Eligible Items Deals

Industrial & Scientific Test, Measure & Inspect Pressure & Vacuum Pressure & Vacuum Gauges Pressure Gauges



Click image to open expanded view

Gordon Glass Co. Door Pressure Gauge, 0-35 Lbs | Made in USA

Brand: Gordon Glass Co.
4.6 ★ ★ ★ ★ ★ ★ 327 ratings | [Search this page](#)
100+ bought in past month

-12% **\$35.00**
List Price: \$39.60

FREE Returns

| | |
|------------------------------|----------------------|
| Brand | Gordon Glass |
| Material | Plastic |
| Item Dimensions LxWxH | 8 x 0.5 x 0.5 inches |
| Item Weight | 10.4 Ounces |

About this item

- Range is from 0-35 Pounds
- MEET ADA REQUIREMENTS
- Use Plastic Protective Tube. ASIN: B004C3WZ8S
- +/- 5% tolerance
- MEET ADA REQUIREMENTS The Americans with Disabilities Act requires that both interior and exterior doors of a building be handicapped accessible
- Exterior hinged doors: (Reserved)
- Interior hinged doors: 5 lbs (22.2N)

Show more

Additional Details

Small Business
 This product is from a small business brand. Support small. [Learn more](#)

Customers usually keep this item

This product has fewer returns than average compared to similar products.

prime
Enjoy fast, free delivery, exclusive deals, and award-winning movies & TV shows with Prime. Try Prime and start saving today with fast, free delivery

Delivery **Pickup**

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MULTIPLE LATCHING OR LOCKING DEVICES?



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Here we see the main latch (in the middle where the bars come together, connecting the doors to one another) as well as top and bottom surface-mount vertical rods

Codes do not *prohibit* more than one locking or latching device installed on a door

- however -

the mechanisms must be *released simultaneously* with one motion unless there is a specific exception.

Surface Vertical Rod exit device

MULTIPLE LATCHING OR LOCKING DEVICES?



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Here we see a door that features both a conventional deadlatch and also a deadbolt

Codes do not *prohibit* more than one locking or latching device installed on a door

- however -

the mechanisms must be *released simultaneously* with one motion unless there is a specific exception.

PUSHBUTTON HANDLE (NOT COMPLIANT)



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This is a hotel in Japan

“WAIT, WHAT ABOUT DEVICES LIKE THESE?”



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Yeah, you’ve surely seen these... because there are a number of exceptions to the rules. We’ll talk about those.

Examples of devices that, when used *with* a latch, can be arranged to require not more than one additional releasing operation include:

- night latches
- security chains
- dead bolts

(exceptions in certain low occupancy, typically residential, spaces)

“WAIT, WHAT ABOUT DEVICES LIKE THESE?”



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(exceptions in certain low occupancy, typically residential, spaces)

THERE ARE TOOLS TO OPEN THOSE, BTW



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Hotels have devices to un-set the door hardware on basically all of their rooms at all times. That's why I use my own additional door strap.

ALWAYS PROHIBITED (WHEN A STRUCTURE IS OPEN TO THE PUBLIC)



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Padlocks with hasps

Chains

Bars

(Prohibited on **exit** doors. You can lock closets or unoccupied spaces, naturally)

DISCHARGE TO RIGHT-OF-WAY (GENERALLY)



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Egress paths can't narrow, can't pass through other spaces that may be locked, no dead ends, can't exit through kitchens or storage spaces, exits terminate out to a public right of way or a protected space

Door widths must be 32" minimum (that's NOT a 32" door) projections of up to 4" are allowed if they're between 34" and 48" from the floor ("area of encroachment")

BUILDINGS CAN'T TRAP PEOPLE ANYWHERE

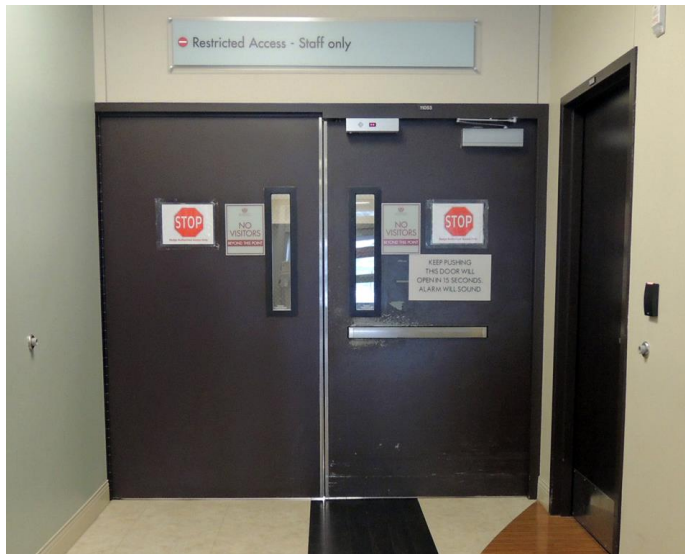


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In “Hackers” when Kate Libby tricks Dade Murphy to go up to the roof... roofs are often locked from the inside but must always allow re-entry from the outside

Roof doors must prevent entrapment on the roof

BUILDINGS CAN'T TRAP PEOPLE ANYWHERE



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Delayed Egress

(fun note: manual re-arm necessary)

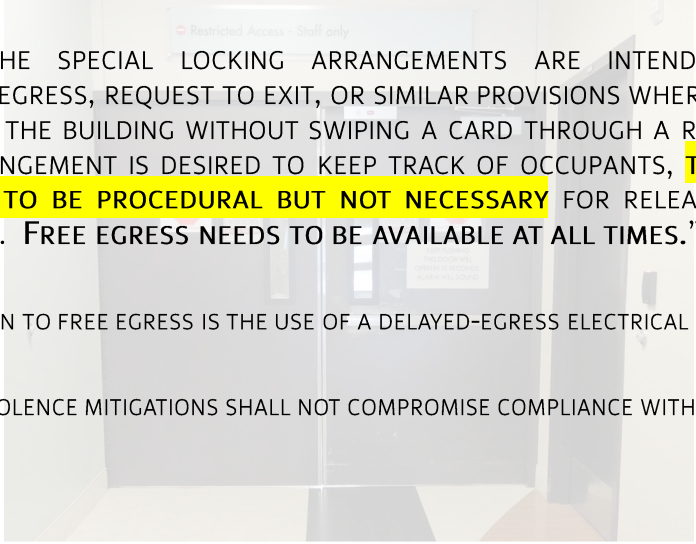
BUILDINGS CAN'T TRAP PEOPLE ANYWHERE

“NONE OF THE SPECIAL LOCKING ARRANGEMENTS ARE INTENDED TO ALLOW CREDENTIALLED EGRESS, REQUEST TO EXIT, OR SIMILAR PROVISIONS WHERE AN OCCUPANT CANNOT LEAVE THE BUILDING WITHOUT SWIPING A CARD THROUGH A READER. WHERE SUCH AN ARRANGEMENT IS DESIRED TO KEEP TRACK OF OCCUPANTS, **THE SWIPING OF CARDS NEEDS TO BE PROCEDURAL BUT NOT NECESSARY** FOR RELEASING THE DOOR LOCK OR LATCH. **FREE EGRESS NEEDS TO BE AVAILABLE AT ALL TIMES.**”

“ANOTHER OPTION TO FREE EGRESS IS THE USE OF A DELAYED-EGRESS ELECTRICAL LOCKING SYSTEM.”

“PHYSICAL VIOLENCE MITIGATIONS SHALL NOT COMPROMISE COMPLIANCE WITH NFPA CODE.”

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BUT THEN... WHAT ABOUT THAT HOLLYWOOD PLOTLINE?



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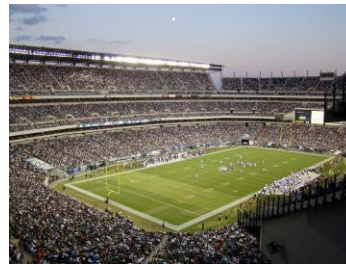
CLASSIFICATION OF OCCUPANCIES



Chapter 3 of the 2021 International Building Code (IBC) sets the requirements of how to identify a buildings occupancy characteristics based on how a space or spaces are used within a building.

There are 10 types of occupancies, broadly speaking. Some of them have fire code exceptions and accessibility exceptions.

GROUP A – “ASSEMBLY”



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General rule: over 50 people.

A group A assembly occupancy is a use where people gather for the purpose of civic, social, religious function, recreation, food/drink consumption, or waiting for transportation.

Group A occupancies are broken down into 5 groups.

Group A-1:

A space used for assembly, usually with fixed seating which is intended for production and viewing of performing arts or a motion pictures.

This includes but is not limited to the following examples:

- Motion picture theaters
- Symphony and Concert halls
- Television and Radio studios that admit an audience
- Theaters

Group A-2:

A space used for assembly that is intended for food and/or drink consumption.

This includes but is not limited to the following examples:

- Banquet Halls
- The gaming areas of Casinos
- Nightclubs
- Restaurants, Cafeterias and Similar Dining Facilities
- Taverns and Bars

Group A-3:

A spaced used for assembly that is intended for worship, recreation or amusement and other assembly uses that are not classified within any other Group A type.

This includes but is not limited to the following examples:

- Amusement Arcades
- Art Galleries
- Bowling Alleys
- Community Halls
- Courtrooms
- Dance Hall that do not include any food or drink consumption
- Exhibition Halls
- Funeral Parlors
- Gymnasiums without spectator seating
- Indoor swimming pools without spectator seating
- Indoor tennis courts without spectator seating
- Lecture Halls
- Libraries
- Museums
- Place of religious worship
- Pool and billiard parlors
- Waiting areas in transportation terminals

Group A-4:

A space used for assembly that is intended for viewing indoor sporting events

and activities with spectator seating.

This includes but is not limited to the following examples:

- Arenas
- Skating rinks
- Swimming Pools
- Tennis Courts

Group A-5:

A space used for assembly that is intended for participation in or viewing outdoor activities.

This includes but is not limited to the following examples:

- Amusement park structures
- Bleachers
- Grandstands
- Stadiums

Exceptions to Group A Occupancies

There are times where an assembly space is not classified as a Group A occupancy. The code lists out the following conditions:

Small Buildings or Tenant Spaces

When a space within a building, or the building itself, is used for assembly purposes where the occupant load is less than 50 persons, then the classification of this space or building is considered a Group B occupancy.

Technically by definition these spaces or buildings are considered assembly spaces, however due to their low occupant load, they have a lower risk associated to them than a typical assembly space.

Small Assembly Spaces

There are two types of “small spaces” where the code will consider an assembly space a different type of occupancy.

When a room or space is designed for an occupant load of less than 50 persons and is accessory to another occupancy, it can be classified as a Group B occupancy or as part of that occupancy.

When a room or space is less than 750 square feet in area and accessory to another occupancy, then it can be classified as a Group B occupancy or as part of that occupancy.

Associated with a Group E Occupancy

When a room or space is used for assembly purposes and associated with a Group E occupancy, it is not considered a separate occupancy.

Accessory to Places of Worship

Accessory religious educational rooms and auditoriums that have an occupant load less than 100 persons per room or space are not considered separate occupancies.

Special Amusement Areas

Special amusement areas are considered special occupancies and are required to comply with Section 411.

GROUP B – “BUSINESS”



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Unless a you're MAKING widgets or STOCKING widgets on shelves, Group B is most commercial properties that we encounter day-to-day

A building that functions as an office or a professional or a service type transaction.

Examples of a Group B occupancy include but are not limited to the following examples:

- Airport traffic control towers
- Ambulatory care facilities
- Animal hospitals, kennels and pounds
- Bank
- Barber and beauty shops
- Car wash
- Civic administration
- Clinic, outpatient
- Dry cleaning and laundries
- Educational occupancies for students above the 12th grade

Electronic data processing

Food processing establishments and commercial kitchens that are not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet in area.

Laboratories used for testing and research

Motor vehicle showrooms

Post offices

Print shops

Professional services such as architects, attorneys, dentists, physicians, engineers, etc...

Radio and Television stations

Telephone exchanges

Training and Skill Development not in a school or academic program and where not classified as a Group A occupancy.

Airport Traffic Control Towers

Airport traffic control towers are considered special occupancies and are required to comply with Section 412.2.

Ambulatory Care Facilities

Ambulatory care facilities are considered special occupancies and are required to comply with Section 422.

Higher Education Laboratories

Higher educational laboratories are considered special occupancies and are required to comply with Section 428.

GROUP E – “EDUCATIONAL”



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K-12 but not University, at least 5 children.

A Group E occupancy is a use of a building where six or more persons at any one time occupy a space for educational purposes through the 12th grade.

Day Care Facilities are also classified under Group E. This includes spaces that are occupied by more than five children that are older than 2-1/2 years of age who receive educational, supervision or personal care services for less than 24 hours per day.

The code does make 3 clarifications regarding Day Care Facilities as to when they are not classified as a Group E occupancy.

Spaces used within a place of religious worship that provide such day care services during the religious function shall be classified as part of the primary occupancy.

Facilities that have 5 or less children that receive such day care services shall be classified as part of the primary occupancy.

A day care service within a dwelling unit that has 5 or less children shall be classified as a Group R-3 occupancy.

Storm shelters within Group E occupancies are considered special occupancies and are required to comply with Section 423.5.

GROUP F – “FACTORY AND INDUSTRIAL”



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A group F occupancy is a use of a building that involves **assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair, and processing** operations that would not be otherwise classified as a Group H or Group S occupancy.

