



Designing Automatic Entrances Worldwide

Provided By:



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Horton Automatics *Worldwide Presence*

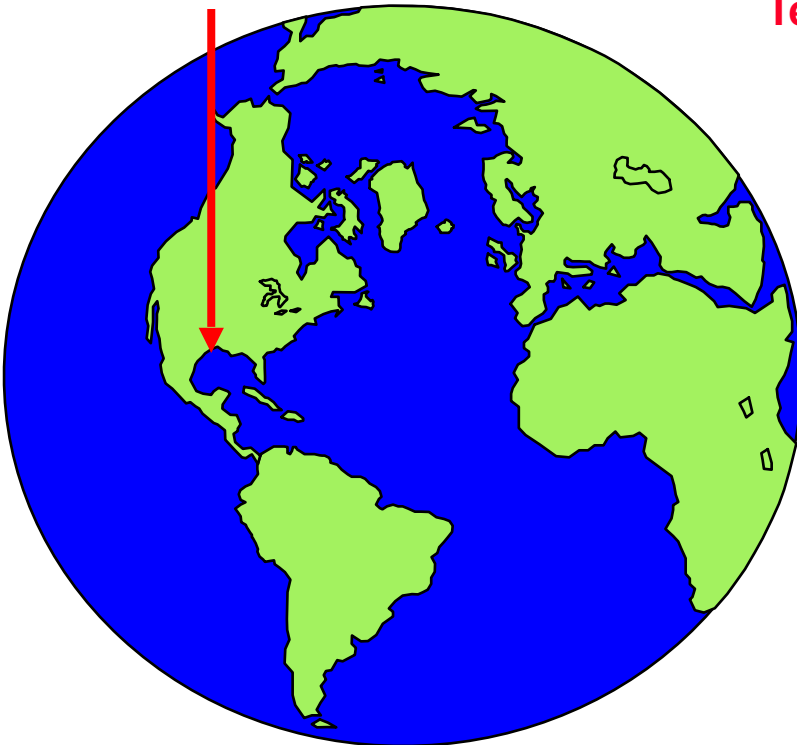
✓ Worldwide Manufacturing Locations

Corpus Christi → North and South America & Far East

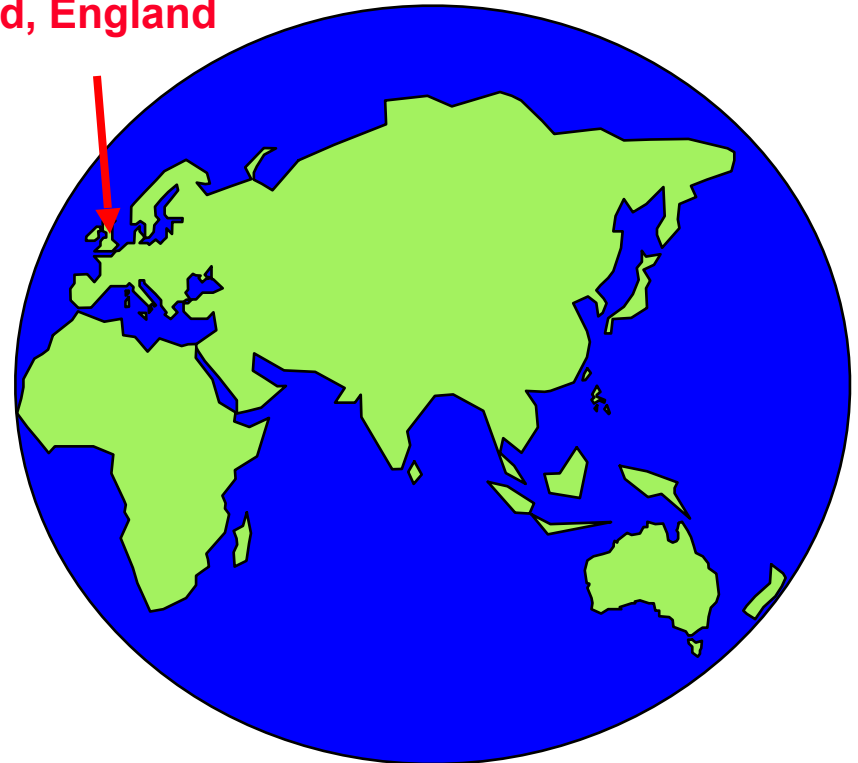
Telford, England → Europe and Africa

✓ Worldwide Network of Independent Distributors

Corpus Christi, TX



Telford, England





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1 Learning Hour Unit and 1 Health, Safety & Welfare credit





Course Objectives

The **keys** to specifying the most efficient and effective Automatic Entrance Systems are:

- A. Determine the needs of the application
 - 1. **Who** uses the doors & **How** used?
 - 2. Is **Security** an issue?

