

record

AUTOMATIC DOORS AS THEY RELATE TO SAFETY AND CODES

Provider: #T112

Course: KMS101

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Learning Objectives

- ▣ Understand when to select an automatic door versus an ADA operator
- ▣ Know the differences between the codes that govern automatic door products
- ▣ Understand the safety systems associated with products of this type and when to use one over the other.

These types? NO

▣ No overhead doors



▣ Not Garage doors either



Nope. Not even singing Doors!



But these doors...YES!



History

- ▣ Mid 50's - First swinging door system introduced
- ▣ Early 60's- First sliding door system introduced
- ▣ 1970's- Electro Mechanical Self Contained Units
- ▣ Early 80's: Sensor Technology/ Safety
 - 80 billion automatic door cycles annually in US
- ▣ 1990's ADA takes over
- ▣ 2000- Trends toward Security

WHERE DO WE SEE AUTOMATIC DOORS SPECIFIED?

Airport

Hospital

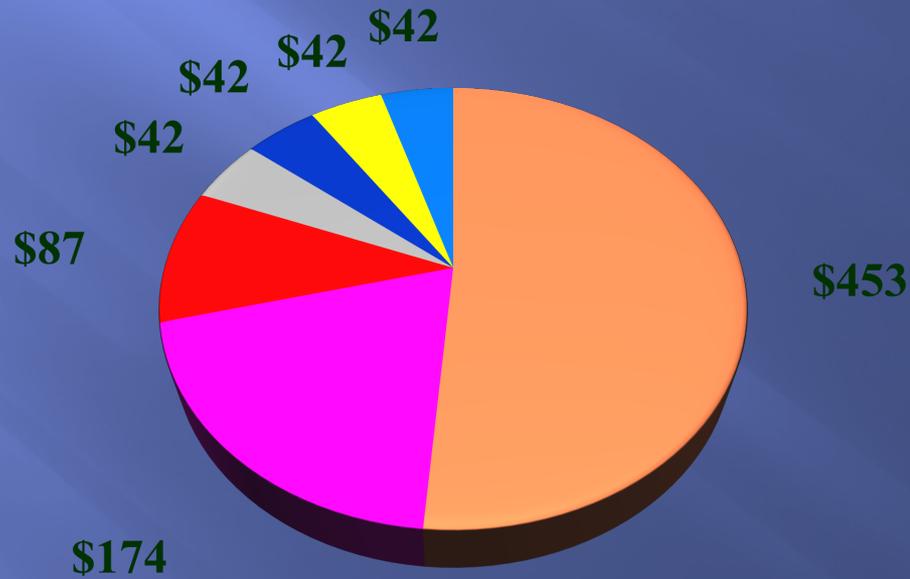
Retail

Everywhere !

Primary Market Segments

2009 Total ~ \$1 B

+



AUTOMATIC DOORS ARE SAFE!