Group F-1:

A space used for factory industrial uses not classified as occupancy group F-2. Group F-1 is also known as a moderate-hazard factory use.

This includes but is not limited to the following examples:

- Aircraft manufacturing, not to include repair
- Appliances
- Athletic equipment
- Automobiles and other motor vehicles
- Bakeries
- Beverages: over 16% alcohol content
- Bicycles

Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Energy storage systems (ESS) in dedicated use buildings
Engines (including rebuilding)
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet in area.
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Metals
Millwork (sash and door)
Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Recreational vehicles
Refuse incineration
Shoes
Soaps and detergents
Textiles
Tobacco
Trailers
Upholstering
Water/sewer treatment facilities
Wood; distillation

Woodworking (cabinet)

Group F-2:

A space used for the fabrication or manufacturing of noncombustible materials where during the finishing or packing process does not involve a significant fire hazard. Group F-2 is also known as a low-hazard factory use.

This includes but is not limited to the following examples:

- Beverages: 16% alcohol content or less
- Brick and masonry
- Ceramic products
- Foundries
- Glass products
- Gypsum
- Ice
- Metal Products, both fabrication and assembly

Aircraft Manufacturing Facilities

Aircraft manufacturing facilities are considered special occupancies and are required to comply with Section 412.6.

GROUP H – “HIGH HAZARD”



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manufacturing, processing, generation, or storage of **materials that can constitute a physical or health hazard.**

Group H occupancies are classified into 5 high hazard areas that identify the type of hazard for each group...

Group H-1:

A space, building, or structure that contains materials that would pose a detonation hazard.

Group H-2:

A space, building, or structure that contains materials that would pose a deflagration hazard or a hazard from accelerated burning.

Group H-3:

A space, building, or structure that contains materials that readily support combustion or that pose a physical hazard.

Group H-4:

A space, building, or structure that contains materials that are health hazards.

Group H-5:

Semiconductor fabrication facilities and comparable research and development areas which use hazardous production materials (HPM) and where the aggregate quantity of materials used is in excess of those materials listed in Tables 307.1(1) and 307.1(2).

GROUP I – “INSTITUTIONAL”



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Hospitals, Senior Care, Detox/Rehab, Group Homes, Halfway Houses, Jails/Prisons... people are SLEEPING here, that's key

A group I occupancy is a use in which care or supervision is provided to people who are or are not capable of self-preservation without physical assistance or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted.

Group I-1:

A space, building, or structure used by more than 16 people, not including staff, who reside on a 24-hour basis within a supervised environment and receive custodial care.

This includes but is not limited to the following examples:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities

- Group homes
- Halfway houses
- Residential board and care facilities
- Social rehabilitation facilities

In addition, group I-1 occupancies must be identified as either a Condition 1 or Condition 2.

I-1 Condition 1 includes buildings where all people who receive custodial care without any assistance are capable of responding to an emergency situation to evacuate a building.

I-1 Condition 2 includes buildings where any person who receives custodial care requires limited verbal or physical assistance while responding to an emergency situation to evacuate a building.

Also note the code clarifies that a facility that houses no fewer than 6 and no more than 16 people who receive custodial care shall be classified as a Group R-4 occupancy, while a facility with 5 or less people receiving custodial care shall be classified as a Group R-3 occupancy.

Group I-2:

A building or structure used for medical care on a 24 hour basis for more than 5 people who are not capable of self preservation.

This includes but is not limited to the following examples:

- Foster care facilities
- Detoxification facilities
- Hospitals
- Nursing homes
- Psychiatric hospitals

In addition, group I-2 occupancies must be identified as either a Condition 1 or Condition 2.

I-2 Condition 1 includes facilities that provide nursing and medical care but not emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, which includes but is not limited to nursing homes and foster care facilities.

I-2 Condition 2 includes facilities that provide nursing and medical care and can also provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, which includes but is not limited to hospitals.

As mentioned above, the same applies here as well. A facility with 5 or less people receiving medical care shall be classified as a Group R-3 occupancy.

Group I-3:

A building or structure used by more than 5 people who are under restraint or security thus are generally incapable of self-preservation due to security measures that are not under the occupants control.

This includes but is not limited to the following examples:

- Correctional centers
- Detention centers
- Jails
- Prerelease centers
- Prisons
- Reformatories

In addition, group I-3 occupancies must be identified as either a Condition 1, 2, 3, 4 or Condition 5. The level of movement within the space designated as one of these conditions can range from free movement to locked exits, from remote-controlled release exits to restricted movement.

Group I-4:

A building or structure that is occupied by more than 5 people of any age who receive custodial care for fewer than 24 hours per day by people other than parents or guardians, relative by blood, marriage or adoption, and in a place other than the home of the person being cared for.

This includes but is not limited to the following examples:

- Adult day care
- Child day care

The code does note however that child day care facilities providing care for more than 5 but not more than 100 children, 2-1/2 years of age or less, shall be

classified as Group E where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each child care room has an exit door directly to the exterior.

Also it is important to note the following: Rooms or spaces providing such care within places of religious worship during the religious function shall be classified as part of the primary occupancy, a facility with 5 or less people receiving custodial care shall be classified as part of the primary occupancy, and a facility location within a dwelling unit having 5 or less people receiving custodial care shall be classified as a Group R-3 occupancy.

GROUP M – “MERCANTILE”



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Again, we think of widgets... A Group M occupancy is a use that involves the display and sale of merchandise, stocking of goods, and is accessible to the public.

This includes but is not limited to the following examples:

- Department stores
- Drug stores
- Markets
- Motor fuel-dispensing facilities
- Retail or wholesale stores
- Sales rooms

When certain hazardous materials are stored or displayed in a single control area of a Group M occupancy, they shall not exceed the quantity limits of Table 414.2.5(1) or otherwise it can be classified as a Group H occupancy.

Motor Fuel-Dispensing Facilities

Motor fuel-dispensing facilities are considered special occupancies and are required to comply with Section 406.7.

GROUP R – “RESIDENTIAL”



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If people sleep there and it's not Group I, it's almost certainly Group R (lower occupancies per unit, typically)

(hence, some care facilities might be designated Group R, typically with 5 or fewer people)

A group R occupancy is a use of a building or structure intended for sleeping purposes when not classified as a Group I or when not regulated by the International Residential Code (IRC).

Group R-1:

The sleeping units in this occupancy group are primarily transient in nature.

This includes but is not limited to the following examples:

- Transient boarding houses with more than 10 occupants
- Transient congregate living facilities with more than 10 occupants
- Transient Hotels
- Transient Motels

Group R-2:

This occupancy group contains sleeping units or more than 2 dwelling units where the occupants are primarily permanent in nature.

This includes but is not limited to the following examples:

- Apartment houses
- Nontransient boarding houses with more than 16 occupants
- Nontransient congregate living facilities with more than 16 occupants
- Convents
- Dormitories
- Fraternities and sororities
- Nontransient hotels
- Live/work units
- Monasteries
- Nontransient motels
- Vacation timeshare properties

Group R-3:

The occupants in this occupancy group are primarily permanent in nature and are not classified as a Group R-1, R-2, R-4 or I.

This includes but is not limited to the following examples:

- Buildings not containing more than 2 dwelling units
- Nontransient boarding houses with 16 or fewer occupants
- Transient boarding houses with 10 or fewer occupants
- Care facilities that provide accommodations for 5 or fewer people receiving care
- Nontransient congregate living facilities with 16 or fewer occupants
- Transient congregate living facilities with 10 or fewer occupants
- Lodging houses with 5 or fewer guest rooms

The code does note that care facilities with 5 or fewer people receiving care within a single-family dwelling is permitted to comply with the International Residential Code (IRC) provided an automatic sprinkler system is installed.

Also owner occupied lodging houses with 5 or fewer guest rooms and 10 or fewer total occupants are permitted to be constructed with the International

Residential Code (IRC), provided that an automatic sprinkler system is installed.

Group R-4:

A use for more than 5 people but no more than 16, excluding staff, who reside on a 24 hour basis where the occupants are in a supervised residential environment and receive custodial care.

This includes but is not limited to the following examples:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Group homes
- Halfway houses
- Residential board and care facilities
- Social rehabilitation facilities

Except as otherwise stated elsewhere in the code, Group R-4 occupancies must meet the requirements for construction as for Group R-3. In addition R-4 occupancies must be categorized as Condition 1 or Condition 2.

R-4 Condition 1 includes buildings where all people receiving custodial care, without any assistance, are capable of responding to an emergency situation to completely egress a building.

R-4 Condition 2 includes buildings in which any person who receives custodial care requires limited verbal or physical assistance when responding to an emergency situation to completely egress a building.

GROUP S – “STORAGE”



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Warehouses. at least 100 sq. ft. (smaller than that, it’s an accessory part of some other type of occupancy)

“low-hazard storage” or “moderate-hazard storage” (anything more would be Group H “high hazard”)

This includes COMMERCIAL vehicle storage (these are special occupancies with additional requirements) but not RESIDENTIAL vehicle storage

The code does clarify that a space less than 100 square feet used for the purpose of storage and that is accessory to another occupancy shall be classified as part of that occupancy.

Group S-1:

Buildings occupied for storage uses that are not classified as a Group S-2 occupancy. A Group S-1 occupancy is also known as a moderate-hazard storage occupancy.

This includes but is not limited to the storage of the following examples:

- Aerosol products, Levels 2 and 3
- Aircraft hangar (storage and repair)
- Bags: cloth, burlap and paper
- Bamboos and rattan
- Baskets
- Belting: canvas and leather
- Beverages over 16-percent alcohol content
- Books and paper in rolls or packs
- Boots and shoes
- Buttons, including cloth covered, pearl or bone
- Cardboard and cardboard boxes
- Clothing, woolen wearing apparel
- Cordage
- Dry boat storage (indoor)
- Furniture
- Furs
- Glues, mucilage, pastes and size
- Grains
- Horns and combs, other than celluloid
- Leather
- Linoleum
- Lumber
- Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials
- Photo engravings
- Resilient flooring
- Self-service storage facility (mini-storage)
- Silks
- Soaps
- Sugar
- Tires, bulk storage of
- Tobacco, cigars, cigarettes and snuff
- Upholstery and mattresses
- Wax candles

Group S-2:

Buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons, or in paper wrappings. A Group S-2 occupancy

is also known as a low-hazard storage occupancy.

This includes but is not limited to the storage of the following examples:

- Asbestos
- Beverages up to and including 16-percent alcohol
- Cement in bags
- Chalk and crayons
- Dairy products in nonwaxed coated paper containers
- Dry cell batteries
- Electrical coils
- Electrical motors
- Empty cans
- Food products
- Foods in noncombustible containers
- Fresh fruits and vegetables in nonplastic trays or containers
- Frozen foods
- Glass
- Glass bottles, empty or filled with noncombustible liquids
- Gypsum board
- Inert pigments
- Ivory
- Meats
- Metal cabinets
- Metal desks with plastic tops and trim
- Metal parts
- Metals
- Mirrors
- Oil-filled and other types of distribution transformers
- Public parking garages, open or enclosed
- Porcelain and pottery
- Stoves
- Talc and soapstones
- Washers and dryers

Aircraft Hangers

Aircraft hangers are considered special occupancies and are required to comply with Section 412.3.

Motor Vehicle Repair Garages

Motor vehicle repair garages are considered special occupancies and are required to comply with Section 406.8.

Public Parking Garages

Public parking garages are considered special occupancies and are required to comply with Section 406.4, 406.5, or 406.6.

GROUP U – “UTILITY”



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accessory or miscellaneous use not classified as any other specific occupancy

This includes but is not limited to the following examples:

- Agricultural buildings
- Aircraft hangers accessory to a one or two family residence
- Barns
- Carports
- Grain silos accessory to a residential occupancy
- Greenhouses
- Livestock shelters
- Private garages
- Sheds
- Stables
- Tanks
- Towers

Private Garages and Carports

Private garage and carports are considered special occupancies and are required to comply with Section 406.3.

Residential Aircraft Hangers

Residential aircraft hangers that are accessory to one or two family dwellings are considered special occupancies and are required to comply with Section 412.4.

WHY CARE ABOUT THOSE CLASSIFICATIONS?



Because of the exceptions and exemptions

INACTIVE LEAF ON DOUBLE DOORS... CAN IT BE FLUSH BOLTED?



[HTTPS://DEVIATING.NET](https://deviating.net)

Not for residential sleeping units

Allowed in Group B, F, or S under 50 people

“If the active leaf of the pair accommodates the occupant load of the area served by the doors”

No “dummy” hardware on the inactive leaf that would indicate that the door could be used for egress

RESIDENTIAL LOW OCCUPANCY



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Occupant load 10 or less under I-Codes or occupant load 3 or less under NFPA

Night latch or deadbolt is OK if operable from the inside with no more than one additional releasing motion

As long as the releasing motions **don't** have to be performed simultaneously

SCHOOLS AND DAYCARES



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All sorts of rules and changes. Classroom size, sprinklers, etc. all affect the rules.

Door must be able to be unlocked and opened from the outside without key or credential

(This is in tension with the new school security guidelines and all evolving)

No “second releasing operation” on classroom doors.

DELAYED EGRESS AND CONTROLLED EGRESS



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Under IBC I-Codes delayed egress **used to not be** permitted in...

Group A – Assembly

Group H – High Hazard

Group E – Educational

Under NFPA delayed egress **might** be sometimes...

Group A – not allowed on main entrance/exit

Group E – allowed

some occupancies in Group I – exterior doors only

press and hold for 3 seconds (15 lbs pressure) and typical delay is 15 seconds (30 can be allowed, with AHJ approval) There will always be an audible alarm and signage within 12" of the exit hardware. If there's a power failure or a sprinkler system activates, immediate free egress is allowed without delay.

