

FIRE-RATED, SMOKE-RATED, DOUBLE EGRESS, ADA COMPLIANT,  
ACCESS CONTROL, VALUE ENGINEERING OPPORTUNITIES



## A Reference Guide to sliding fire doors in a Means-of-Egress

AS PERMITTED BY:  
International Building Code (IBC)  
Chapter 10 - MEANS OF EGRESS  
1010.3.3 (2021)  
1008.1.4.3 (2009 & 2012)

Presented by Won-Door Corporation, manufacturer of Won-Door FireGuard, the "ORIGINAL" egress compliant accordion fire door. Listed by Underwriters Laboratories (UL) for up to 3 hours as a door assembly (UL10B) and 2 hours as a movable firewall (ASTM E119 / UL263).



Designed by Gensler



ADVANCED DOOR SERVICE

a Horton Automatics Company

[www.advanced-door-service.com](http://www.advanced-door-service.com)

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WON-DOOR FireGuard Door

Before/After.....2

VE Opportunities.....3

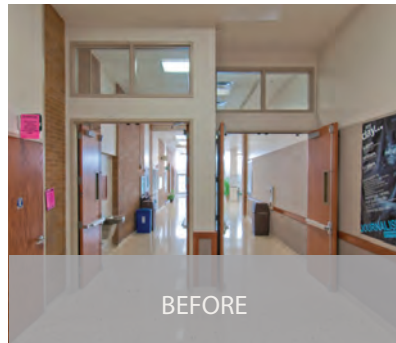
Common Applications.....4-5

IBC References.....6-7

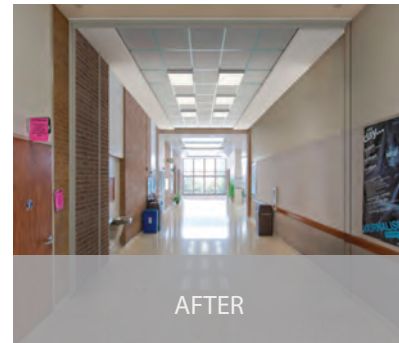
FAQ's.....8

# WON-DOOR FireGuard Door

FREEDOM OF DESIGN WHILE MAINTAINING IBC COMPLIANCE FOR EGRESS and FIRE RATINGS



BEFORE



AFTER

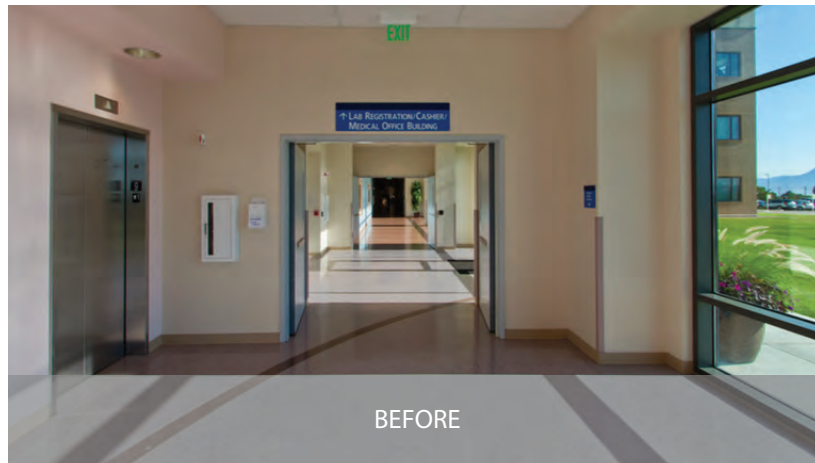
### COMMON APPLICATIONS INCLUDE:

Elevator Lobby Enclosure  
 Wide, Unobstructed Egress Paths  
 Travel Distances Issues (Horizontal Exits)  
 Area and Construction Type Compliance

Occupancy Separations  
 Egress Stair Enclosures  
 Access Control  
 and many others...