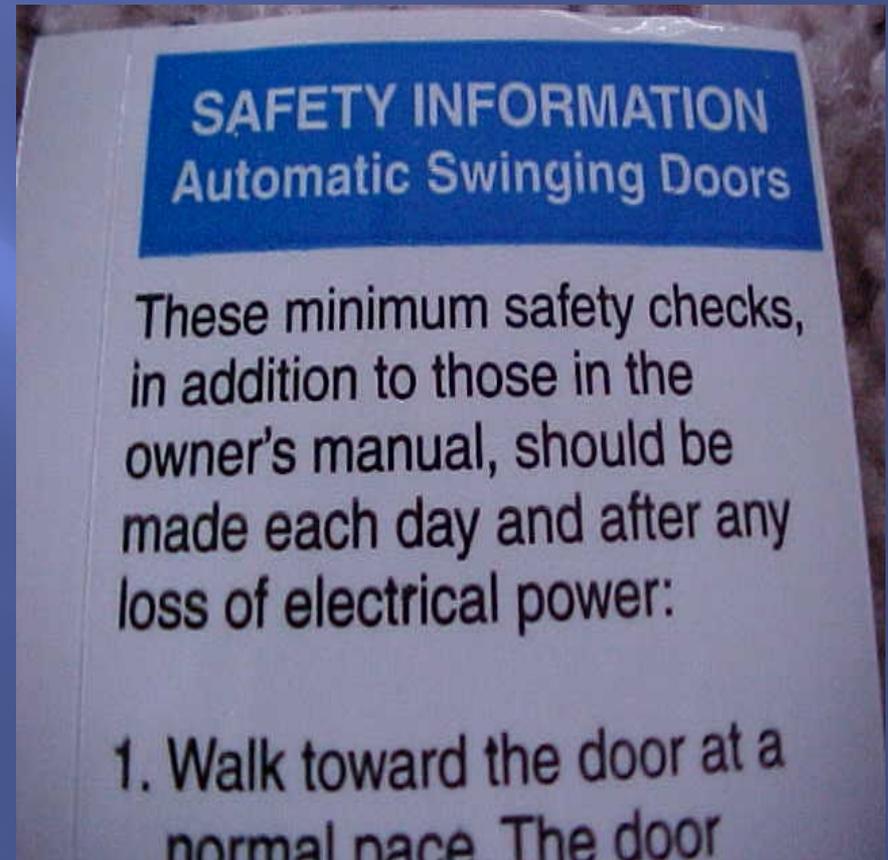
Automatic doors are safer than ever
before!

AAADM

- ▣ American Association of Automatic Door Manufacturers
- ▣ Founded in 1990's
- ▣ 7 leading manufacturers
- ▣ Daily safety checks
- ▣ Concerned with correct installations and safe applications

Daily Safety Checks

- ▣ Stickers applied during install as reference/ guidance
- ▣ Approximately 5 minutes per door
- ▣ For customer's safety and owners protection
- ▣ Preventive maintenance contracts available



REQUIRED SIGNAGE

Required Signage- Swinging Doors



A Good Example....



Pretty, isn't it?



Required Signage- Sliding Doors





Look Familiar?



ANSI Decals

APPENDIX B

FIGURE B-1 (Ref. 11)
SIGNAGE FOR AUTOMATIC SLIDE DOORS.

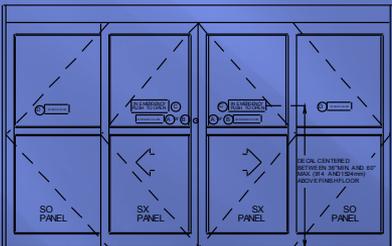
DECAL FOR ALL AUTOMATIC DOORS (A) AUTOMATIC DOOR

DECAL FOR KNOWING ACT DOORS (B) AUTOMATIC DOOR ACTIVATE SWITCH TO OPERATE

DECAL FOR SLIDING DOORS WITH SWINGING PANELS (C) IN EMERGENCY PUSH TO OPEN

DECAL FOR SLIDING DOOR - SIDELITE (D) STAND CLEAR

FIGURE B-2 (Ref. 11)
INTERIOR VIEW - AUTOMATIC SLIDE DOOR WITH APPROPRIATE SIGNAGE FOR TWO-WAY TRAFFIC CONTROL.



NOTE: THE DRAWINGS DEPICTED ABOVE ARE APPROXIMATE (NOT TO SCALE) AND FOR ILLUSTRATION PURPOSES ONLY.

11-1-04



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11-1-04

WHY SHOULD YOU SPECIFY AN AUTOMATIC DOOR?

Why shouldn't you?

Purposes of Automatic Doors

- ▣ Provide Convenience to the user
- ▣ To make entrances safer- manual doors may slam shut, causing hazards
- ▣ To assist with heating and air conditioning costs
- ▣ Control traffic flow in and out of a building

WHERE TO USE AUTOMATIC DOORS

All automatic doors are ideal for convenience or any hands free requirement, or when sensing devices are preferred

AUTOMATIC DOOR PRODUCTS

When to specify one over the other?