As we saw in the story at the start, "Controlled Egress" may be used in certain "Institutional" occupancies where greater security may be needed. (Assisted Living / Senior Care, Correctional like Halfway Houses and Group Homes, Rehab, Psych Hospitals, and Hospital/Obstetric Areas where a Child Abduction System

is used)... Delayed egress upon long press of the touchbar does NOT have to be allowed. However, in most instances Fire Alarm or Sprinkler Activation or Power Failure typically will unlock the door. (Otherwise, all staff must carry keys or codes to unlock the doors and procedures must be part of the emergency plan) There is no signage required on these doors because there are no user instructions.

Fun final note: typically, one's egress path out of a building should never involve going through more than one delayed or controlled egress door. (edge cases where it can be two for certain Institutional delayed exits, but 15 seconds each max for a total of 30 seconds)

SO WHERE ARE YOU MOST LIKELY BREAKING IN?



Examples...

TARGET: CORPORATE OFFICE



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Group B?

TARGET: UNIVERSITY



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Folk may incorrectly guess Group E (that's only K-12)

For some classrooms, Group B seems likely... but some auditorium spaces are surely Group A and dorms are Group R

TARGET: FOODSTUFF PROCESSING AND PACKING



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Most likely Group F (likely in my mind) but Group B could be possible perhaps for adjoining offices. And Group S perhaps for warehousing, etc, before shipment.

TARGET: DATACENTER



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Group B seems likely (like “telephone exchange”)

TARGET: HOSPITAL RECORDS



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Very possibly Group S “storage” but are they considered part of the larger Group I “institutional” hospital itself?

TARGET: POWER COMPANY SUBSTATION



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Probably Group U... but are you breaking into substations or some management office?

DON'T BE SURPRISED IF YOU ENCOUNTER VIOLATIONS



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DON'T BE SURPRISED IF YOU ENCOUNTER VIOLATIONS



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JUST REMEMBER... YOU'RE NOT THE AHJ!



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You can't dictate rules and you can't issue fines. This section was to help you sound smart and predict the door hardware and controls you're likely to encounter.

What should you do if you encounter something that looks really bad? Document it and write it up in your assessment report using neutral and non-committal language. (Let passive voice and phrases like "may not be in compliance" do a lot of heavy lifting)

Naturally if anything is an immediate risk of life or safety, reach out to your engagement point of contact right away, much as you would if you saw something like an unlocked firearm on someone's desk

YOU WILL NEVER CEASE NOTICING THIS STUFF NOW



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I have contacted local AHJs when some places have been egregiously, repeatedly bad

PART 3 – FIRE-RESISTANT CONSTRUCTION



FIVE TYPES OF BUILDING CONSTRUCTION



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(Classifications of Fire Resistance)

TYPE 5 – WOOD-FRAMED



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This is found in many modern homes. The **walls and roofs are made of combustible materials—most commonly wood**. If the walls are wood-framed, the roof usually is as well. Rooftops are ceramic tile or asphalt shingles placed over lightweight trusses and OSB.

Both UL and NIST studies have found that lightweight construction will fail within minutes of direct fire impingement.

TYPE 4 – HEAVY TIMBER



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Construction found in older buildings and utilizes **large dimensional lumber for structural members and interior elements.**

These buildings hold up well under fire conditions (as long as they are well-maintained and don't have extensive weathering)

New GluLam techniques... I don't know how they will hold up or if studies have been done yet testing them

TYPE 3 – ORDINARY



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can be of either new or old construction, and they have **non-combustible walls and a wood roof**.

Older construction buildings may consist of unreinforced masonry and have a conventionally framed roof

Newer buildings will have lightweight roof systems supported by reinforced masonry or tilt slab.

The most common types of roof systems in a commercial setting of Type 3 construction include parallel cord truss and panelized roof systems.

TYPE 2 – NON-COMBUSTIBLE



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typically found in new buildings and remodels of commercial structures. The **walls and roofs are constructed of non-combustible materials**. Specifically, walls are usually reinforced masonry or tilt slab, while roofs have metal structural members and decking. The top of these roofs are often covered with lightweight concrete, foam, an insulated membrane or a combination of these materials.

TYPE 1 – FIRE-RESISTIVE



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constructed of **concrete and protected steel** (steel coated with a fire-resistant material, most often a concrete mixture), and are designed to hold fire for an extended amount of time in order to keep the fire at bay in the room and/or floor of origin.

They're the stoutest of all construction types when exposed to fire.

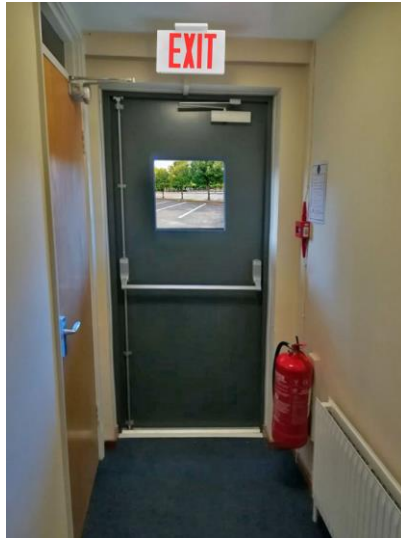
All buildings that are “high-rises” are fire-resistive by code (usually defined as buildings more than 75 feet tall, with some agencies making amendments for buildings that are 35—55 feet tall)

Once you get above 7 or 8 floors

FIRE DOORS



IS THIS A FIRE DOOR?



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Is this a fire door assembly? In all likelihood, no.

It's an emergency exit, but I'd bet it's not a fire door

ARE THESE FIRE DOORS?



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These doors have panic egress hardware but I can tell you specifically they're not fire doors (or if they are, they aren't code compliant)

But the main thing is that you don't need a "fire door assembly" here... it's an external door

ARE THESE FIRE DOORS?



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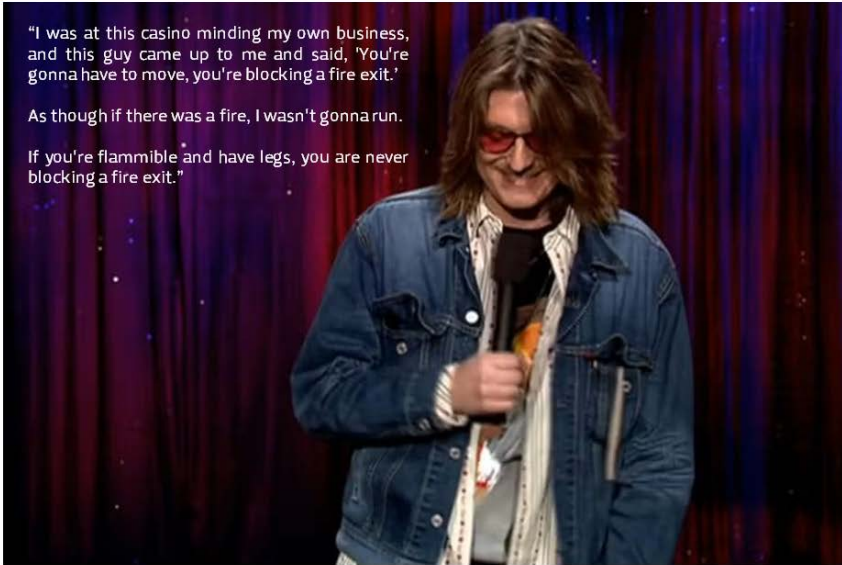
Now THIS is very possibly a fire door (although there's one thing I'd want to check to ensure it's in compliance... it looks likely. (LBR Fire Pin) Don't know about that wide gap between the door leaves, though.

“FIRE EXITS” VS “FIRE DOORS”

"I was at this casino minding my own business, and this guy came up to me and said, 'You're gonna have to move, you're blocking a fire exit.'"

As though if there was a fire, I wasn't gonna run.

If you're flammable and have legs, you are never blocking a fire exit."



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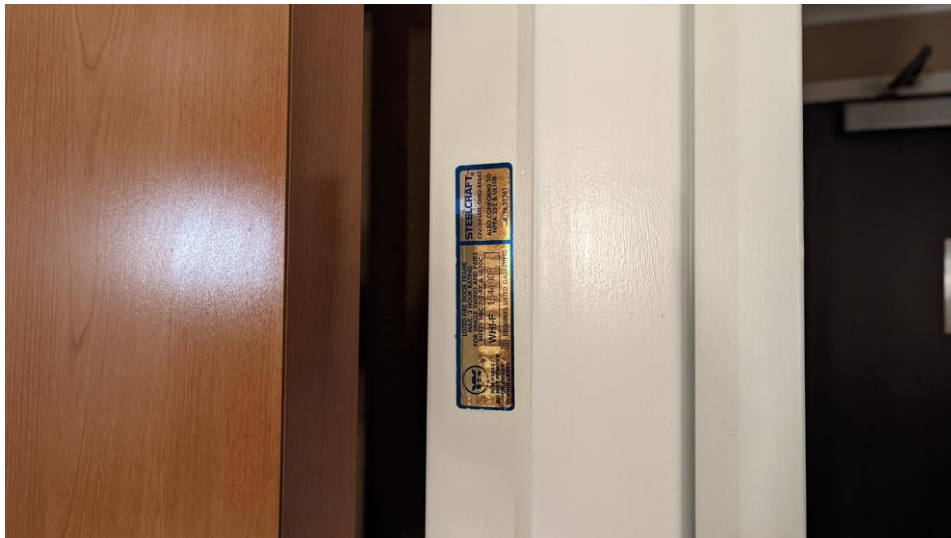
Mitch, so great...

... so, yeah, I'm not talking about fire "exits" per se here. This is about labeled fire door assemblies.

“LABELED” FIRE DOOR ASSEMBLIES



LABELED FIRE DOORS AND FRAME ASSEMBLIES



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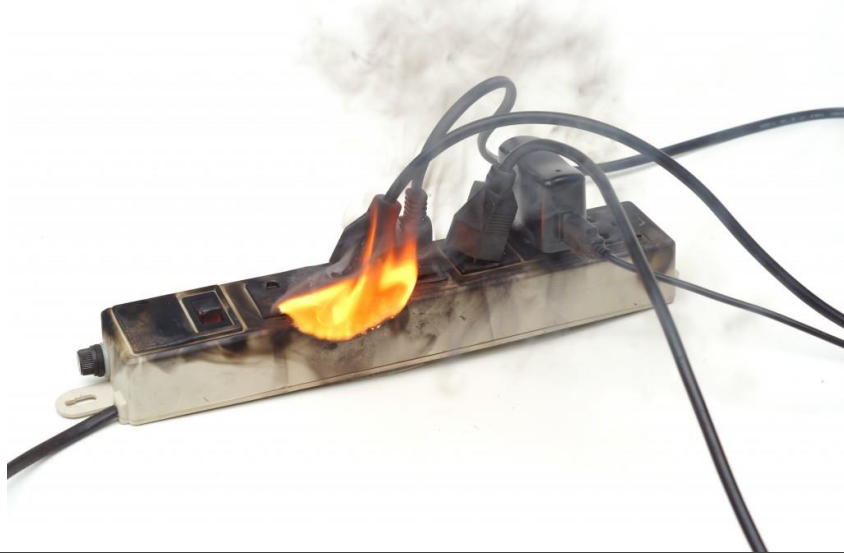
Labeled Doors are typically all **INTERIOR** doors. Labels can be riveted metal or mylar stickers.

Listing and Labeling Agencies...

- UL (Underwriter's Lab, Illinois)
- WH (Intertek / Warnok Hersey, originally Montreal, now London)
- FMG (Factory Mutual Global, Rhode Island)
- QAI (less well-known player, started as "Quantum Algorithms Institute" in BC)

If a label is missing (or painted over to the point of being illegible) may have to re-certify (very expensive) \$50 per label and \$850 per job.

WHY IS FIRE DANGEROUS TO BUILDING OCCUPANTS?