Exit Device complies with IBC, NFPA and ADA



BEFORE



AFTER



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WON-DOOR FireGuard Door

# VALUE ENGINEERING OPTIONS

using Won-Door FIREGUARD DOOR

## A. FIRE-RATED GLASS

Won-Door is often 1/3 the cost to protect the same opening. Use tempered glass or clear opening with Won-Door FireGuard for:

- Exterior Rated Windows/Facades
- Atriums & Mezzanines
- Rated Glass Enclosures

## B. ATRIUMS:

Enclosing the upper floors during fire alarm turns the “atrium” into a “shaft” per 2021 IBC. The following may be omitted:

- Smoke Purge
- 1-hour rating on all adjacent walls
- Full Building Sprinkler
- Class B Finishes

## C. ELEVATOR LOBBIES:

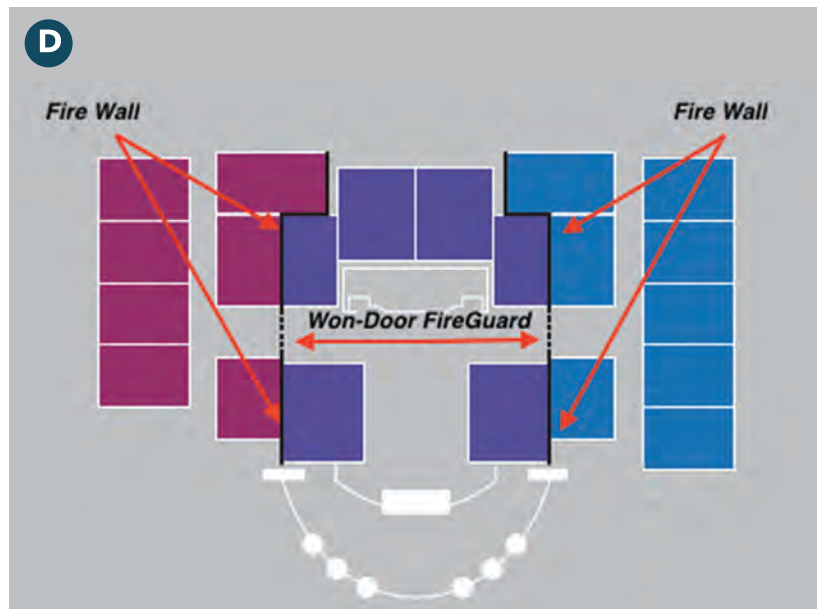
Point of Access single door enclosure is often the least expensive option compared to pressurized shafts and full elevator lobbies on every floor.

- Per ASTM 1784 without an artificial bottom seal

## D. AREA ALLOWANCES:

Introduction of fire walls with large openings to connect the spaces reduces floor area of an occupancy - sprinkler and construction type requirements are also reduced.