- B. Determine **Egress & Safety** requirements
 - 1. Ensure applicable code compliance
 - 2. Select appropriate actuation/safety devices

- C. Determine the importance of **Aesthetics**





Course Outline

- ✓ **Governing codes & standards**
- ✓ **Applications of Automatic Door**
- ✓ **Types of Automatic Doors**
- ✓ **Activation & Safety Devices**
- ✓ **Q & A**





Codes & Standards

Code Compliance

- ✓ **NFPA – National Fire Protection Agency**
 - **NFPA 101: Code for Safety to Life from Fire in Buildings & Structures, Powered Doors section**

- ✓ **ANSI – American National Standards Institute**
 - **ANSI A156.10: For Power Operated Pedestrian Doors**
 - **ANSI A156.19: For Power Assist & Low Energy Power Operated Doors**
 - **ANSI A156.27: Power & Manual Operated Revolving Pedestrian Doors**

- ✓ **ADA – Americans with Disabilities Act**

- ✓ **AAADM – American Association of Automatic Door Manufacturers**





Codes & Standards - AAADM

Mission Statement

“The American Association of Automatic Door Manufacturers is a trade association of power operated automatic door manufacturers as defined and governed by ANSI/BHMA A156.10.

The purpose of the Association is to generally promote the legitimate interests of the automatic door industry, especially in the areas in which the individual companies cannot perform as effectively on their own.

These include the **promotion of product safety** throughout the distribution chain by establishing uniform programs for **training and certification** of installers, promotion of the industry’s products, and development of **improved communication** throughout the distribution chain.”





The Case For Automatic Doors

- ✓ **Convenience**
- ✓ **Accessibility for the Disabled**
- ✓ **Aesthetic Entrance Design**
- ✓ **Enhance Security**
- ✓ **Reduced Air Infiltration**
- ✓ **Increased Energy Efficiency**
- ✓ **Control of Pedestrian Traffic Flow**





Determine Application Needs

✓ Hands free operation

✓ For people, luggage, deliveries, wheelchairs, shopping carts, baby carriages, etc.

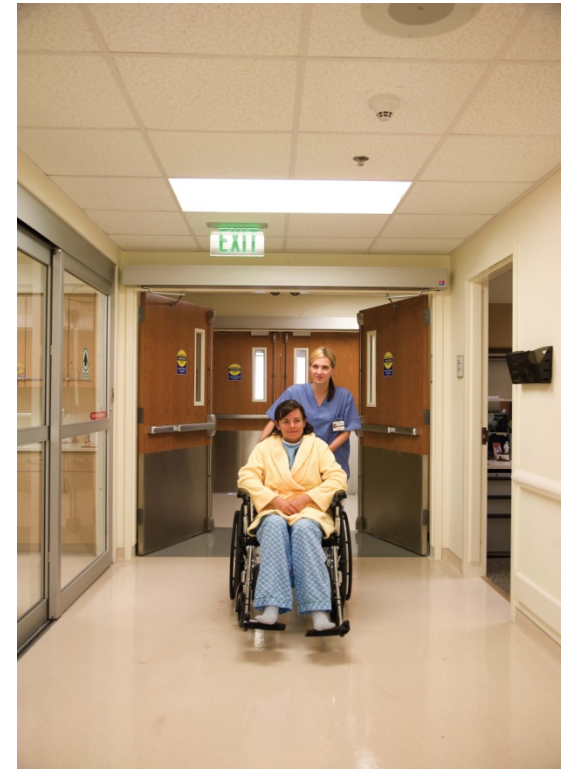




Determine Application Needs

✓ **Accessibility for physically challenged including:**

- **Elderly & Inconvenienced**
- **Disabled & Temporarily Physically Impaired**





Determine Application Needs

✓ **Security**

✓ **Airborne Infection Isolation Control**





Determine Application Needs

✓ Control Traffic Flow

- “Trained” Traffic
- Secured Areas with Access Control
- Industrial Vehicle Access





Types of Automatic Doors

Sliding

Single Slide



Biparting Slide



Telescoping Slide



Configurations

2 panel (1)

3 panel (2)

4 panel (2)

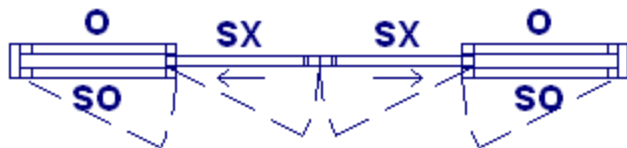
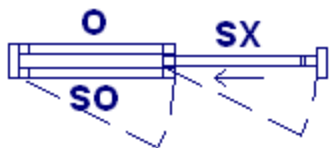
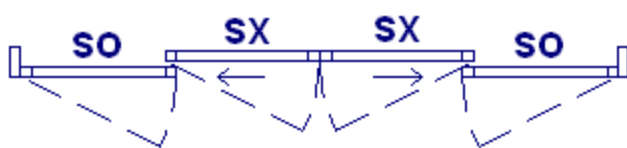
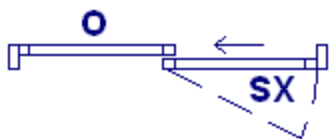
6 panel (4)