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There are **FOUR** dangers we think about from building fires...

dangers from fire: flame, heat, smoke, toxic gasses

Very few people in fires are harmed by the flame itself. Smoke and toxic gas are the main killers

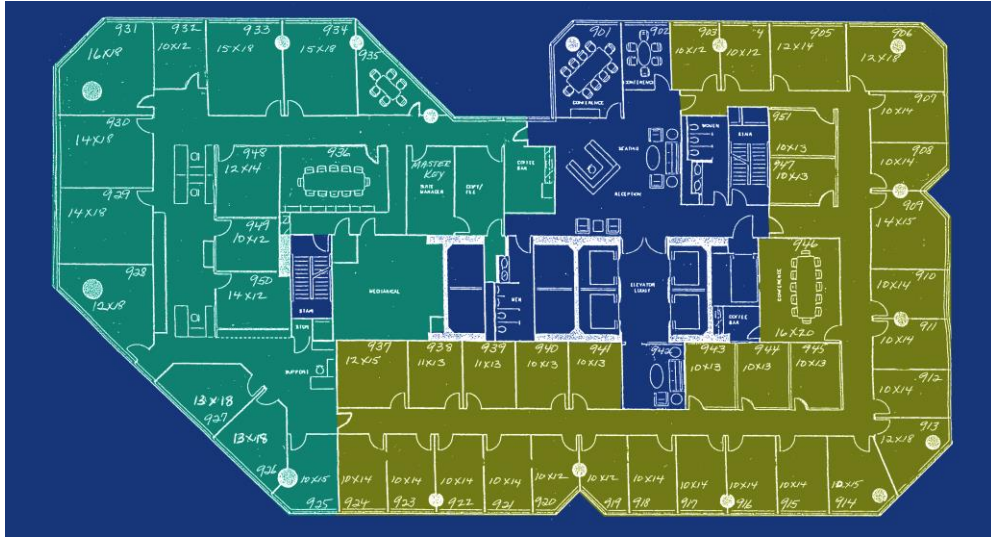
MANAGING THE SPREAD OF FLAME, HEAT, SMOKE, AND TOXIC GASSES



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Ask audience about being young, poor hackers wiring up buildings for ethernet back in the 90s and 00s... **plenum** cable vs **riser** cable vs **general multipurpose** CAT5 or CAT6 cable through drop ceilings or in ducts

MANAGING THE SPREAD OF FLAME, HEAT, SMOKE, AND TOXIC GASSES



[HTTPS://DEVIATING.NET](https://deviating.net)

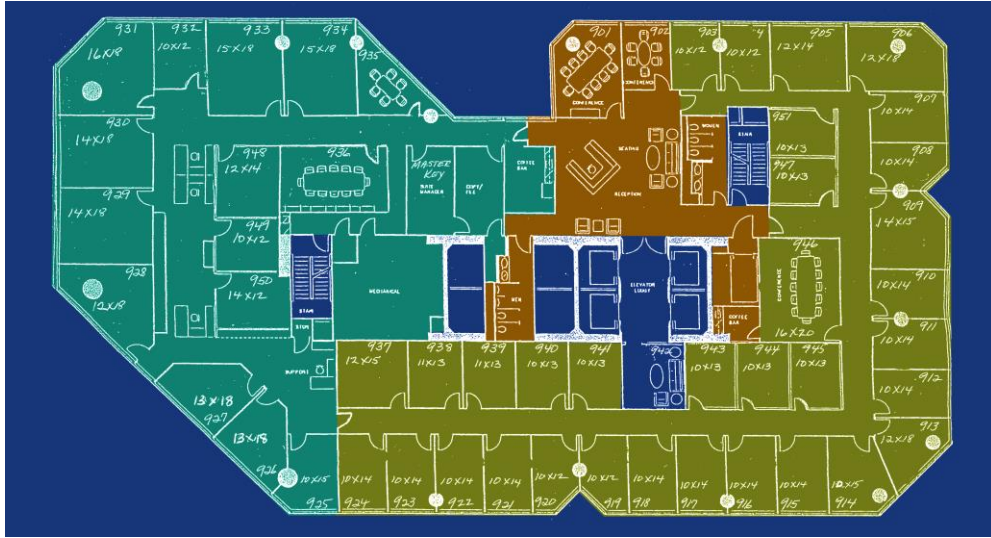
A door (or closure) with a fire-resistance rating is used to **COMPARTMENTALIZE** areas of a structure

Along with fire-rated walls, automatic dampers, etc... these are meant to make a fire event more survivable by keeping flame, heat, and smoke contained.

Fire protection features are designed to **slow** the spread of flame, smoke, and gasses with **predictable performance under rated load**

NFPA 80 Fire Doors are always self-closing and self-latching. Latch, not a deadbolt. They have to seal the area but also allow easy and free egress. And they have to withstand a lot of heavy duty shit.

MANAGING THE SPREAD OF FLAME, HEAT, SMOKE, AND TOXIC GASSES



[HTTPS://DEVIATING.NET](https://deviating.net)

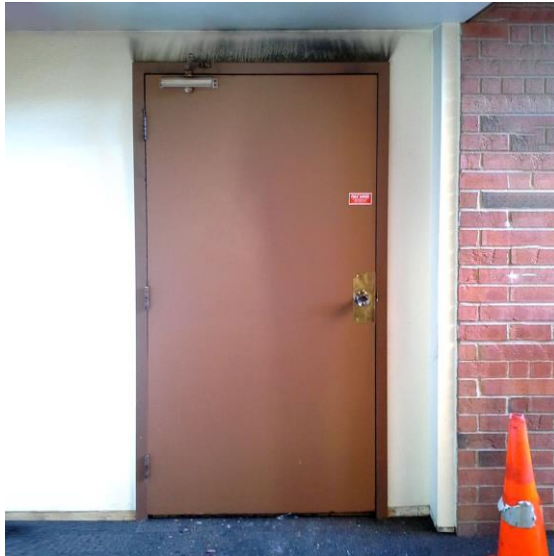
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MANAGING THE SPREAD OF FLAME, HEAT, SMOKE, AND TOXIC GASSES



[HTTPS://DEVIATING.NET](https://deviating.net)

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I learned about this incident from Lori Greene at Allegion whom I'll mention in greater detail later... she's an absolute expert in this field and her blog is a fantastic resource if you want to know more about code compliance, door standards, and more.

NFPA 80 FIRE DOOR TESTING



FIRE DOOR ASSEMBLY TESTING



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Costs like \$20,000 to submit for a fire test

Quickly heat to 1000 degrees, then ramp to 1925 degrees

Tests to see if there's bowing, latch failure, gaps that develop

Furnace test, this is a 90 minute test

FIRE DOOR ASSEMBLY TESTING



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Two types of doors... one has a smoke seal and fire rated glass, the other doesn't. We can see the results.

One may be a sodium silicate filled glass, the other might be a laminate or ceramic glass (although maybe not likely in either case because of the visible wire framing in the glass... Georgian glass style)

FIRE DOOR ASSEMBLY TESTING



#STANDARDSMATTER
#FIRESAFETY



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Hose stream test

30 psi for most tests. 45psi for 3-hour test

FIRE DOOR ASSEMBLY TESTING



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Doors have to not only withstand heat and flame but also the shock of an immediate cold soak and blast from a hose. Fire might not be totally out and you can't have the doors failing or bursting open (implications for drafts and sudden spread of fire, etc)

30 psi for most tests. 45psi for 3-hour test

NFPA 80 FIRE DOOR INSPECTION



In the USA, NFPA requires annual inspections of fire-resistance rated door assemblies

Most jurisdictions in the US will be adopting the IBC (International Building Code) model code, which references the NFPA 80 2007 edition requirement, as their local codes

FIRE DOOR ASSEMBLY INSPECTION



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This has to be regularly performed.

Beginning with the 2013 edition, the NFPA 80 standard has required fire doors to be inspected **after installation** and **after maintenance work**, in addition to the annual inspection that has been required since the 2007 edition.

There are 13 items (few doors feature **all** of these items together)

“SOUND LIKE YOU ARE KNOWLEDGEABLE”



These systems get tested. That's a good reason to have an excuse to look around buildings, be in "non public" areas, etc. People don't want to mess with you, typically, or will leave you alone if you offer them a convincing excuse.

ITEM 1 – LABELS

- **VISIBLE AND LEGIBLE** (UP TO THE INSPECTOR WHAT COUNTS AS "LEGIBLE" IF PAINT WAS APPLIED)
 - LATCH THROW IS OFTEN ON THE LABEL... MEASURE IN ITEM #9
 - HARDWARE REQUIREMENTS ARE OFTEN ON THE LABEL
 - [S] INDICATES SEALS SHOULD BE INSTALLED... CHECK IN ITEM #12
- **LABELS ARE SUPPOSED TO BE BELOW THE TOP HINGE BUT CAN BE MOVED** (E.G. TO TOP EDGE) **WITH PERMISSION FROM A TESTING AGENCY** (E.G. A CONTINUOUS GEAR HINGE. BUT OTHERS SAY IT'S BETTER TO NOTCH THE HINGE AND KEEP THE LABEL IN THE STANDARD POSITION.)
- **INSPECTORS CAN ASK FOR HINGES AND HARDWARE TO BE REMOVED TO REVEAL A COVERED-UP LABEL** (BUT WE SHOULDN'T HAVE TO)
- **LABELS CAN BE EMBOSSED, RIVETED, PRINTED, STAMPED, OR ADHESIVE**
- **HINGES ARE THE ONLY LISTED COMPONENT THAT DON'T REQUIRE LABELING** (BUT *TRANSFER HINGES ALWAYS DO* NEED A LABEL)

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We check the label which has all the relevant information about the door and frame assembly. What it's rated for, who tested it, and standards for assembly.

Latch throw, clearances, etc are all things that matter

ITEM 1 - LABELS



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Would this count? I'd say it's still legible.

ITEM 1 – LABELS



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Now, the door itself has other problems that we'll talk about shortly, lol

(not self-closing or self-latching)

ITEM 2 – NO HOLES OR BREAKS



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Prevent path of flame or smoke or hot/toxic gasses

You might say, “wait a minute, a lot of doors in hotel rooms and meeting rooms have a peephole drilled into them!”...

ITEM 2 – NO HOLES OR BREAKS



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Peepholes **can** be fire rated (they'll have a label) *inspect in item #4*

(they'll use true glass, not plastic, for the optical element... if you can't get one unscrewed, some folk consider it feasible to tap on the glass as a means of checking)

ITEM 2 – NO HOLES OR BREAKS



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Unless it's outright damage, most holes or breaks are going to be found in the door frame and it's typically because fastener holes are left in a door or frame due to changes or removal of hardware or plant-ons

ITEM 2 – NO HOLES OR BREAKS

- THE ONLY HOLES ALLOWED ARE THE ONES THAT THE MANUFACTURER ORIGINALLY INCLUDED AND WHICH WERE PRESENT DURING TESTING
- THIS IS TO PREVENT A PATH FOR FLAME, SMOKE, OR TOXIC GASSES
- PEEPHOLES CAN BE FIRE RATED (THEY'LL HAVE A LABEL)... CHECK IN ITEM #4
- NFPA 80 LISTS METHODS FOR MITIGATION OF HOLES/BREAKS...
 1. INSTALL STEEL FASTENERS THAT COMPLETELY FILL THE HOLES
 2. FILL THE SCREW OR BOLT HOLES WITH THE SAME MATERIAL AS THE DOOR OR FRAME
 3. FILL HOLES WITH MATERIAL LISTED FOR THIS USE AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PROCEDURES

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Prevent path of flame or smoke or hot/toxic gasses

Peepholes **can** be fire rated (they'll have a label) *inspect in item #4*

NFPA 80 lists methods of mitigation...

When fastener holes are left in a door or frame due to changes or

removal of hardware or plant-ons, the holes shall be repaired by the following methods:

- (1) Install steel fasteners that completely fill the holes.*
- (2) Fill the screw or bolt holes with the same material as the door or frame.*
- (3) Fill holes with material listed for this use and installed in accordance with the manufacturer's procedures.*

ITEM 3 – GLAZING (IF THERE’S A WINDOW)



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NOTE: Windows are also referred to as “lights” or “sidelights” or “vision lights” in doors but they’re just clear windows, not sources of illumination

ITEM 3 – GLAZING (IF THERE'S A WINDOW)

- GLASS WILL HAVE AN ETCHED LABEL (REPLACEMENT PANES DO, TOO)
- ETCHING MUST BE VISIBLE AFTER INSTALLATION
- REPLACEMENT WINDOWS CAN BE MADE BY THE FACTORY, BUT YOU CAN'T RETROFIT A WINDOW INTO A DOOR (UNLESS REVIEWED BY THE LISTING AGENCY AND THAT REVIEW IS GOING TO COST MORE THAN A NEW DOOR)
- GLAZING BEAD MUST BE INTACT AND SECURELY FASTENED, GLASS CAN'T SLIP
- IT'S OK TO RE-BEAD GLAZING, THAT'S AN ALLOWED FIELD REPAIR

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NOTE: Windows are also referred to as “lights” or “sidelights” or “vision lights” in doors but they're just clear windows, not sources of illumination

Fire Safety Glass Standards...

- old polished-wire glass did surprising well in its day
- tempered glass should handle up to 500°F
- fire rated glass is good up to 1600°F
- ceramic glass (introduced around 2000) is the best at 1600°F but also
 - *passes fire and smoke performance tests*
(from 45 min up to 3 hour)
 - *after heating test, it gets hit with hose stream test at 30psi*

ITEM 4 – FRAME, HINGES, HARDWARE, AND APPURTENANCES



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“Appurtenances” is a fun word to say, simply meaning “accessories”

What’s the code violation here, BTW? Two night locks for some odd reason.

(“Operable Part” of a Mechanism... used to Activate, Deactivate, Insert, Withdraw, or Adjust)

Must be operable with one hand in a single operation, with exceptions “to require not more than one additional releasing operation ”)

late August, 2022

The Grand Hotel

201 Liberty St

SE Salem, OR

97301

ITEM 4 – FRAME, HINGES, HARDWARE, AND APPURTENANCES

- IF IT'S ATTACHED TO A FIRE-RATED DOOR ASSEMBLY, TYPICALLY IT MUST BE FIRE-RATED
- ALL COMPONENTS SECURED, ALIGNED, WORKING WITH NO VISIBLE SIGNS OF DAMAGE
- ADJUSTING HINGES WITH STEEL SHIMS IS OK, BUT NOT OTHER MATERIALS
- LOOK FOR LABELS ON HARDWARE (EVERYTHING EXCEPT HINGES)
- DECORATIVE OR FUNCTIONAL PLANT-ONS (KICK PLATE, MUST BE STEEL IF OVER 16")
- NOTHING CAN GO ON GLASS
- ARTICULATING DOOR BOTTOMS (NOW MUST BE MORTICED, NOT AFFIXED EXTERNALLY)
- LOUVERS CAN'T BE MORE THAN 24"x24" (AND ALMOST ALWAYS NEED A FUSIBLE LINK TO MELT AND CLOSE)

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Drywall should extend a half inch beneath the frame... harder to test for this but it's part of the standard

And if the door has electrified hardware, said door should be labeled for that. (Field modifications like raceways are a problem)

ITEM 5 – MISSING OR BROKEN PARTS



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Someone jammed a broom handle or some damn thing up into this door and bent the corners.