See Table 506.2 2021 IBC



Won-Door FireGuard DOOR

## COMMON APPLICATIONS

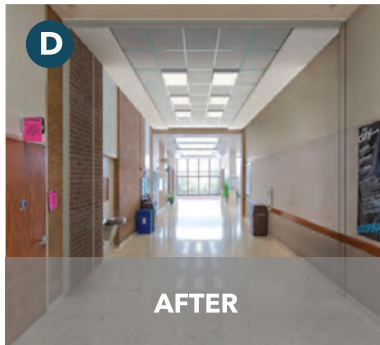
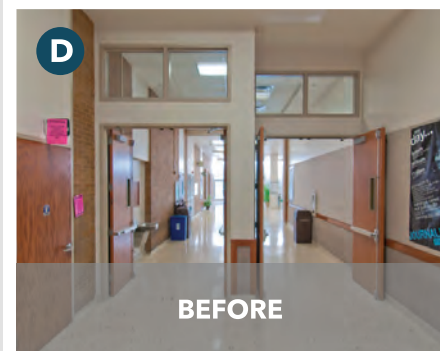
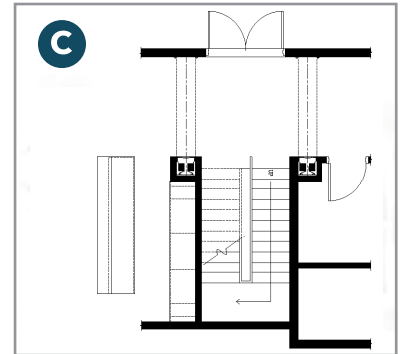
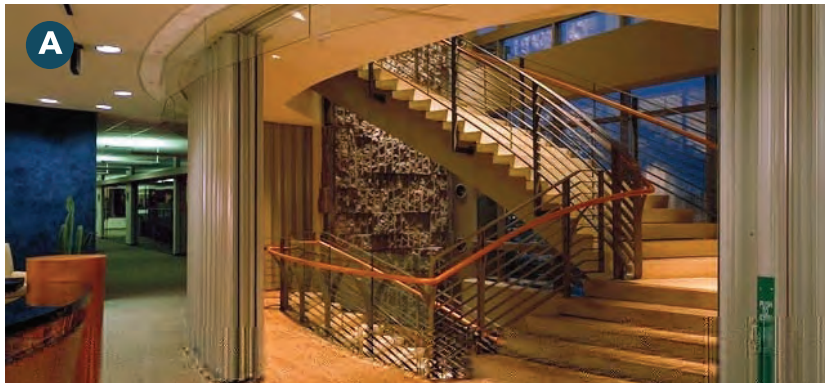
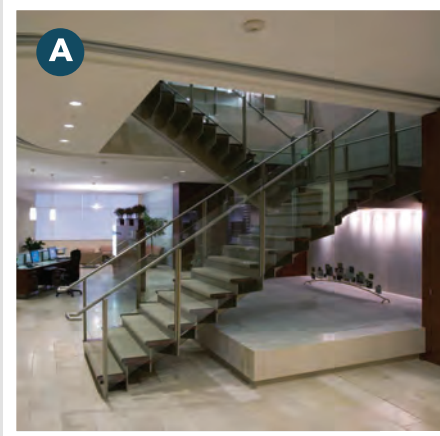
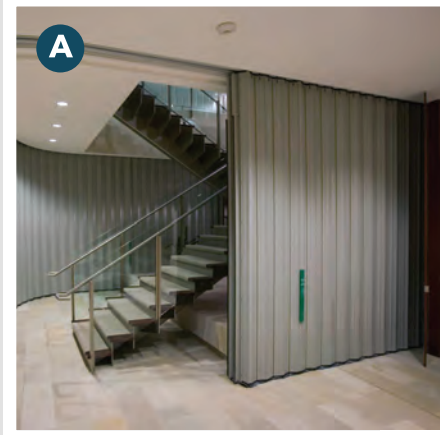
**A. ENCLOSED FIRE STAIRS:** Can be an open design element.

**B. ELEVATOR LOBBIES:** Enclosures can be completely concealed except during emergencies.

**C. EXIT ENCLOSURES (PASSAGEWAYS):** Deploy only when activated by smoke/fire alarm

**D. CORRIDORS:** Smoke compartments and travel distance requirements, dual egress.

**E. LARGE RATED OPENINGS:** U.L. listed up to 28' high and virtually unlimited width.



**F. ATRIUMS:** Re-design the “atrium” into a “shaft” for Significant Value Engineering gains.

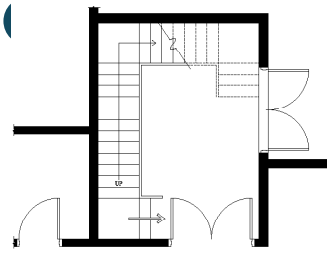
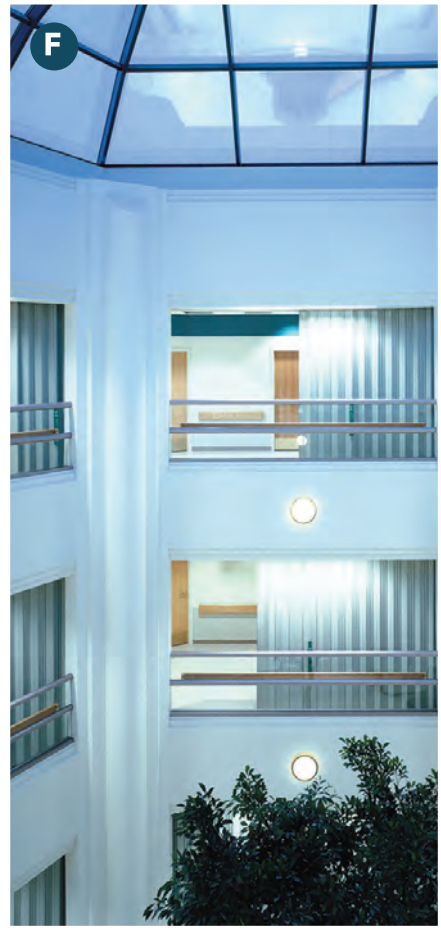
**G. ESCALATORS/VERTICAL OPENINGS:** Invisible yet invaluable during an emergency.