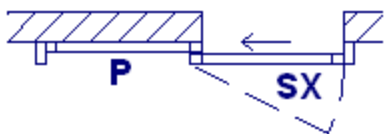
Types of Automatic Doors

Sliding – Industry Designations

PERIMETER MOUNT



SURFACE MOUNT



O-X

Sliding panel(s) slide along interior of fixed sidelite

O-SX

Slide-swing panel(s) slide along exterior of fixed sidelite

SO-SX

Slide-swing panel(s) slide along interior of swing-out sidelite(s)

O/SO-SX

Slide-swing panel(s) slide between fixed sidelite/wall and swing-out sidelite(s)

P-SX

Slide-swing panel(s) slide along exterior of wall

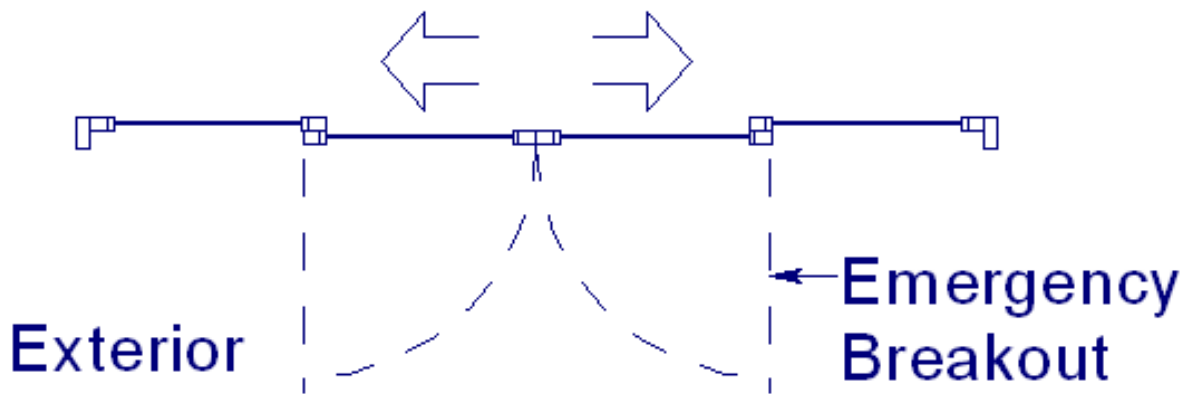


Types of Automatic Doors

Sliding – Egress Compliance

✓ Slide doors in egress areas must be able to swing-out per NFPA 101 – Powered Doors Section & ANSI 156.10. This includes:

- In the direction of egress from any point in slide travel up to 90°
- In the direction of egress with a maximum force of 50 lbs.





Types of Non-Automatic Doors

Manual ICU/CCU Sliding Doors

✓ Health Care Facility Preferences

- Slide-swing panels to swing out to 90° with a maximum force of 50 lbs.
- Full view of patient within ICU unit
- Trackless configurations for fast and safe removal of patients
- Swing out capability for both slide panel and sidelite for maximum clearance of beds and equipment





Trackless Breakaway





Trackless Re-Latch





Types of Non-Automatic Doors

Manual ICU/CCU Smoke-Rated

- ✓ **Underwriters Laboratories Inc.,
UL 1784 Air Leakage Test of Door
Assemblies:**
 - **Developed for smoke rated areas of
health care facilities**
 - **Requires:**
 - ◇ **High temperature weather-
sweeps, sealant and gasketing**
 - ◇ **Positive latching**





Types of Non-Automatic Doors

Manual ICU/CCU Specialty Units

✓ Manual Slide Corridor Unit

- Developed for smoke rated areas of health care facilities
- Features include:
 - ◇ Large walk-thru opening up to 60"
 - ◇ P-X configuration (no breakout)
 - ◇ Smoke Rated





Types of Non-Automatic Doors

Manual ICU/CCU Specialty Units

✓ Manual Slide – Telescopic ICU/CCU

- Developed for smoke rated areas of health care facilities
- Features include:
 - ◇ Large walk-thru opening
 - ◇ SX-SX-SO configuration (full breakout)





Types of Isolation Doors

Manual

✓ **Manual Isolation Doors**

- **Developed for negative, positive and combination pressure rooms**
- **No power with self-closing operation**
- **Perimeter seals**
- **Trackless Design**





Types of Isolation Doors

Automatic

✓ Automatic Isolation Doors

- Developed for negative, positive combination pressure rooms
- Self-closing
- Perimeter seals
- Knowing Act activation
- Trackless design