ITEM 5 – MISSING OR BROKEN PARTS



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See that light leaking through?

ITEM 5 – MISSING OR BROKEN PARTS



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The drop-down seal on this articulating door bottom isn't working properly

ITEM 5 – MISSING OR BROKEN PARTS



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Too much torque on power driver when installing

ITEM 5 – MISSING OR BROKEN PARTS



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Snapped the head off this fastener. Time to dig that out of there then order a new one.

ITEM 5 – MISSING OR BROKEN PARTS

- BROKEN THINGS ARE HOPEFULLY OBVIOUS BUT CAN BE HIDDEN (ARTICULATING DOOR BOTTOM, PART OF GAP CHECK AND SELF-CLOSE SECTIONS LATER)
- MISSING OR BROKEN HINGE SCREWS ARE THE MOST COMMON SIGHT
- FILLING HOLES WITH STEEL FASTENERS OR NGP PRODUCTS OR UL APPROVED FIRE CAULK (THERE ARE MULTIPLE KINDS)
- AFTER ANY REPAIRS RE-INSPECTION IS NECESSARY, AND THE REPAIRS ARE LISTED ON A “COMPLETION SHEET” ATTACHED TO THE ORIGINAL REPORT

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Easy things for you to call out, to distract in a conversation, etc

“Completion Sheet” is a good term to know

ITEM 6 – DOOR CLEARANCES



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This little tool is cool... a door gap checker

ITEM 6 – DOOR CLEARANCES



[HTTPS://DEVIATING.NET](https://deviating.net)

This little tool is cool... a door gap checker

Great excuse to get up close and personal with many doors in a facility, even ask folk to open and close them repeatedly, etc

ITEM 6 – DOOR CLEARANCES

- METAL DOORS... $\frac{1}{8}$ " (WITH $\pm \frac{1}{16}$ " GRACE TOLERANCE)
- WOOD DOORS... $\frac{1}{8}$ " (NO GRACE TOLERANCE)
- BOTTOM GAP... $\frac{3}{4}$ " FROM FINISHED FLOOR ("GAP" REFERENCES THE FINISHED FLOOR. "UNDERCUT" REFERENCES THE TRUE FLOOR)
- CARPET SHOULD BE PROVABLY FIRE-RESISTANT OTHERWISE CARPET SHOULD BE CUT AND A METAL OR OTHER FIRE-RESISTANT STRIP SHOULD BE INSTALLED
- IF THERE ARE "HOSPITAL STOPS" A.K.A. "TERMINATED STOPS" ON THE FRAME, NO MORE THAN 6" FROM BOTTOM OF THEM TO THE FLOOR

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Hospital stops are a feature of the frame made at the factory, they are not a permitted field modification

Crown Fire Door Products and NGP are good for fixing top and bottom gaps

“STANDARD STOPS” VS “HOSPITAL STOPS” A.K.A. “TERMINATED STOPS”



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“STANDARD STOPS” VS “HOSPITAL STOPS” A.K.A. “TERMINATED STOPS”



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ITEM 7 – SELF-CLOSING OPERATION



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Fire doors must be self-closing and self-latching

Externally-mounted Door Closers are the most common

ITEM 7 – SELF-CLOSING OPERATION



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There are concealed door closers, as well

ITEM 7 – SELF-CLOSING OPERATION



[HTTPS://DEVIATING.NET](https://deviating.net)

There are concealed door closers, as well

ITEM 7 – SELF-CLOSING OPERATION



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Proper Door Closer devices have an internal oil reservoir to provide damping. Spring hinges have no damping and often slam.

On a labeled door, if it's over 7', code says it shall NOT have spring hinges. Risk of injury. (Court case at Admiral's Club in Florida airport)

NFPA 80 Annex A - "spring hinges should be adjusted to achieve positive latching when allowed to close freely from an open position of 30 degrees."

ITEM 7 – SELF-CLOSING OPERATION

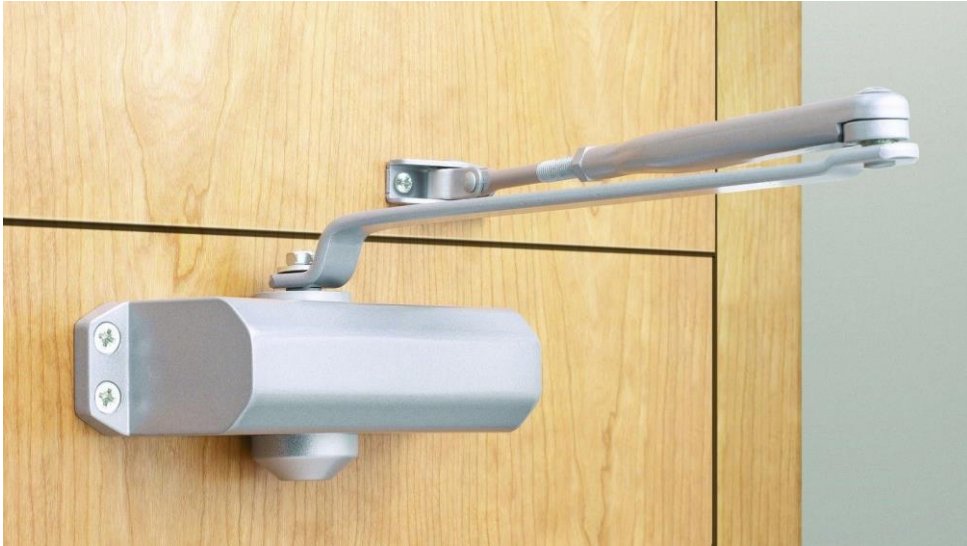


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it's ok to adjust a door closer, that's an allowed repair

don't have to replace covers on door closers if they are removed

ITEM 7 – SELF-CLOSING OPERATION



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“**Wind Stack**” is a good term to use regarding complications related to environmental pressures

There are specific rules and fire doors must almost always be **outswing** except in a few cases

ITEM 7 – SELF-CLOSING OPERATION

- FIRE DOORS MUST ALWAYS BE OUTSWING EXCEPT IN A FEW CASES...
 - RESIDENTIAL UNDER 3200 SQ. FT.
 - OCCUPANT LOAD LESS THAN 50 PEOPLE
 - SMOKE DOORS IN MEDICAL FACILITIES (AIR HANDLING / PATHOGEN MANAGEMENT)
 - COMMUNICATING DOORS IN ADJOINING HOSPITALITY SUITES
- TEST AUTO-CLOSERS BY OPENING AND RELEASING THE DOOR THREE TIMES
- 5-SECOND CLOSING TIME IS A LAUDABLE GOAL AND GOOD TARGET
- SPRING HINGES SHOULD CLOSE AND LATCH THE DOOR WHEN 30° OPEN
 - MINIMUM OF TWO SPRING HINGES
 - THEY SHOULD BE THE CENTER AND BOTTOM HINGES

[HTTPS://DEVIATING.NET](https://deviating.net)

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NFPA 80 Annex A - "spring hinges should be adjusted to achieve positive latching when allowed to close freely from an open position of 30 degrees."

NFPA 80 5.2.3.5.2 (2013) - "door completely closes when operated from the full-open position."

International Fire Code (IFC) 703.2.3 (2015) - "Fire doors shall close from the full-open position and latch automatically. The door closer shall exert enough force to close and latch the door from any partially open position."

International Fire Code (IFC) 705.2.4 (2018 and 2021) "Swinging fire doors shall close from the full-open position and latch automatically." (they dropped the "from any partially open position" language)

IFC Commentary: "Fire doors should be frequently checked to make sure they close and latch on their own power from any position." (so even though they dropped the line, the advisory commentary that goes with the IFC code still discusses closing from any position)

ITEM 8 – DOOR COORDINATOR



[HTTPS://DEVIATING.NET](https://deviating.net)

Ensures that leaves of doors close in the correct order

This style, “gravity style” is the most reliable...

ITEM 8 – DOOR COORDINATOR



[HTTPS://DEVIATING.NET](https://deviating.net)

...but the industry (and clients) love these flush-mount ones

These flush mount ones can be damaged by pushing

ITEM 8 – DOOR COORDINATOR

- ONLY FOUND ON DOUBLE DOOR SETS
- TEST BY HOLDING THE LEAVES AND LETTING THEM CLOSE IN VARIOUS ORDER
- INACTIVE LEAF SHOULD ALWAYS CLOSE FIRST
- INSTALLATIONS WITH AUTOMATIC FLUSH BOLTS REQUIRE A DOOR COORDINATOR

ITEM 9 – LATCHING HARDWARE



[HTTPS://DEVIATING.NET](https://deviating.net)

Throw distance is always specified on the Door's Label

ITEM 9 – LATCHING HARDWARE

- CHECK LATCH THROW DISTANCE AS SPECIFIED ON DOOR RATING LABEL
- TEST LATCH BY PUSHING AND PULLING WITHOUT OPERATING THE HANDLE
- LATCHES SETS WILL BE STAMPED “F” (LOWERCASE MEANS TESTED FOR POSITIVE PRESSURE, AS WELL)
- EXIT DEVICE WITH A DOGGING HOLE IS A FAIL (EVEN IF DISABLED, THE CHASSIS MAY BE DIFFERENT INSIDE... IT’S NOT A FIRE DOOR PRODUCT)
- BOTTOM LATCHING... THINGS GET TRICKY WITH LBR INSTALLS

[HTTPS://DEVIATING.NET](https://deviating.net)

Throw distance is always specified on the Door’s Label

NFPA 80 section 6.4.1.4 - "latching achieved on each door operation"

UL-F (fail safe) electric strikes not allowed on a labeled door. (Fire fighters in a stairwell, flame ingress when power to the building was cut)

ITEM 9 – LATCHING HARDWARE WITH LBR INSTALLATION



[HTTPS://DEVIATING.NET](https://deviating.net)

Von Duprin LBR (less bottom rod) panic installation

Needs bottom hole plugged on the underside of the device and different top rods are used which are spring assisted (these don't secure the door)

There should be an LBR fire pin (thermally activates at 1800° to secure double doors)

ITEM 9 – LATCHING HARDWARE WITH LBR INSTALLATION



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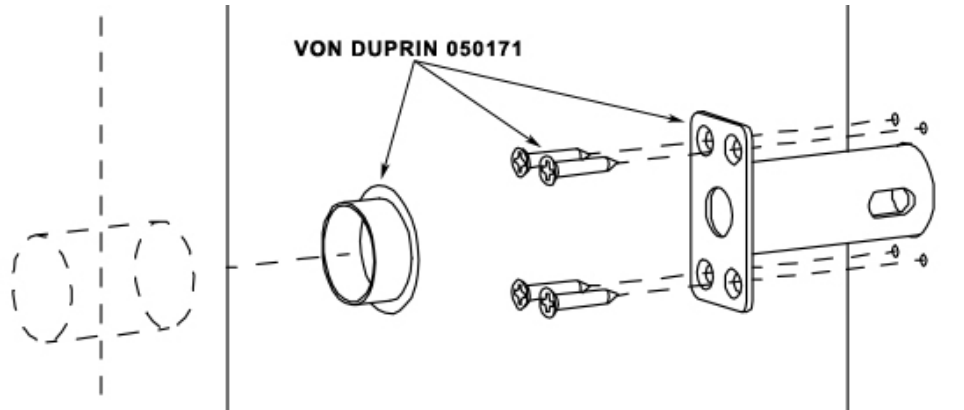
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ITEM 10 – AUXILIARY ITEM INTERFERENCE



[HTTPS://DEVIATING.NET](https://deviating.net)

Door stoppers and other things like chains, improvised hooks, etc

ITEM 10 – AUXILIARY ITEM INTERFERENCE



[HTTPS://DEVIATING.NET](https://deviating.net)

Door stoppers and other things like chains, improvised hooks, etc

what would the solution be for this kickdown door stop?

(Uninstall, yes, but then... fill the holes. Those same steel screws would be fine.)

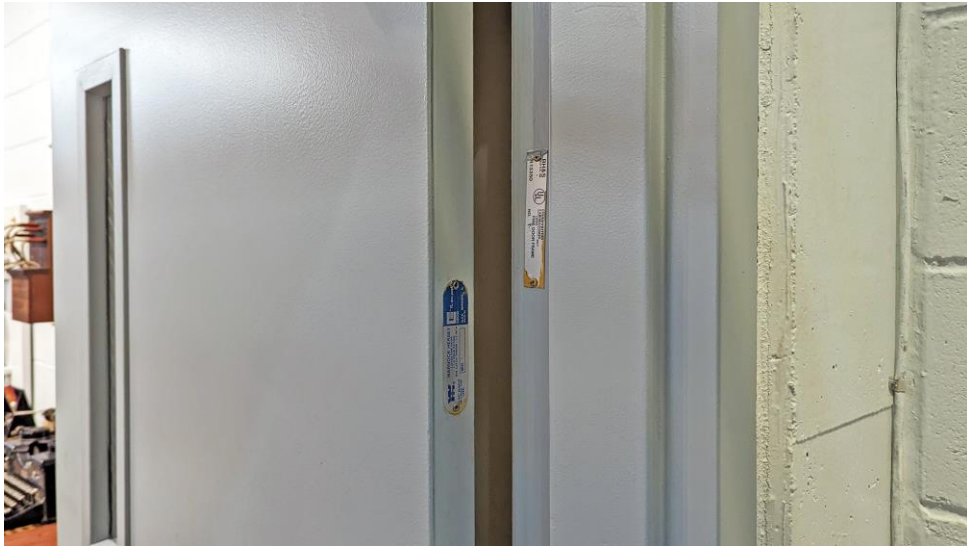
ITEM 10 – AUXILIARY ITEM INTERFERENCE



[HTTPS://DEVIATING.NET](https://deviating.net)

This is a very nicely-made item (almost looks factory?) but sadly wouldn't be compliant for this installation...