Defining Traffic

- ▣ High Traffic- more than 2 persons per minute moving through an opening
- ▣ Medium traffic- one person per minute moving through an opening
- ▣ Low traffic- one person per 5 minutes moving through the opening

Your Choice Being...

- ▣ Sliding door- accommodates simultaneous two-way traffic flow
- ▣ Swinging door- used for directional, or one-way pedestrian traffic.
- ▣ Folding doors- space saving solution where the opening width is restricted to roughly 6 to 8 feet and there is a desire to move traffic in both directions through a singled opening.
- ▣ ICU Doors- primary healthcare facilities; many more uses common

SWINGING DOORS

High Energy or low energy?

Determining the Application

- ▣ Ask yourself- “Do we need an automatic door or an operator for use by the disabled?”
- ▣ Automated entranceway (sensing devices) as opposed to dedicated activation (knowing act)
- ▣ How does one desire to control traffic flow and patterns?

Prevailing Standards



- ▣ **ANSI A156.10**
American National Standard for Power Operated Pedestrian Doors
- ▣ **ANSI A156.19**
American National Standard for Power assist and Low Energy Operated Doors. (ADA)
- ▣ **Telling the Difference...**

Cliff Notes for ANSI Standards

- ▣ ANSI A156.10- high energy doors
 - to back check in 1 1/2 seconds or longer
 - requires safety devices

- ▣ ANSI A156.19- low energy doors
 - to back check in 4 seconds or longer
 - safety device not required
 - Door must remain open for a minimum of 5 seconds after reaching 90 degrees in a knowing act scenario.

High Energy Swinging Doors



High Energy Swing Doors

- ▣ Electro-mechanical or electro-hydraulic
- ▣ Primarily used with sensing devices = low cost of maintenance
- ▣ Exterior doors, traffic control
- ▣ Specified with doors and frames
- ▣ Require safety devices
 - Guide rails
 - Door or header mounted sensors
 - Mats no longer common

Common Attributes

- ▣ Adjustable opening and closing speeds all within ANSI guidelines.
- ▣ Specified complete with doors and sensing devices
- ▣ Heavy duty applications
 - Door weights of lead lined doors
 - Industrial doors

Low Energy Operators



FIRST, LET'S REVIEW ADA

WHAT IS THE ADA?

- ▣ The ADA is a civil rights law, not a building code.
- ▣ Passed into law in July 1991
- ▣ This act is designed to provide protection for people with disabilities.
- ▣ Over 50 million Americans have some sort of disability that hinders their ability to freely enter an entranceway

**Remember, the elderly may be viewed
as disabled...**



ADA operators

- ▣ Primarily a manual door closer unless activated through a push button type of switch
- ▣ Able to withstand heavy manual traffic
- ▣ 8 1/2 pounds of manual opening force on exterior
- ▣ 5 pounds of manual opening force on interior
- ▣ Hold-open periods adjust up to 30 seconds.
- ▣ Specified for use on existing doors
- ▣ Safety devices not required by code
- ▣ Proper labeling identifying door as “automatic” is required-
“Caution- Automatic Door” located per standard

To Specify or Not...



Push Plate Activation

- ▣ Required for ANSI 156.19 (Knowing Act)
- ▣ 30" – 48" height acceptable
- ▣ Must be located within 12' of door
- ▣ Must be located outside the path of the swinging door



Review

- ▣ High Energy
 - Fast openings
 - Traffic Control
 - Exterior Doors
 - Specified complete with doors
 - “Hands off” openings- sensing devices
- ▣ Low Energy
 - Slow openings
 - ADA compliance
 - Specified for use with existing doors
 - “Hands on” openings- knowing act

What to do... What not to do...