**H. MALL AND STORE FRONT:** Provide fire-rated entrances for storefronts in shopping malls.

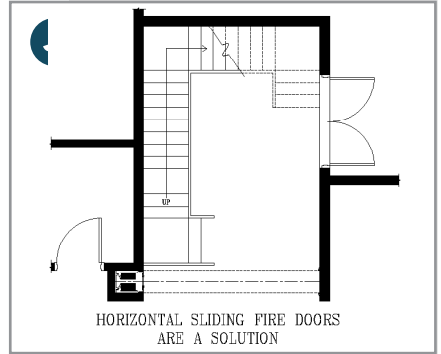
**I. ACCESS CONTROL AND SECURITY:** Full access control through Building Automation System for Schools, Hospitals, Airports, and Government Buildings.

**J. SPATIAL SOLUTIONS:** When door swing creates conflicts with required exit width of ADA clearance, a horizontal sliding fire door can solve the issue by providing additional maneuvering space.

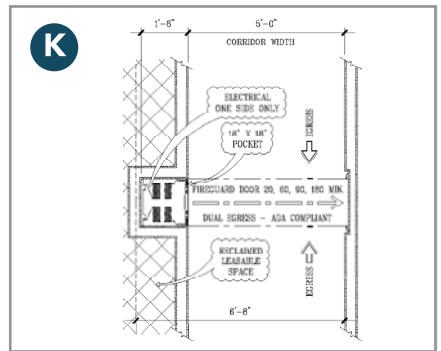
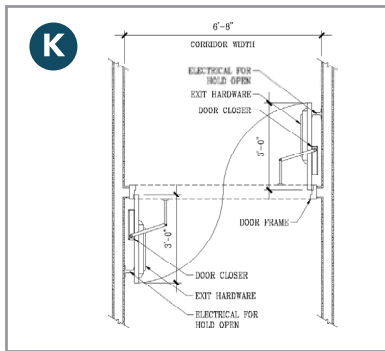
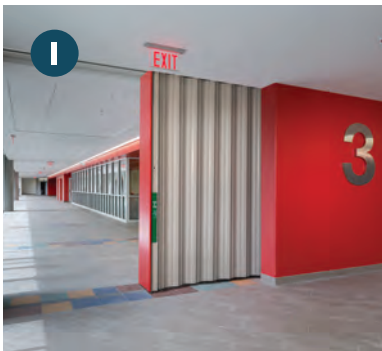
**K. MAXIMIZE LEASABLE SPACE:** Reclaim leasable space and increase building revenue for the Owner by reducing corridor widths.



DOOR SWINGS CAN INTERFERE WITH REQUIRED CLEARANCES AT STAIR LANDINGS



HORIZONTAL SLIDING FIRE DOORS ARE A SOLUTION

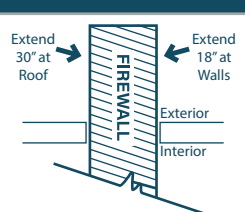
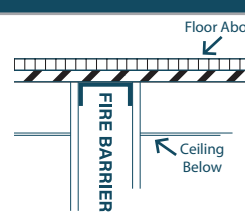
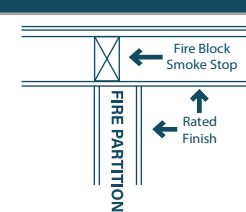