ITEM 10 – AUXILIARY ITEM INTERFERENCE



[HTTPS://DEVIATING.NET](https://deviating.net)

... this is a labeled fire door assembly that controls passage from an elevator landing into the top floor of a museum in Seattle.

Ceco door company (now part of ASSA Abloy) listed by Warnock Hersey
BH&S frame (by Babcock-Davis) listed by Underwriter's Lab (a very long time ago... this building is a telephone company central office, this door may be from like the 60s or 70s)

I am sympathetic to these facilities... sometimes having a closed, heavy door is an inconvenience and an accessibility issue. This elevator landing on an upper floor is very small, can get crowded, if folk are in wheelchairs or using other mobility aids, operating the door can be a pain, etc. This was formerly a structure that wasn't open to the public at all but now there's a museum there. They might have even gotten a variance for this during opening hours, who knows.

ITEM 10 – AUXILIARY ITEM INTERFERENCE



[HTTPS://DEVIATING.NET](https://deviating.net)

The real challenge is something like doorstops, though. Employees can buy these anywhere and bring them to the office with almost no oversight, etc. People shove doorstops in places and undermine the fire door functionality, sometimes without the building owners even knowing about it. (Some bad fires in apartment buildings have been exacerbated by homebrew doorstops in corridors, etc)

We've all seen bricks or other things sitting near doors (especially if you do physical penetration testing) and we see all the time how a building's occupants will homebrew their own solutions.

ITEM 10 – AUXILIARY ITEM INTERFERENCE

- CHECK FOR DOOR STOPS, BRICKS, CHAINS, AND OTHER HOMEBREW DEVICES TO PROP DOORS OR OTHERWISE HOLD DOORS OPEN (EVEN IF THEY'RE MERELY NEAR THE DOOR, THAT'S A SIGN OF TROUBLE AND A POSSIBLE FAIL)
- SECURITY SYSTEM AND ACCESS CONTROL SYSTEM HARDWARE
- ENVIRONMENTAL EFFICIENCY SEALS AND RELATED DEVICES

ITEM 10 – AUXILIARY ITEM INTERFERENCE



[HTTPS://DEVIATING.NET](https://deviating.net)

If someone does need a hold-open, there are venerable options that exist.

Sentronic SEM 7800 magnetic hold-open is a great example

(LCN has these. they're a sub-division of Allegion after selling to Schlage in 1959. originally named for Lewis C. Norton, the founder who was asked to silence slamming doors in Trinity Church in Boston in 1877/1880, accounts differ on the date)

There are also delayed-action door closers that will temporarily hold doors open and then close and latch properly. Installing products like these in anticipation of people's needs is the best way to mitigate against ad-hoc field solutions by untrained folk which can result in code violations and safety concerns

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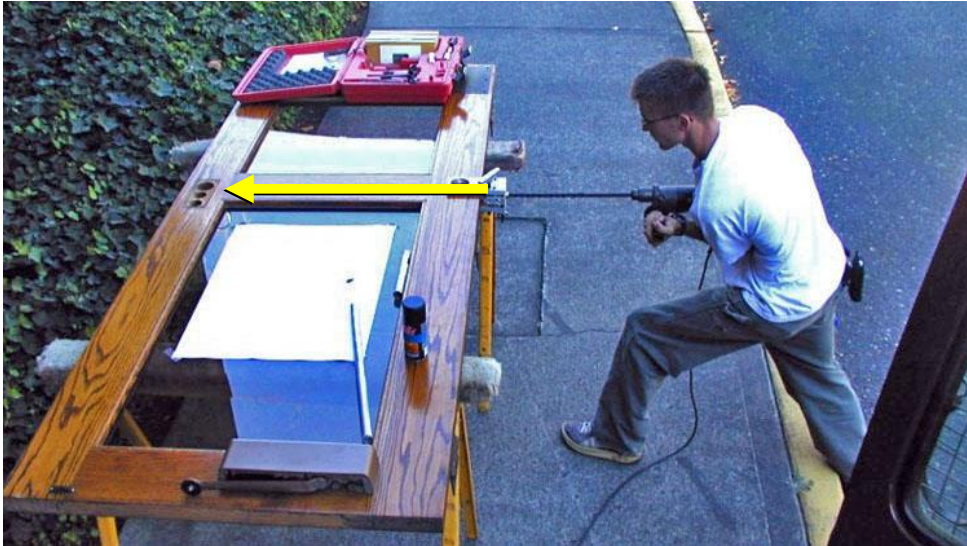
ITEM 11 – FIELD MODIFICATIONS



[HTTPS://DEVIATING.NET](https://deviating.net)

What's this guy doing?

ITEM 11 – FIELD MODIFICATIONS



[HTTPS://DEVIATING.NET](https://deviating.net)

He's drilling a raceway through the door in order to run wire through it to what is likely a new electronic handle set

(I strongly doubt that this a fire door)

ITEM 11 – FIELD MODIFICATIONS



[HTTPS://DEVIATING.NET](https://deviating.net)

Apartment building in SF... is this extra mortise cutout for an electronic lock set and its battery pack an authorized modification?

ITEM 11 – FIELD MODIFICATIONS



[HTTPS://DEVIATING.NET](https://deviating.net)

I have reached out to Warnock to ask if this was part of the submitted design from Lynden Door

ITEM 11 – FIELD MODIFICATIONS

The screenshot shows the Intertek website's 'Fire Doors Testing Solutions' page. The Intertek logo is in the top left, with the tagline 'Total Quality. Assured.' Below it. The navigation menu includes 'Industries & Services', 'About Us', 'Resources', and 'Locations & Contacts'. A search bar is in the top right. The breadcrumb trail reads: 'Intertek > Construction & Engineering > Building & Construction > Building & Construction Product Testing > Fire Doors Testing Solutions'. The main heading is 'Fire Doors Testing Solutions'. A white box on the left contains the text: 'Mitigate the threat of property damage and loss of life due to fire'. A blue box on the right contains the text: 'Need help or have a question? +1 800 967 5352' and a link for 'Additional Phone Numbers' with a plus icon. The background image shows a fire door in a hallway.

[HTTPS://DEVIATING.NET](https://deviating.net)

I have reached out to Warnock to ask if this was part of the submitted design from Lynden Door

ITEM 11 – FIELD MODIFICATIONS



[HTTPS://DEVIATING.NET](https://deviating.net)

Their labels weren't legible, I can tell you that, though

ITEM 11 – FIELD MODIFICATIONS

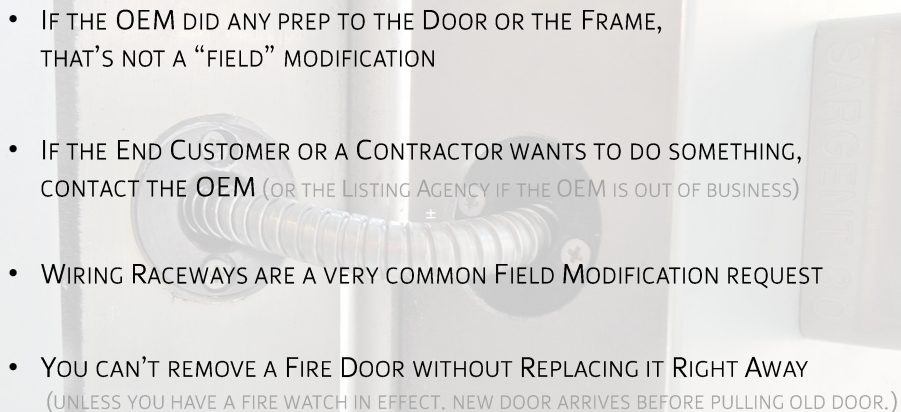


[HTTPS://DEVIATING.NET](https://deviating.net)

Modifications for electronic access control is a very topical question these days

You either have to contact the manufacturer and then file a completion sheet with the original paperwork or you have to order a new door which already comes from the factory with the features that you require

ITEM 11 – FIELD MODIFICATIONS

- 
- IF THE OEM DID ANY PREP TO THE DOOR OR THE FRAME, THAT'S NOT A "FIELD" MODIFICATION
 - IF THE END CUSTOMER OR A CONTRACTOR WANTS TO DO SOMETHING, CONTACT THE OEM (OR THE LISTING AGENCY IF THE OEM IS OUT OF BUSINESS)
 - WIRING RACEWAYS ARE A VERY COMMON FIELD MODIFICATION REQUEST
 - YOU CAN'T REMOVE A FIRE DOOR WITHOUT REPLACING IT RIGHT AWAY
(UNLESS YOU HAVE A FIRE WATCH IN EFFECT, NEW DOOR ARRIVES BEFORE PULLING OLD DOOR.)

[HTTPS://DEVIATING.NET](https://deviating.net)

Installing raceway for wiring is a very topical question these days

You either have to contact the manufacturer and then file a completion sheet with the original paperwork or you have to order a new door which already comes from the factory with the features that you require

ITEM 12 – GASKETS AND SEALS



[HTTPS://DEVIATING.NET](https://deviating.net)

ITEM 12 – GASKETS AND SEALS

- LOOK FOR [S] ON THE FIRE RATING LABEL TO SEE IF THEY ARE REQUIRED
- GASKETS CAN BE SURFACE-APPLIED OR EMBEDDED INTO THE DOOR FRAME
- GASKETS SHOULDN'T INTERFERE BADLY WITH READABILITY OF LABELS



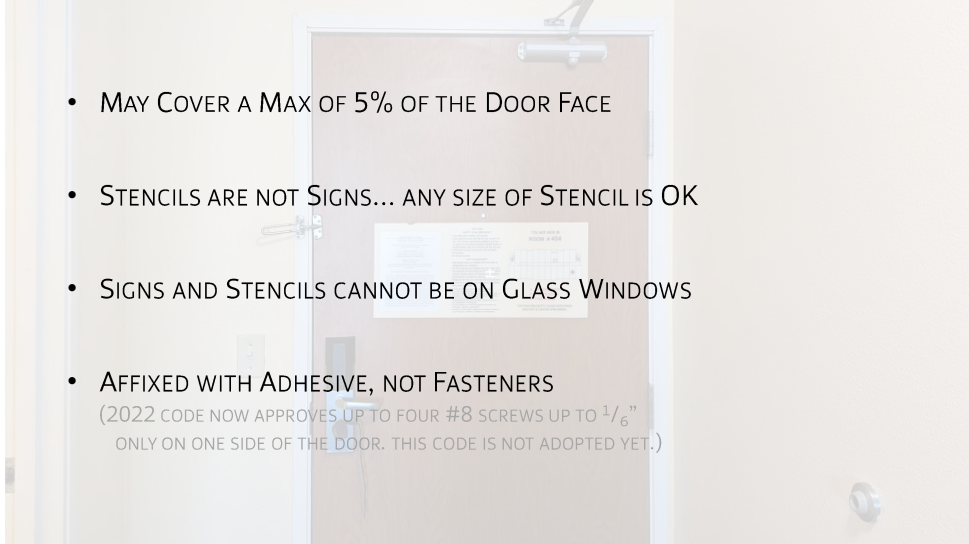
ITEM 13 – SIGNAGE



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Signs add fuel to the situation. They can burn or emit toxic gasses

ITEM 13 – SIGNAGE



- MAY COVER A MAX OF 5% OF THE DOOR FACE
- STENCILS ARE NOT SIGNS... ANY SIZE OF STENCIL IS OK
- SIGNS AND STENCILS CANNOT BE ON GLASS WINDOWS
- AFFIXED WITH ADHESIVE, NOT FASTENERS
(2022 CODE NOW APPROVES UP TO FOUR #8 SCREWS UP TO 1/6" ONLY ON ONE SIDE OF THE DOOR. THIS CODE IS NOT ADOPTED YET.)

[HTTPS://DEVIATING.NET](https://deviating.net)

Yeah, sometimes you wind up doing math to determine over or under 5% area of the door. I see LOTS of signage that appears to exceed 5% in hotels

“HAVE A REASON TO BE THERE...”



Beginning with the **2013 edition, the NFPA 80 standard** has required fire doors to be inspected after installation and **after maintenance work**, in addition to the annual inspection that has been required since the 2007 edition.

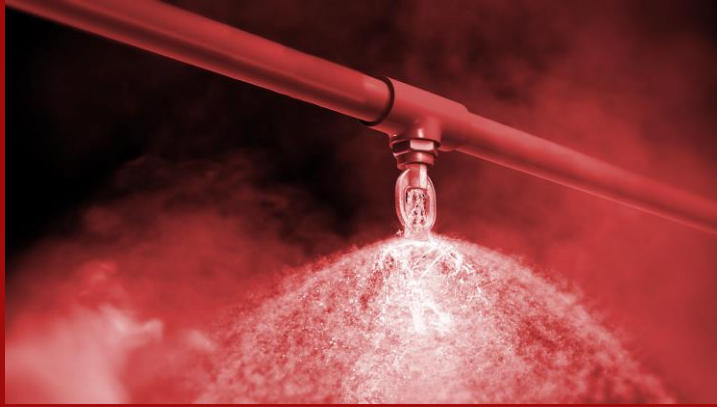
“HAVE A REASON TO BE THERE...