- ▣ Know the desired function of the door
 - Traffic control
 - ADA compliance
 - Full automation vs. desired manual operation
- ▣ Do not allow the elimination of safety devices in an effort to reduce costs
 - Product failure

New in 2007

- ▣ If you specify an ADA operator for use with a sensing device for activation, you must also specify the safety devices as required under 156.10

SWINGING DOOR SAFETY

Motion Detection vs. Presence Detection

- ▣ Method of activation
 - ▣ Opens the door when detection of an oncoming object occurs
 - ▣ Should not be used for safety
 - ▣ Usually mounted on unit itself
- ▣ Method of Safety
 - ▣ Prevents a door from opening when an object is detected within the detection zone
 - ▣ Certain models can be used for activation
 - ▣ Mounted on door or header

Safety Systems



- ▣ Leading European Manufacturers
- ▣ Latest technology- infrared or microwave technology
- ▣ Used on all entrance systems as standard
- ▣ Automatic Doors act as manual doors when power/safety out

Door Mounted vs. Header Mounted

- ▣ Microwave- radar senses and object and is reflected back and frequency is shifted in proportion to object.
- ▣ Infrared- detects an object by emitting a pulsed invisible light to a receiver that analyzes it and sends it back.



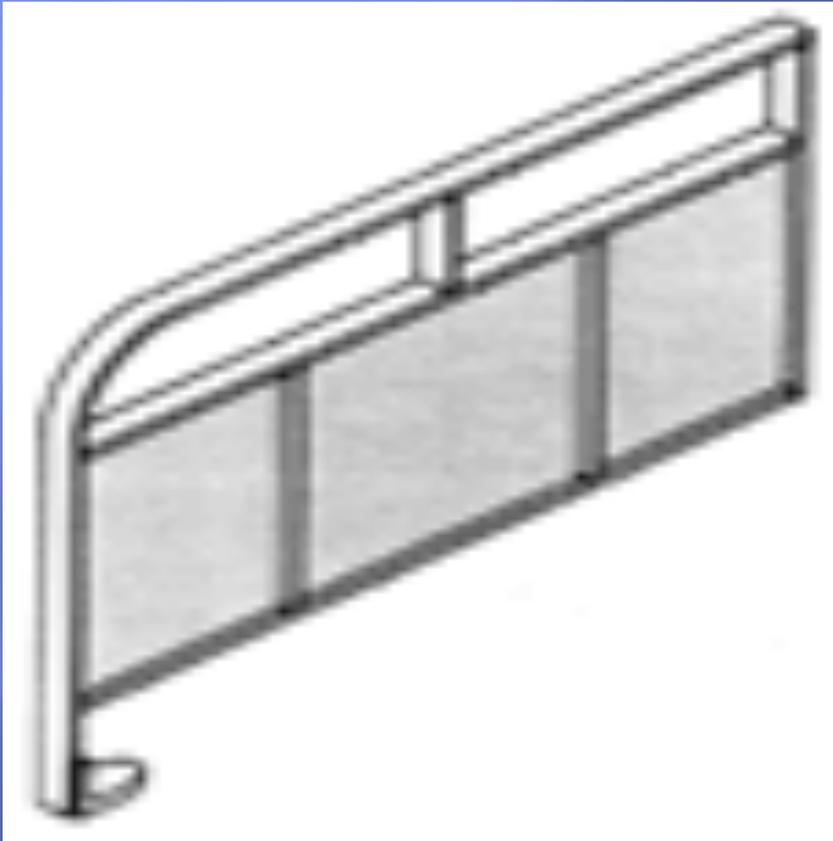
Remember these?...



Carpets or Floor Mats

- ▣ Declining sales
 - High cost of replacement
 - Aesthetics not pleasing
 - Easier to replace with overhead systems
 - Almost never used on sliding door systems

Guide Rails



- ▣ Rail must be in length equal to width of door
- ▣ Must be used on swing side of doors
- ▣ 2 way traffic not recommended
- ▣ Not required for ADA doors
- ▣ Not required for sliding doors