Types of Automatic Doors

Swinging Doors Full Powered

- ✓ **Fully Automatic – Governed by ANSI 156.10**
 - **Automatic actuation – Motion Sensors**
 - **Requires:**
 - ◇ **External safety devices**
 - ◇ **Guide rails on swing side (unless protected by adjacent wall)**



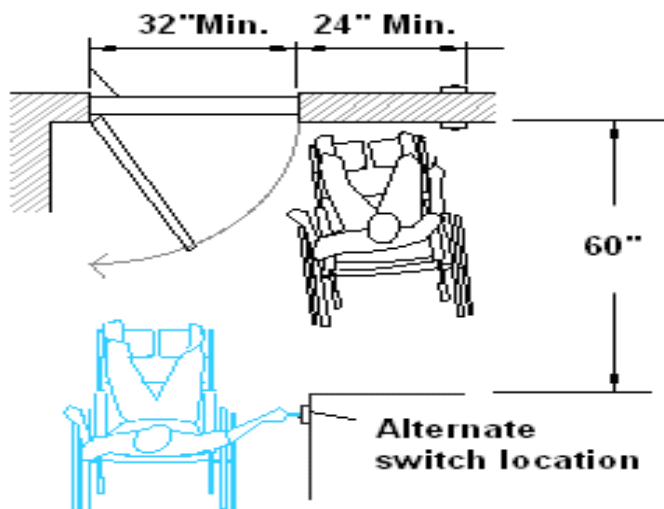


Types of Automatic Doors

Swinging Doors Low Energy

✓ Low Energy – Governed by ANSI 156.19 & ADA:

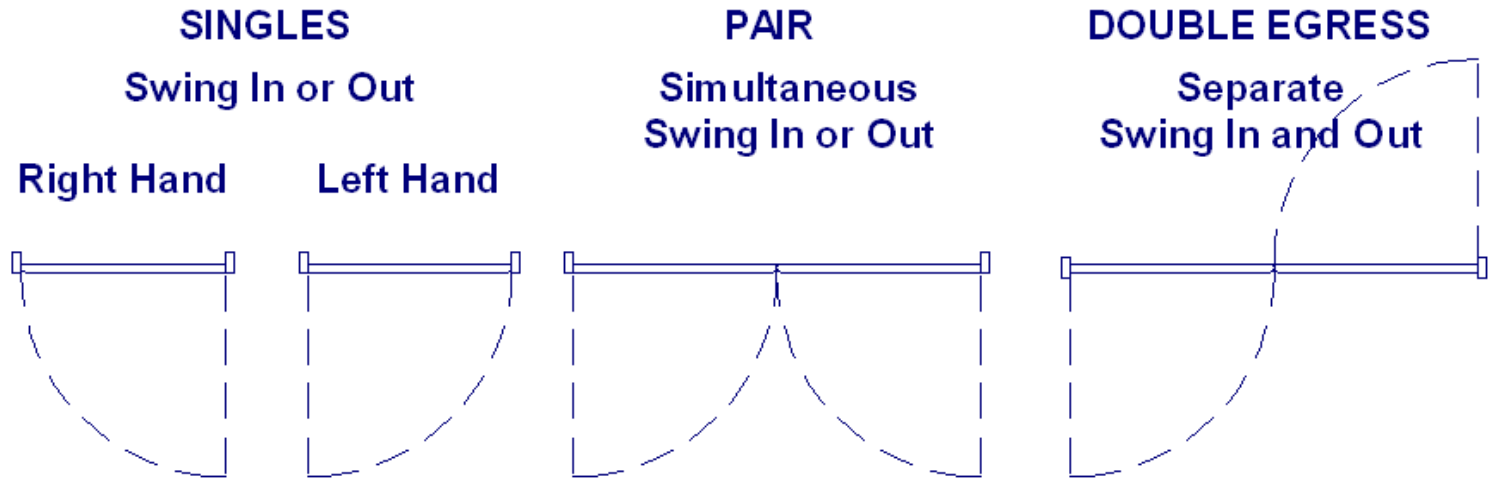
- “Knowing Act” activation (pushbutton or push plate)
- Slow opening and closing speeds
- Low operating force
- Floor space requirements
- No guide rails required