...AND LOOK LIKE YOU BELONG THERE”

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ACCESSORIES TO SELL YOUR PERSONA



TRY TO MAKE YOUR OUTFIT AND GEAR APPEAR USED / WORN-IN



[HTTPS://DEVIATING.NET](https://deviating.net)

“blue collar guy” or “polo shirt and matching hat guy”

TRY TO MAKE YOUR OUTFIT AND GEAR APPEAR USED / WORN-IN



[HTTPS://DEVIATING.NET](https://deviating.net)

Pawn shops, thrift stores, eBay, etc

I LOVE THAT LITTLE DOOR GAP TOOL



[HTTPS://DEVIATING.NET](https://deviating.net)

Door gap gauge is great... literally a reason to be up close and personal with LOTS of doors

THE DOOR PRESSURE GAUGE IS ALSO NEAT


The screenshot shows an Amazon product page for a "Gordon Glass Co. Door Pressure Gauge, 0-35 Lbs | Made in USA". The product is a long, thin, cylindrical gauge with a black handle and a clear tube. The page includes a navigation bar at the top with the Amazon logo, search bar, and various category links. The product title is "Gordon Glass Co. Door Pressure Gauge, 0-35 Lbs | Made in USA". Below the title, there is a 4.6-star rating with 327 ratings. The price is listed as \$35.00, with a 12% discount from the list price of \$39.60. The product is described as being made in the USA and having a range from 0-35 pounds. The page also features a "Buy Now" button and a "Add to Cart" button. The URL at the bottom of the page is "HTTPS://DEVIATING.NET".


amazon | [Update location](#) | [Industrial & Scientific](#) | [Search Amazon](#) | [EN](#) | [Hello, sign in](#) | [Account & Lists](#) | [Returns & Orders](#) | [Cart](#)


[All](#) | [Medical Care](#) | [Groceries](#) | [Best Sellers](#) | [Amazon Basics](#) | [Prime](#) | [Music](#) | [Customer Service](#) | [New Releases](#) | [Today's Deals](#) | [Registry](#) | [Books](#) | [Pharmacy](#) | [Amazon Home](#) | [Gift Cards](#) | [Fashion](#) | [Luxury Stores](#) | [Smart Home](#) | [Sell](#)

[Industrial & Scientific](#) | [Janitorial & Facilities](#) | [Safety Supplies](#) | [Medical Supplies](#) | [Food Service](#) | [Diagnostic Equipment](#) | [Material Handling](#) | [Educational Supplies](#) | [Sealants and Lubricants](#) | [Additive Manufacturing](#) | [Laboratory Supplies](#) | [FSA Eligible Items](#) | [Deals](#)

[Industrial & Scientific](#) | [Test, Measure & Inspect](#) | [Pressure & Vacuum](#) | [Pressure & Vacuum Gauges](#) | [Pressure Gauges](#)

 **Gordon Glass Co. Door Pressure Gauge, 0-35 Lbs | Made in USA**

Brand: Gordon Glass Co.
4.6  327 ratings | [Search this page](#)
100+ bought in past month

-12% **\$35.00**
List Price: \$39.60 
FREE Returns -


Brand: Gordon Glass
Material: Plastic
Item Dimensions LxWxH: 8 x 0.5 x 0.5 inches
Item Weight: 10.4 Ounces

About this item

- Range is from 0-35 Pounds
- MEET ADA REQUIREMENTS
- Use Plastic Protective Tube. ASIN: B004C3W2B5
- +/- 5% tolerance
- MEET ADA REQUIREMENTS The Americans with Disabilities Act requires that both interior and exterior doors of a building be handicapped accessible
- Exterior hinged doors: (Reserved)
- Interior hinged doors: 5 lbs (22.2N)

[Show more](#)

Additional Details


 Small Business
This product is from a small business brand. Support small. [Learn more](#)

Customers usually keep this item
This product has fewer returns than average compared to similar products.

prime
Enjoy fast, free delivery, exclusive deals, and award-winning movies & TV shows with Prime. Try Prime and start saving today with fast, free delivery

Delivery | Pickup

\$35.00
FREE Returns -
FREE delivery **March 1 - 4**
Or fastest delivery **February 27 - 29**

 Shipping to California
[Update location](#)

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Ships from: Amazon
Sold by: TechnoLogiK
Returns: Eligible for Return, Refund or Replacement within 30 days of receipt
Packaging: Ships in product packaging
[See more](#)
 Add a gift receipt for easy returns
[Add to List](#)

[HTTPS://DEVIATING.NET](#)

Door Forge Gauge a.k.a. Door Pressure Gauge

Small, looks specialized, easy to use and understand. Reason to ask for doors to be opened and closed repeatedly or held open. ("You can ignore this alarm, we're testing door operation")

A MEASURING WHEEL FOR COVERAGE REQUIREMENTS

amazon Delivering to Your Home Update location

All Medical Care Groceries Best Sellers Amazon Basics Prime Music Customer Service New Releases Today's Deals Registry Books Pharmacy Amazon Home Gift Cards Fashion Luxury Stores Smart Home Sell

Automotive Your Garage Dash & Telematics Best Sellers Parts & Accessories Tools & Equipment Car Care Motorcycle & Powerports Truck RV Tires & Wheels Vehicle Showrooms Amazon Business

Zosen Measuring Wheel Telescopic Measure Wheel 6-Inch, Distance Measuring Wheel in Feet and Inches with Starting Point Arrow

Visit the Zosen Store
4.3 3,084 ratings
Amazon's Choice in Measuring Wheels by zosen
10+ bought in past month

\$25.99
Get Fast, Free Shipping with Amazon Prime
FREE Returns

Get \$10 off instantly Pay \$15.99 \$25.99 upon approval for the Amazon Store Card. No annual fee.
Available at a lower price from other sellers that may not offer free Prime shipping.

Size: 6" Wheel

- [10,000 FT Capacity]** U.S. Measuring units, Measures in feet/ inches-Duodecimal Number System. Measure distance wheel against a visual tape measure and it will be the same measurements. Whether private or industrial purposes, the measurement of straight line and curve line is easy.
- [Zosen 6-inch Measuring Wheel]** It is composed of 3 sections of rods, which can be adjusted to any length you want, just lightly fix it. One key reset. Storage bracket, Perfect points, TRR tires, Original location marker, Enquire Zosen carrying bag. The 6" diameter wheel is more lightweight, making it portable and easy to use.
- [Portable & Lightweight]** Through 2 times stretch can be stretch to 16 inches into a backpack(included) for easy carrying and transport. Unfolded it extends to 40". Versatile enough to use on a variety of indoor and outdoor projects. Flexible telescopic pole allows you to use it in higher terrain.
- [Accurate & Flexible]** Adopts a precise gear structure design with an accuracy of 0.02%, the forward count increases, and the backward count decreases, effectively avoiding errors. And Zosen Use duodecimal number system, Make it easier for you to read data.
- [Who Uses It]** - The surveying wheel is great for indoor, outdoor projects, also ideal for real estate appraisers, law enforcement, construction workers landscaping workers and homeowners to measure your boundary lines of your property. Versatile enough to use on a variety of indoor and outdoor projects, this tool is ideal for real estate appraisers, law enforcement, construction or landscaping workers and homeowners alike.

See more product details

Customer ratings by feature

prime
Enjoy fast, free delivery, exclusive deals, and award-winning movies & TV shows with Prime
Try Prime and start saving today with fast, free delivery

\$25.99
Get Fast, Free Shipping with Amazon Prime
FREE Returns

FREE Delivery **Sunday, March 24** on orders shipped by Amazon over \$35
Or fastest delivery **Tuesday, March 20**. Order within 18 hrs 51 mins
Delivering to Your Home
Update location

In Stock
Quantity: 1
Add to Cart
Buy Now

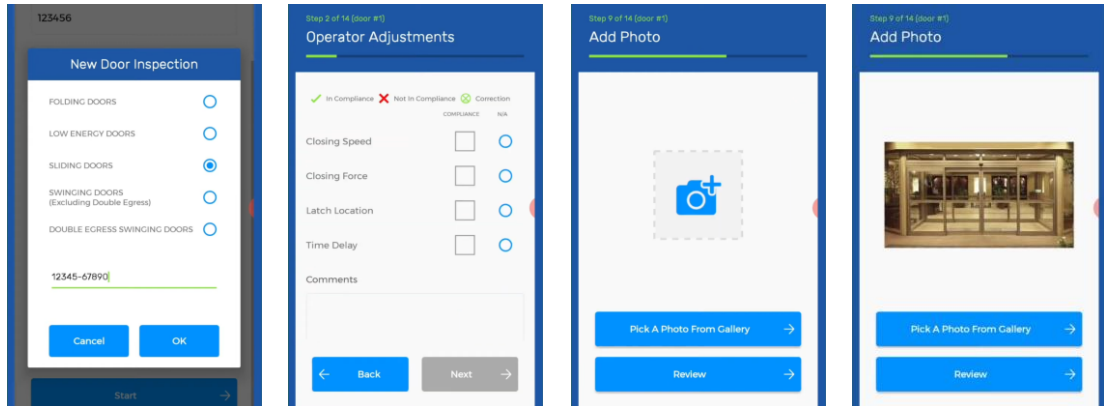
Start from Amazon
Sold by Zosen - US
Returns Eligible for Return, Refund or Replacement within 30 days of receipt
Payment Secure transaction
 Add a gift receipt for easy returns
Add to List

payments secure transaction

[HTTPS://DEVIATING.NET](https://deviating.net)

Useful with multi-person teams walking around areas, indoors or out. Can also do this nowadays with smartphone apps or laser measuring tools, however. Depends how much you want to visually stand out.

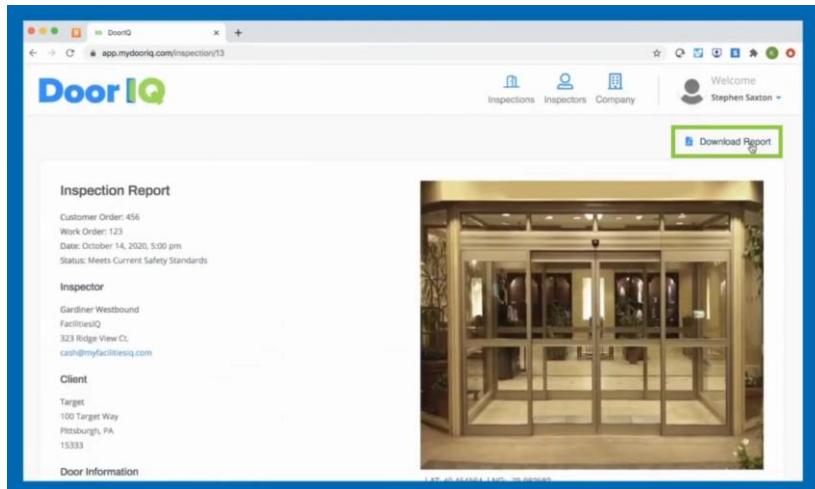
DOORIQ SOFTWARE



[HTTPS://DEVIATING.NET](https://deviating.net)

For ADA and NFPA inspections

DOORIQ SOFTWARE



The screenshot displays the DoorIQ web application interface. At the top, the DoorIQ logo is on the left, and navigation links for 'Inspections', 'Inspectors', and 'Company' are in the center. A user profile for 'Stephen Saxton' is on the right. A 'Download Report' button is highlighted with a green box. The main content area is titled 'Inspection Report' and contains the following information:

- Customer Order:** 456
- Work Order:** 123
- Date:** October 14, 2020, 5:00 pm
- Status:** Meets Current Safety Standards
- Inspector:**
 - Gardiner Westbound
 - FacilitiesQ
 - 323 Ridge View Ct.
 - cash@myfacilitiesq.com
- Client:**
 - Target
 - 100 Target Way
 - Pittsburgh, PA
 - 15333
- Door Information:**

To the right of the text is a photograph of a modern glass and metal entrance door system.

AMBER BEACON LIGHT



Nilight LED Strobe Light 40 LED Amber Warning safety Flash Beacon Lights 12V-24V with Magnetic and 16ft Straight Cord for Forklift Truck Tractor Golf Carts UTV Car Bus, 2 Years Warranty

Visit the Nilight Store

4.4 ★★★★★ 64 ratings

Amazon's Choice in Automotive Emergency Strobe Lights by Nilight

50+ bought in past month

Deal
-14% **\$19.99**

List Price: \$22.99

Get Fast, Free Shipping with Amazon Prime

FREE Returns

Get \$50 off instantly. Pay \$0.00 \$49.99 upon approval for Amazon Visa. No annual fee.