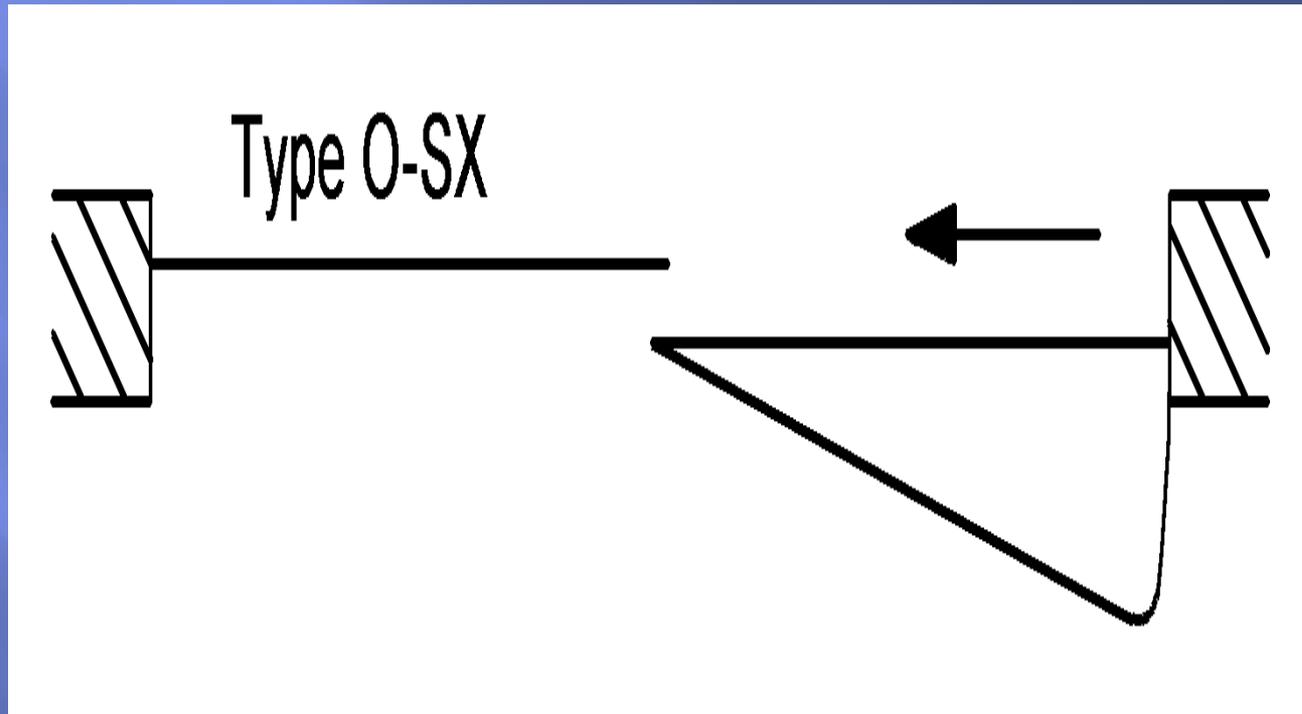
Sliding Door Systems



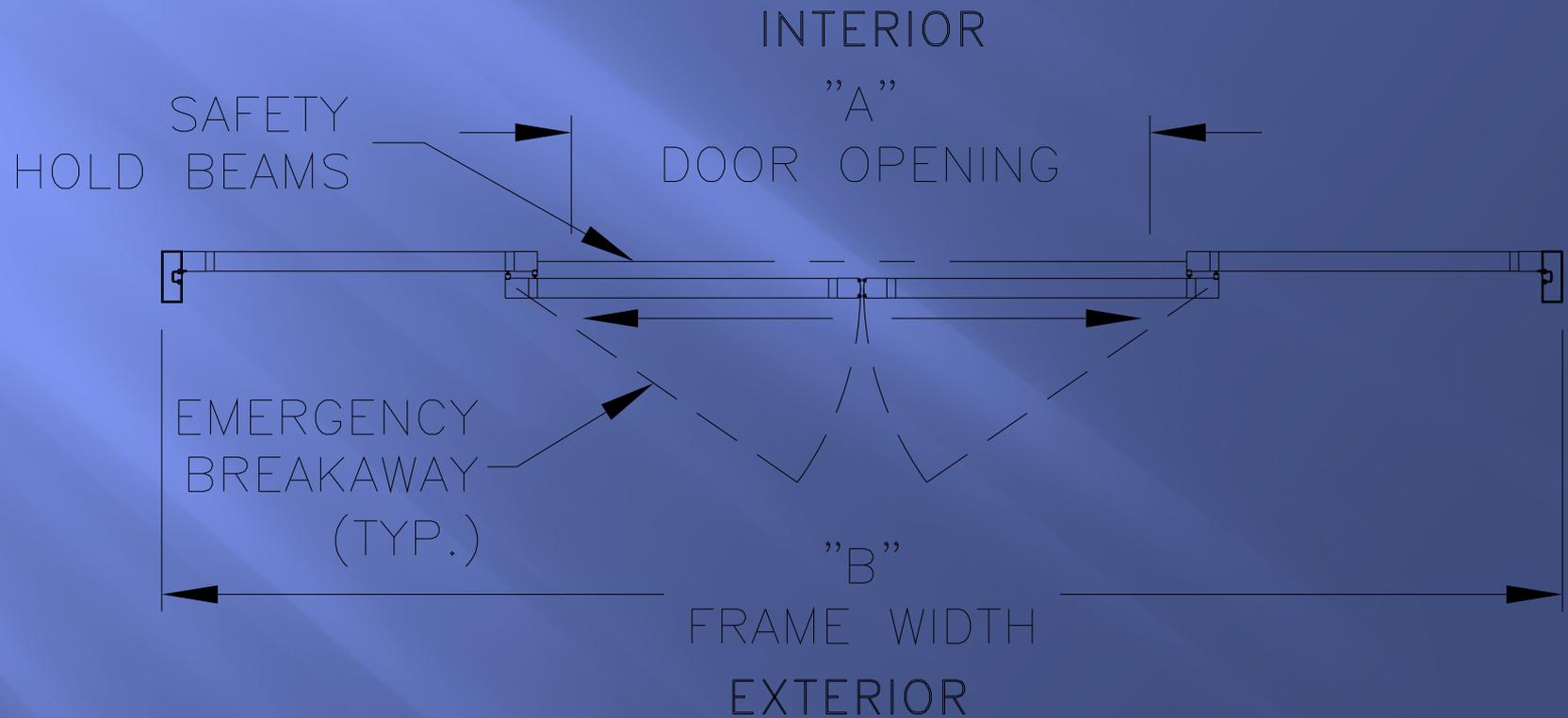
ANSI Designations

- ▣ “X” = A panel that Slides left or right
- ▣ “S” = A sliding door or panel that swings (breaks out) or pivots out- “S” designates “swing out”
- ▣ “O” = A panel that doesn’t swing (break-out) or slide
- ▣ “P” = A filler tube that closes the gap when there is not a side lite at all (typically used on surface applied units)