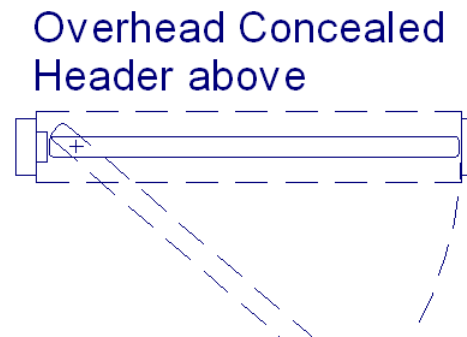
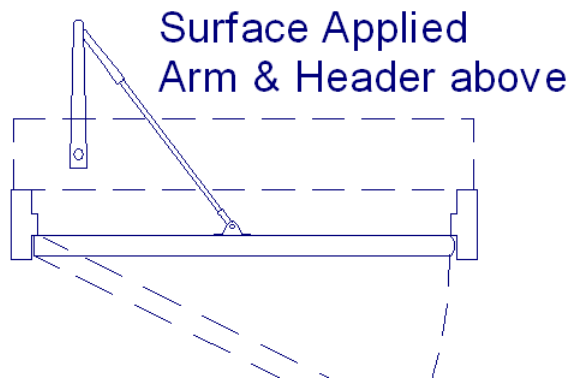


Types of Automatic Doors

Swing Doors Industry Designations



- ✓ **Surface applied operators generally used for butt hung doors**
- ✓ **Overhead concealed operators used for center pivoted doors**





Types of Automatic Doors

Folding Doors

✓ Governed by ANSI 156.10:

- Maximum opening speed is 1 ½ seconds
- Require external safety devices (door mounted)
- Maximum force of 50 lbs. to achieve emergency egress
- Guide rails required on fold side unless protected by an adjacent wall)

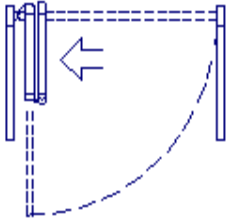
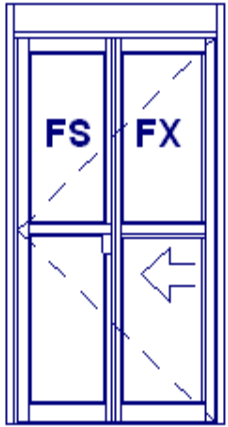




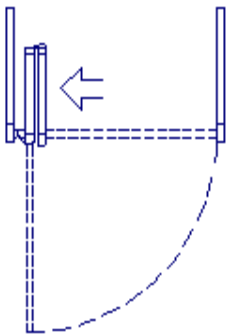
Types of Automatic Doors

Folding Doors Industry Designations

SINGLE

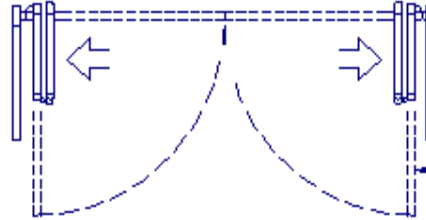
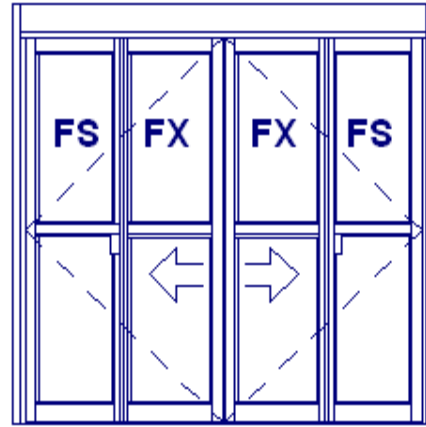


Fold-Out

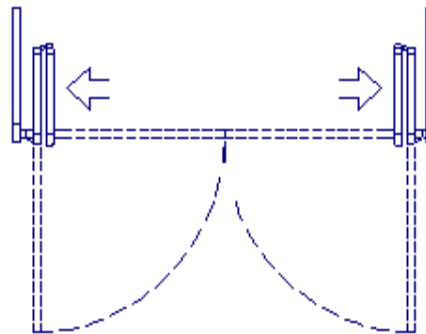


Fold-In

PAIR



Emergency Breakout



Guard Rail

FS

Fold-Swing Panel

FX

Fold-Slide Panel





Types of Automatic Doors

Revolving Doors

- ✓ Always open, always closed
- ✓ Energy efficient
- ✓ Handicap accessible
- ✓ Security mantrap