## 2021 IBC REFERENCE

| TYPE  | 2021 IBC REFERENCE   |
|---|--|
| ELEVATOR LOBBIES  | Required in all buildings where three or more stories are connected by elevator, no sprinkler is present, groups I-1, I-2, I-3, or high rise more than 75' (3006.2). Lobby may be omitted if shaft is pressurized or smoke doors used at access point to elevator car (3006.3, exceptions 3 & 4).  |
| ESCALATORS  | Require shaft enclosure as per 3004.2. If building has sprinkler system, you may use draft curtain or automatic shutters per 712.1.3-712.1.3.2. Two (2) hour fire barrier is required for shafts penetrating four or more stories, and no less than one hour fire barrier for shafts penetrating less than four stories per section 713.4.   |
| ATRIUMS   | <p>Atriums connect two or more floors (Chapter 2 Definitions). Atrium requirements noted below may be omitted by using emergency fire doors to turn an atrium into a shaft:</p> <ul style="list-style-type: none"> <li>• atrium spaces must be separated from adjacent spaces by a one hour fire barrier (404.6).</li> <li>• interior finishes of entire atrium must be no less than Class B (404.8).</li> <li>• no more than 200' travel distance (1017.3.2).</li> <li>• use of mechanical smoke purge system (404.5).</li> <li>• full building sprinkler protection (404.3) - see also Exception 1.</li> </ul> |
| STAIR ENCLOSURES  | Shaft Enclosure required if the stair is used as a means of egress per 1023.2. Two (2) hour fire barrier is required for shafts penetrating four or more stories, and no less than one hour fire barrier for shafts penetrating less than four stories per section 1023.2.   |
| EXIT ENCLOSURES (AKA EXIT PASSAGEWAYS)                    | Required as needed to continue any protected egress path to the exterior via a fully protected passageway. Required to comply with section 1024.   |
| AREA SEPARATIONS  | Required between buildings as fire walls or between occupancies as fire barriers based on square footage or construction type as noted in Table 506.2.   |
| DOUBLE EGRESS DOORS                                       | Where egress is or double egress is required see section 1010.3.3.   |
| TEMPERATURE RISE DOORS (Labeled "T" as NFPA 252 or UL10B) | Required in non-sprinklered buildings in the exit stairs and exit passageways as per 716.2.2.2   |
| ASTM E119 OR UL263 RATED OPENINGS (Labeled "W")           | Required if more than 156sf or 25% of a fire barrier is utilized as an opening as per 707.6, exception 3.  |
| FIRE SERVICE ACCESS ELEVATOR                              | Required where an occupied floor is more than 120' above FD vehicle access as per 403.6.1. Lobbies shall be enclosed one hour as per 3007.6.2 and the doors shall be tested without an artificial bottom seal as per NFPA 1784 - Section 3007.6.2.   |
| OCCUPANT EVACUATION ELEVATORS                             | May be utilized as part of the evaluation plan in compliance with section 3008. Lobbies shall be enclosed one hour as per 3008.6.0.  |

This chart is for reference only and provided as a general guide to assist in finding the applicable sections of the code. It is the responsibility of the designer to confirm local requirements and the applicability of code reference to their particular project.