Color: **ABS Base**

\$19.99

\$32.99

Brand Nilight
Color ABS Base
Specific Uses For Product Exterior
Vehicle Service Type All vehicles
Special Feature Waterproof

See more

Light Source Type
LED

Voltage
12 volts

prime
Enjoy fast, free delivery, exclusive deals, and award-winning movies & TV shows with Prime.
Try Prime and start saving today with fast, free delivery

Delivery Pickup

\$19.99

Get Fast, Free Shipping with Amazon Prime

FREE Returns

FREE delivery **Friday, February 23** on orders shipped by Amazon over \$55

Or fastest delivery **Wednesday, February 21** Order within 10 hrs 3 mins

Delivering to Your Home
Update location

In Stock

Quantity: 1

Add to Cart

Buy Now

Ships from Amazon.com

Sold by Amazon.com

Returns Eligible for Return

Refund or Replacement within 30 days of receipt

Secure transaction

MAGNETIC VEHICLE PLACARDS


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vistaprint. Search Help is here (800)233-4469 My Projects Sign in Cart

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Home / Signs & Banners / Custom Car Magnets



Custom Car Magnets

★★★★★ 4.1 7772 Reviews

New Low Price

Promote on the go with a fade-resistant, PVC-free car magnet, available in custom sizes and shapes for your vehicle. [See details](#)

Size 11.5" x 17.6"

Quantity 2 (\$29.50 / unit)

2 starting at \$58.99

Get it as soon as **Wednesday, Feb 28th** to (0245)

Free shipping on orders over \$100

PayPal Pay in 4 interest-free payments of \$14.75. [Learn more](#)

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Choose one of our templates

Upload design
Have a design? Upload and edit it

VistaPrint is here to help every step of the way.

HTTPS://DEVIATING.NET

Turn your rental car into a “field service vehicle” (white pickup truck works well)

“WAIT... WHO DO YOU WORK FOR, AGAIN?”



The absolute best way to sell your cover story is to have a company name tied to your fake work order, etc

RECON: NOTE THE TEST AND CERTIFICATION TAGS ON INFRASTRUCTURE



[HTTPS://DEVIATING.NET](https://deviating.net)

RECON: LOOK FOR SIGNAGE ON BUILDING PERIMETER



[HTTPS://DEVIATING.NET](https://deviating.net)

Grinnell merged with Simplex and sold to Tyco

RECON: OBSERVE SERVICE VEHICLES



[HTTPS://DEVIATING.NET](https://deviating.net)

Johnson Controls is a HUGE building automation / integration firm. I bet there are companies being serviced by them right now where half the staff doesn't even realize it.

You could show up and say almost anything to a front desk staff about building HVAC sensors, fire alarm troubleshooting, or "wiring on the roof" even and they might simply believe you.

(SimplexGrinnell is a subsidiary of Johnson Controls)

THESE ARE NAMES PEOPLE RECOGNIZE



BOSCH



[HTTPS://DEVIATING.NET](https://deviating.net)

These are names that people know even though they don't know why exactly they know them

Also Johnson Controls owns everybody now. They own SimplexGrinnel, they own Tyco, etc. It's just Johnson Controls under the hood everywhere, heh.

PUT TOGETHER SOME OUTFITS

The screenshot shows the 'My eBay' page on eBay. At the top, there are navigation links for 'Hi All', 'Daily Deals', 'Brand Outlet', 'Gift Cards', and 'Help & Contact'. On the right, there are links for 'Sell', 'Watchlist', 'My eBay', and a shopping cart icon. Below this is the eBay logo and a search bar with the text 'Search for anything'. To the right of the search bar are 'All Categories' and a 'Search' button. Below the search bar, the 'My eBay' section includes links for 'Activity', 'Messages', and 'Account'. A user profile 'ALGoreVidal (214)' is visible. The main content area is titled 'Purchases' and features a search bar for orders. Two purchase entries are listed:

- Delivered**
Order date: Mar 29, 2024 • Order total: US \$28.64 • Order number: 19-11370-20796
Delivered on Sat, Apr 6
Returns accepted through May 6.
Johnson Controls - Polo Shirt Men's XL Navy SS Under armour - New no package
US \$19.99
Sold by: [waguar207](#)
- Delivered**
Order date: Mar 29, 2024 • Order total: US \$10.52 • Order number: 19-11370-20795
Delivered on Mon, Apr 8
Returns accepted through May 8.
Tata Johnson Controls Adjustable Cap Hat Grey
US \$4.99

Each entry includes a 'View order details' button and a 'Leave feedback' button. The first entry also has 'View seller's other items' and 'More actions' buttons. A left sidebar contains navigation options: Summary, Recently viewed, Bids & offers, Purchases (highlighted), Watchlist, Saved searches, Saved sellers, My Garage, Sizes, Selling, Collection beta, and The eBay vault.

PUT TOGETHER SOME OUTFITS

The screenshot shows the eBay 'My eBay' interface. At the top, there are navigation links for 'Hi All', 'Daily Deals', 'Brand Outlet', 'Gift Cards', and 'Help & Contact'. On the right, there are links for 'Sell', 'Watchlist', 'My eBay', and a shopping cart icon. The main header features the eBay logo, a search bar with the text 'Search for anything', and a 'Shop by category' dropdown. Below the header, the 'My eBay' section includes links for 'Activity', 'Messages', and 'Account', along with a user profile 'ALGoreVidal (214)' and a 'Log in what you bank' link.

The 'Purchases' section is the main focus, displaying a list of recent orders. Each order entry includes a 'Delivered' status with a green checkmark, the order date, total amount, and order number. A search bar for orders is located at the top of this section. The first order is for a blue Siemens baseball cap, delivered on Wednesday, April 3, 2024, for \$14.00. The second order is for a blue Siemens polo shirt, delivered on Thursday, April 4, 2024, for \$16.00. Each order entry has a 'View order details' button and a 'Leave feedback' button.

Purchases

Search your orders [Search]

Delivered
Order date: Mar 29, 2024 • Order total: US \$22.22 • Order number: 04-11382-37511 [View order details]

Delivered on Wed, Apr 3
Returns accepted through May 3.
Siemens Springdale 2015 Blue Hat Cap - Sz L/XL - No-Fit - New
US \$14.00
Sold by: [wwwtheifly19](#) [Leave feedback]

Delivered
Order date: Mar 29, 2024 • Order total: US \$17.64 • Order number: 24-11380-77070 [View order details]

Delivered on Thu, Apr 4
Returns accepted through May 4.
Wingspan Siemens Mens Blue Short Sleeve Polo Shirt Size 14x
US \$16.00 [Leave feedback]

Navigation menu on the left:
Summary
Recently viewed
Bids & offers
Purchases
Watchlist
Saved searches
Saved sellers
My Garage
Sizes
Selling
Collection beta
The eBay vault

SOMETIMES YOU DON'T EVEN NEED THE RIGHT OUTFITS



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Awesome Lares story about Dominion Power vs. Johnson Controls at a datacenter

CREDENTIALS REALLY SELL A COVER PERSONA



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BADGE PRINTERS – INKJET



[HTTPS://DEVIATING.NET](https://deviating.net)

Inkjet Printer (cheapest, most limited)

BADGE PRINTERS – DIRECT-TO-CARD



[HTTPS://DEVIATING.NET](https://deviating.net)

Direct-to-Card printer (compromise on quality, size, and price)

ZC350

MSRP a little under \$2000

Dual Sided Printing

Can do silver layer with 1bit bitmap

BADGE PRINTERS – RETRANSFER



[HTTPS://DEVIATING.NET](https://deviating.net)

Retransfer Printer (best quality, highest price)

ZXP series 9

MSRP often over \$7000

Dual Sided Printing with add-on

Can do UV with 1bit bitmap layer

HAVING A BADGE PRINTER IS AWESOME



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HAVING A BADGE PRINTER IS AWESOME



[HTTPS://DEVIATING.NET](https://deviating.net)

HAVING A BADGE PRINTER IS AWESOME



[HTTPS://DEVIATING.NET](https://deviating.net)

We were all set for an Elevator Technician cover, but for one detail... can anyone spot it?

(Outfit is TKE but Badge is Otis)

Likely no one would challenge or notice... but to be safe...

HAVING A BADGE PRINTER IS AWESOME



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...we printed up a badge to match the brand of elevator and the rest of the outfit

BADGES CAN HAVE THEIR OWN ACCESSORIES



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Some of Deviant's assorted badges in his collection. (Remember: you never make fake government IDs, but private party credentials are generally totally legal if used for legal purposes)

Notice how having them on reels or holders really sort of "sells" them? Well, that only works if you match the kind of badge display methods that most people on site use.

Have a collection of holders...

BADGES CAN HAVE THEIR OWN ACCESSORIES



[HTTPS://DEVIATING.NET](https://deviating.net)

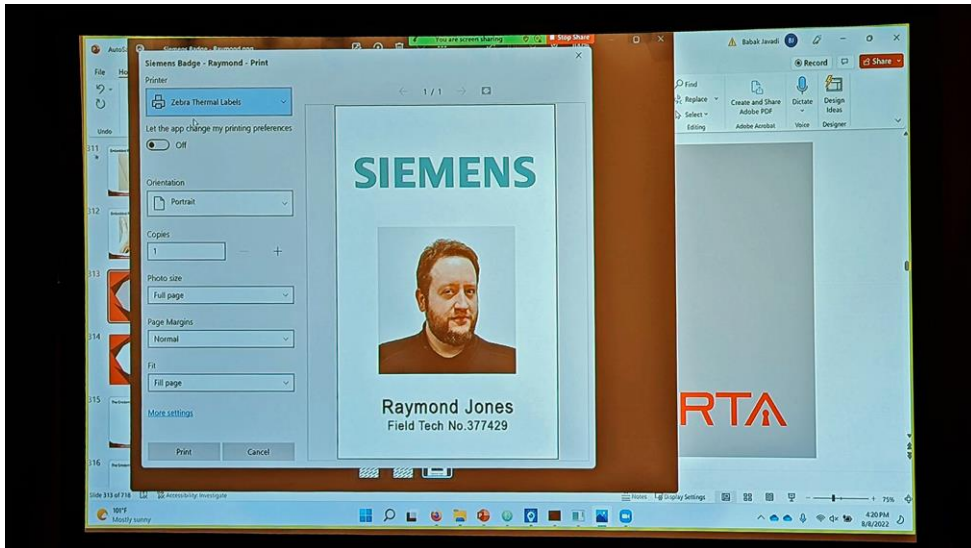
... we carry assorted colors of lanyards (string style and flat style) which work OK at a distance. Also general “same industry sector” lanyards can help, like conference lanyards. Local sports teams are OK, too, if you see folk doing that.

See the small crab claw pieces of metal? Those are for making our own lanyards in the field... going to a craft store and getting a small segment of ribbon in a specific color or colors, plus a couple stitches, can make those into lanyards on the fly in a pinch.

High-Vis armband style for airport aprons, industrial areas, etc. All kinds of little clips and reels.

Badge “punch” but also plastic holders. Match what the client site uses.

BADGE PRINTING SOFTWARE



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BADGE PRINTING SOFTWARE



[HTTPS://DEVIATING.NET](https://deviating.net)

(these are UV elements in the card that will react and glow if inspected, just to make the whole thing look more “official” in some ways)

BADGE PRINTING SOFTWARE FOR RED TEAMERS

Red Team Readme Designer

Template JSON

Browse

```
1- {
2   "crdVersion": 1,
3   "author": {
4     "name": "RTA",
5     "email": "contact@redteamalliance.com"
6   },
7   "orientation": "portrait",
8   "components": [
9     {
10      "type": "image",
11      "label": "face",
12      "x": 318.5,
13      "y": 784,
14      "anchor": "bottom",
15      "width": 400,
16      "height": 400
17    },
18    {
19      "type": "text",
20      "label": "Raymond Jones",
21      "x": 319,
22      "y": 855,
23      "anchor": "center",
24      "text-transform": "capitalize",
25      "font-family": "Arial",
26      "text-weight": "bold",
27      "color": "white",
28      "size": 63
29    },
30    {
31      "type": "text",
32      "label": "Contractor",
33      "x": 319,
34      "y": 935,
35      "anchor": "center",
36      "text-transform": "capitalize"
```

Background PNG is only for presentation in designer.

Background PNG

Browse



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BADGE PRINTING SOFTWARE FOR RED TEAMERS



[HTTPS://DEVIATING.NET](https://deviating.net)

BADGE PRINTING FOR RED TEAMERS IN THE FIELD



[HTTPS://DEVIATING.NET](https://deviating.net)

BADGE PRINTING FOR RED TEAMERS IN THE FIELD



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BADGE PRINTING FOR RED TEAMERS IN THE FIELD



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BADGE PRINTING FOR RED TEAMERS IN THE FIELD



[HTTPS://DEVIATING.NET](https://deviating.net)

ONE MORE OUTSTANDING RESOURCE



LORI GREENE – “I DIG HARDWARE” BLOG



<https://idighardware.com/>

Credit to Lori for some of the images you saw in this slide deck. I've been an avid reader of and even an occasional contributor to her site for ages.

She says a typical conversation with her will go like this...

Lori: "You can't lock that door." (stating the reason why)

Owner: "But I want to."

Lori: "Well, you can delay it or alarm it, but you can't lock it."

...she literally has this same conversation on a weekly basis.

LORI GREENE – “I DIG HARDWARE” BLOG



PHOTO CREDIT: LORI GREENE
[HTTPS://IDIGHARDWARE.COM](https://idighardware.com)

[HTTPS://DEVIATING.NET](https://deviating.net)

All kinds of interesting articles, photos of strange installs, code violations, and questions to and from the community

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JUST REMEMBER...



YOU AREN'T A REAL TECHNICIAN OR INSPECTOR... YET!



[HTTPS://DEVIATING.NET](https://deviating.net)

It's a fun and interesting career and helps keep people safe. Maybe you check out some training or cert classes, who knows? Enjoy!

STAY SAFE OUT THERE!



DEVIANT@DEVIATING.NET



@DEVIANTOLLAM
@DEFCON.SOCIAL



/DEVIANTOLLAM



@DEVIANTOLLAM



/DEVIANTOLLAM

REDTEAMALLIANCE.COM

THECOREGROUP.NET

REDTEAMTOOLS.COM