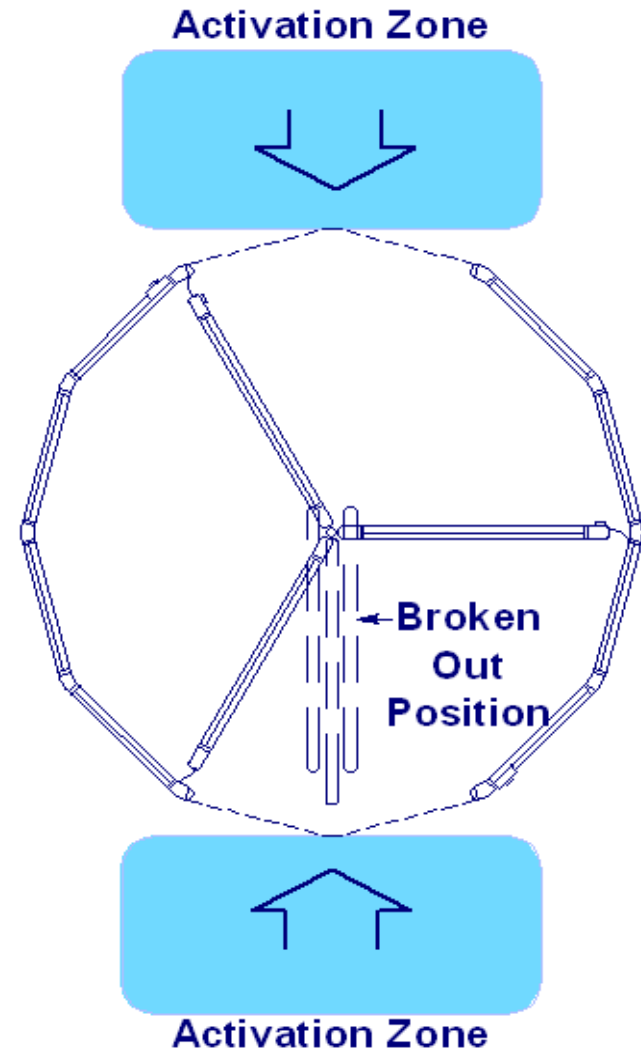


Types of Automatic Doors

Revolving Doors

Small Diameter

- ✓ Automatic with Center Shaft
- ✓ Small diameter (10 to 12 ft)
- ✓ 3 or 4 wing with emergency breakaway
- ✓ Motion sensors & safety systems
- ✓ Motor/Gearbox/Control
- ✓ 2 to 4 RPM



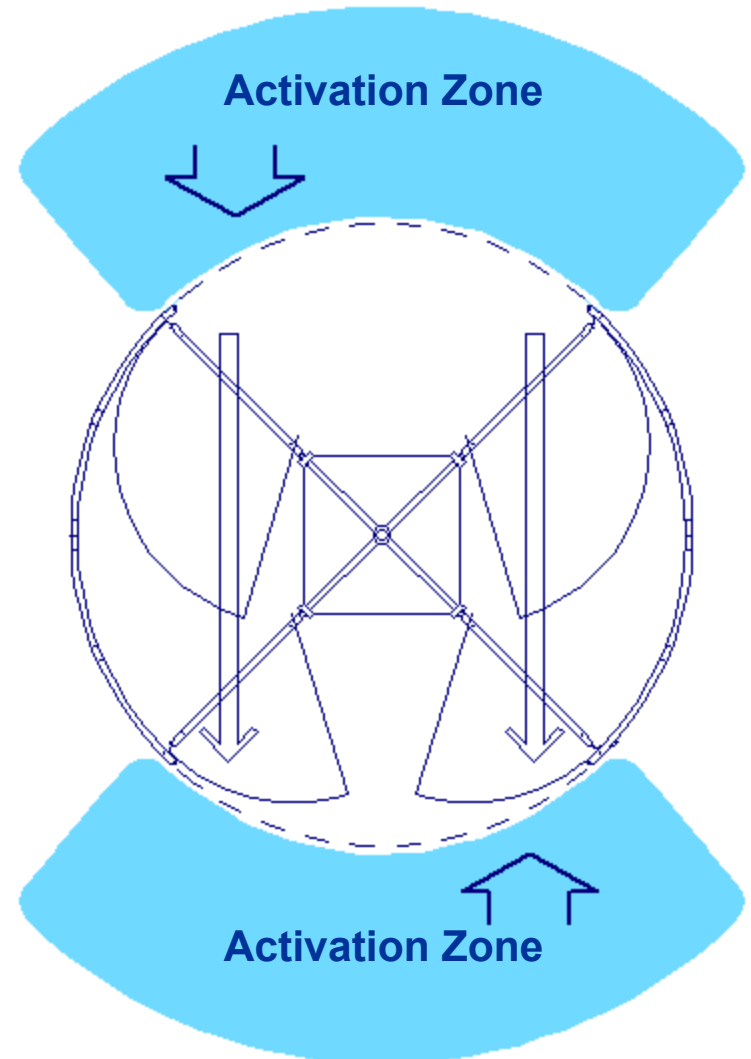


Types of Automatic Doors

Revolving Doors

Large Diameter

- ✓ Automatic with Core
- ✓ Large diameter (12 to 16 ft)
- ✓ 3 or 4 wing with emergency breakaway
- ✓ Motion sensors & safety systems
- ✓ Motor/Gearbox/Control
- ✓ 2.9 to 4.1 RPM