# Fire WALL vs. Fire BARRIER vs. Fire PARTITION

|  | Fire WALL<br>IBC 706 (INCL. PARTY WALL)   | Fire BARRIER<br>IBC 707   | Fire PARTITION<br>IBC 708   |
|--|---|---|---|
| GRAPHICS                                   |    |   |    |
| CONSTRUCTION & CONTINUITY                  | Foundation through roof, exterior wall to exterior wall. Fire walls at roofs must extend 30" above adjacent construction. Fire walls at exterior walls shall extend not less than 18", with adjacent walls constructed of one hour rated materials. (See 706.5, 706.6, 2021 IBC)  | From top of foundation or floor/ceiling assembly below, to the underside of the floor/roof/slab/deck above. (See 707.5, 2021 IBC)   | From top of foundation or floor/ceiling assembly below, to the underside of the floor/roof/slab/deck above. OR to the fire resistance rated floor/ceiling assembly. Concealed spaces must be fireblocked or draftstopped. (See 708.4, 2021 IBC) |
| PROPERTIES                                 | Must maintain protection between separate building during fire, without collapse, even if they are attached to other structural elements that may collapse.   | Resist fire between spaces within a building for a required period of time.   | Resist fire between spaces within a building for a required period of time.   |
| WHERE REQUIRED                             | Between two separate buildings that are connected.  | Separating vertical and horizontal egress, shafts, mixed occupancies, exterior walls where required. Our E119 tested wall is applicable here if 25% or 156sf needs to be exceeded. Our TR Wall is used for egress paths and stairways.  | Between adjacent residential occupancies, tenant spaces in mall buildings, corridor walls.  |
| OPENINGS<br>(see table 716.1(2), 2021 IBC) | <ul style="list-style-type: none"> <li>• Non-Sprinklered: protected openings, up to 120sf, width not to exceed 25% width of wall.</li> <li>• Sprinklered: protected openings, may exceed 120sf but width must still remain <math>\leq</math> 25% width of wall.</li> <li>• Party Walls: fire walls on lot lines may not have any openings. However, the lot line may not be considered if both properties are owned by the same entity and the wall is opened for the purpose of combined use.</li> </ul> | <ul style="list-style-type: none"> <li>• Voids adjacent to barrier must be protected.</li> <li>• Non-Sprinklered: protected openings, up to 156sf, width not to exceed 25% width of wall (707.6, 2021 IBC).</li> <li>• Sprinklered: protected openings, may exceed 156 sf but width must still remain <math>\leq</math> 25% width of wall (707.6, 2021 IBC).</li> <li>• May exceed 156sf and 25% width of wall if the opening is a fire door serving fire enclosures (707.6, 2021 IBC).</li> <li>• May exceed 156sf and 25% width of wall if the opening has been tested in accordance with ASTM E119 or UL263 and is rated equal or higher than the fire wall (707.6, 2021 IBC).</li> <li>• May exceed 25% width of wall if the opening is part of a fire window assembly in an atrium separation wall (707.6, 2021 IBC).</li> </ul> | <ul style="list-style-type: none"> <li>• Openings are permitted with a minimum rating of one hour (Table 716.5, 2021 IBC).</li> </ul>   |
| RATINGS                                    | 2, 3, 4 hours   | 1, 2, 3, 4 hours  | Fire Resistance > 1 hour (with exceptions noted in 708.3)   |

Won-Door Corporation

# Horizontal Sliding ACCORDION-TYPE FIRE DOORS FREQUENTLY ASKED QUESTIONS (FAQ'S)



#### IS FIREGUARD APPROVED FOR EGRESS APPLICATIONS?

Yes, FireGuard meets all egress requirements found in NFPA 101 (Chapter 7) and IBC (Chapter 10). The assembly has also been evaluated through the ICC Evaluation Service. ICC-ES Report 1394 is available upon request.

#### HOW MUCH DOES THE ASSEMBLY WEIGH?

5.5 pounds per square foot

#### AT WHAT SPEED DOES THE FIREGUARD DOOR TRAVEL?

NFPA 80 Chapter 9 limits the speed of the door to not less than 6" per second and not more than 24" per second. FireGuard doors are set to open and close at approximately 10" per second.

#### WILL THE FIREGUARD DOOR OPERATE IN THE EVENT OF A POWER LOSS?

Yes, as required by NFPA 80 Chapter 9, the system includes a standby power source.

#### DOES THE FIREGUARD DOOR REQUIRE A FLOOR TRACK?

No, the door does not need a floor track.

#### WHAT FIRE RATINGS ARE AVAILABLE?

Available fire door ratings are 20, 60, 90 and 180 minutes. The FireGuard assembly is also available as a Movable Fire Wall tested in accordance with ASTM E119.

#### ARE SMOKE RATINGS AVAILABLE?

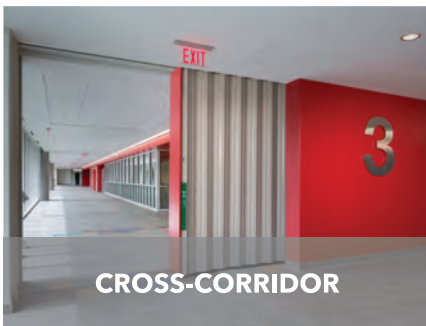
Yes, FireGuard doors are available with an "S" label.

#### WHAT IS THE SIZE LIMITATION?

FireGuard doors are available in heights up to 28' and virtually unlimited widths.

#### ARE RADIAL CONFIGURATIONS AVAILABLE?

Yes, 5' and 10' radii are available in standard configurations. Custom radii are also available greater than 5'.



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