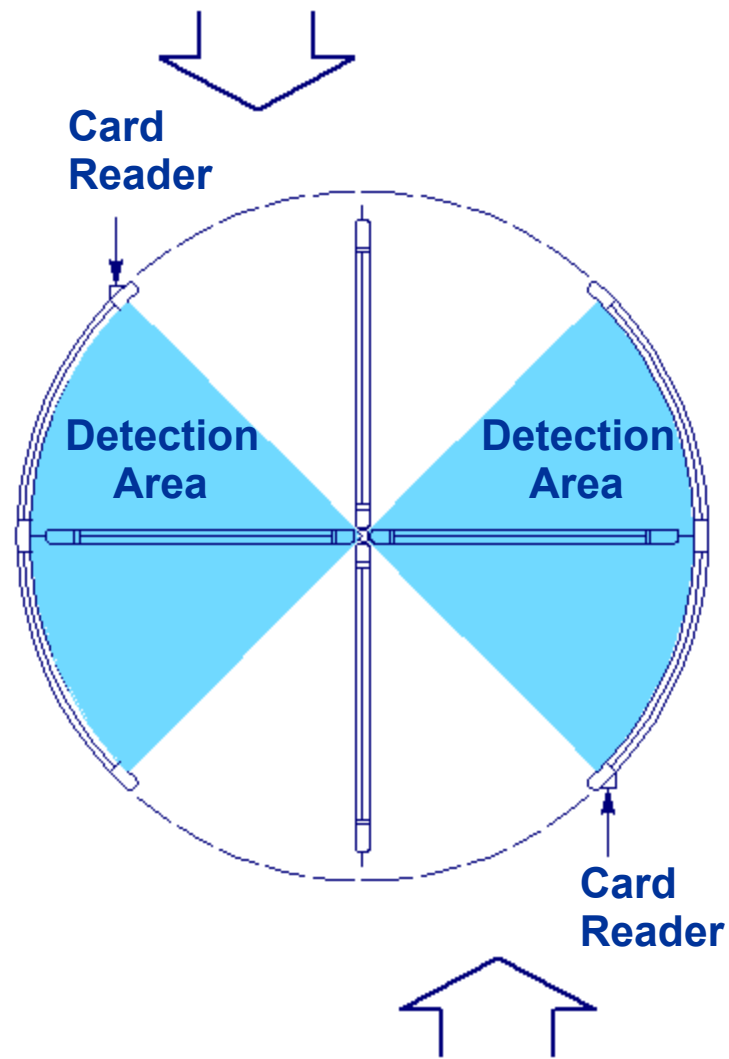




Types of Automatic Doors

Revolving Doors Entrance Security

- ✓ Access Control
- ✓ Small diameter (6 to 7 ft)
- ✓ 4 wing fixed (optional magnetic breakaway for power failure)
- ✓ “Knowing Act” activation (card reader) & presence detection
- ✓ Safety systems
- ✓ Motor/Gearbox/Control
- ✓ 4 RPM





Egress & Safety Requirements

Revolving Doors

✓ Governed by ANSI 156.27, June 2003

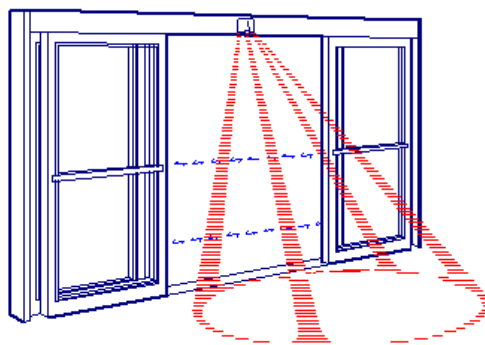
- Where egress is required, a revolving door shall be capable of breakout with an egress path providing 36" aggregate width
- Each revolving door wing shall be capable of breakout with maximum applied force of 130 lbs.
- Handicap Accessibility – Revolving doors can be made large enough to accommodate persons with disabilities and equipped with accessories for slow operation. Adjacent entrances are required not only for means of egress but also for ADA accessibility



Activation & Safety Devices



Wall mounted push plate



Motion sensor

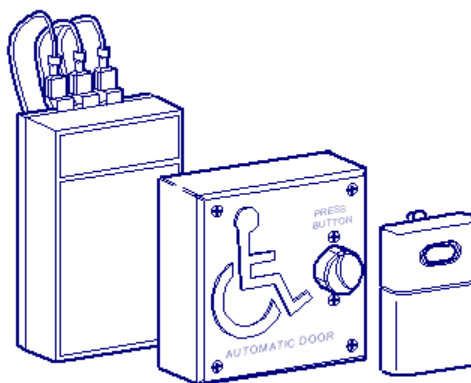
- Motion sensors
- Presence sensors
- Floor Mats
- Push plates
- Touchless switches (for Clean Rooms)
- Keyless entry
- Proximity/Card readers



Industrial pull chain



Jamb mounted push button



Radio transmitters & receivers



Activation & Safety Devices

Select Appropriate

Activation & Safety Devices

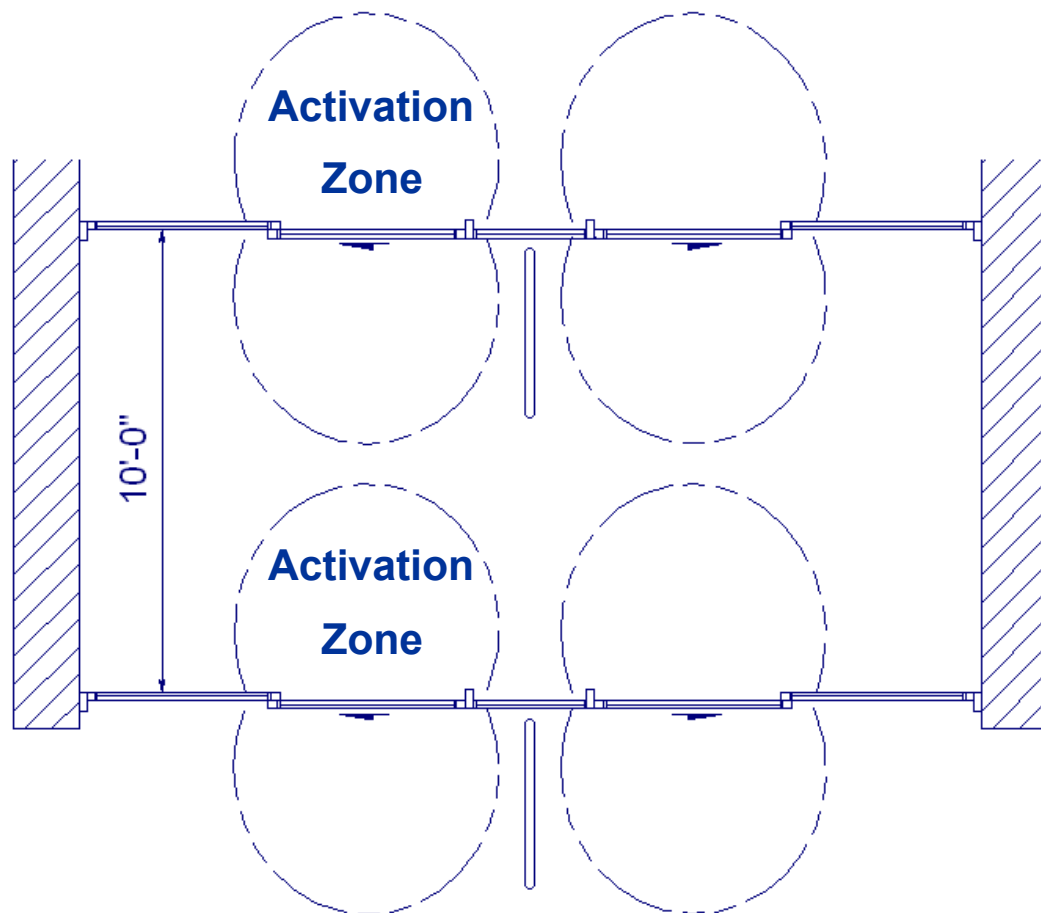




Activation & Safety Devices

✓ The greater the distance between doors, the lower the possibility of both doors opening simultaneously

- Minimum distance recommended is 10 ft
- Choice of activating devices will affect vestibule length





Locking Requirements

- ✓ **A dead bolt lock is the industry standard**
- ✓ **Electric locks are available for all doors**
- ✓ **Panic exit devices allow emergency egress to occur**
- ✓ **Locks can be interfaced to work with any access control system**



Special Finishes

- ✓ **Paint (Kynar & Powder Coating)**
- ✓ **Special Anodized**
- ✓ **Cladding**



Summary

The keys to specifying the most efficient and effective Automatic Entrance Systems are:

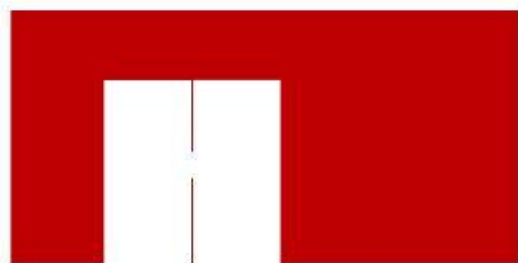
- A. Determine the needs of the application**
 - 1. Who uses the doors and how they are used?
 - 2. Is security an issue?
- B. Determine Egress & Safety requirements**
 - 1. Ensure applicable code compliance
 - 2. Select appropriate actuation/safety devices
- C. Determine the importance of Aesthetics**
- D. Get expert advice**



Questions & Answers

This concludes the American Institute of Architects Continuing Education System Program

Thank You For Your Participation!



Horton

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