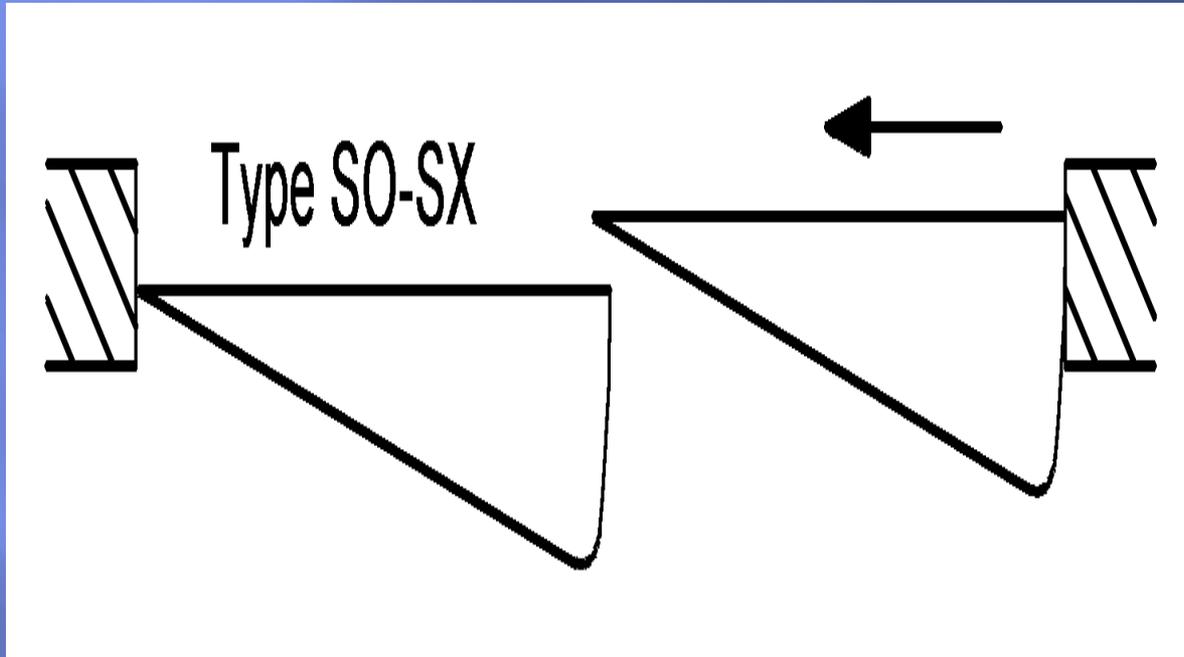
Fixed Sidelight/Breakout Sliding Panel



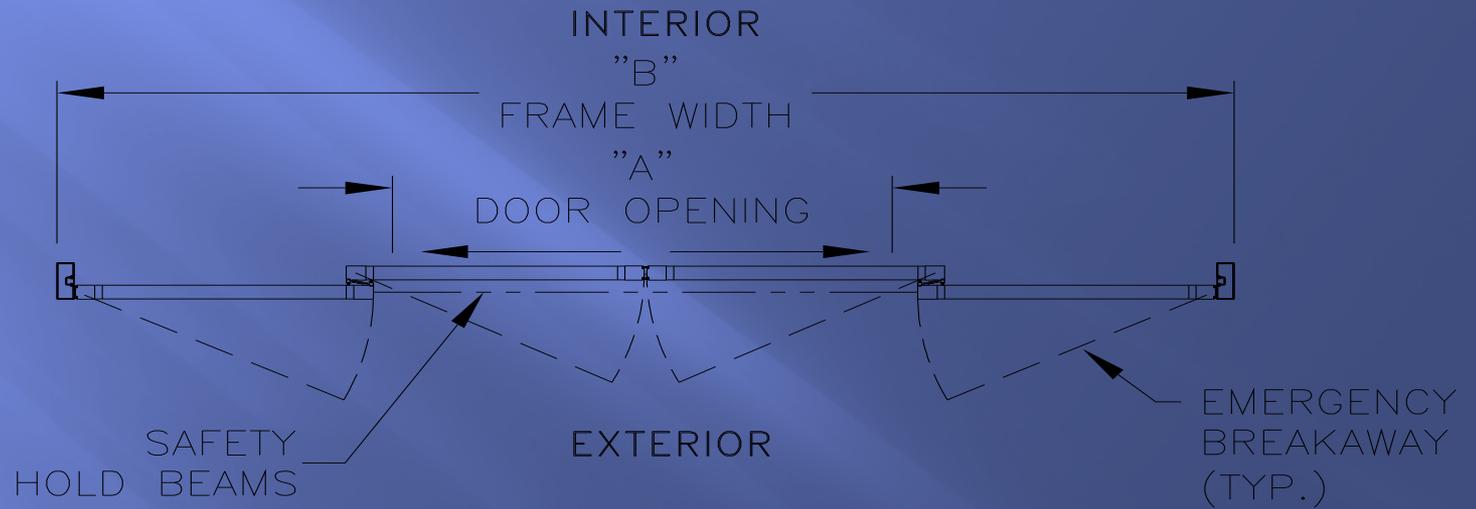
Bi-Parting Fixed Panel



Full Breakout



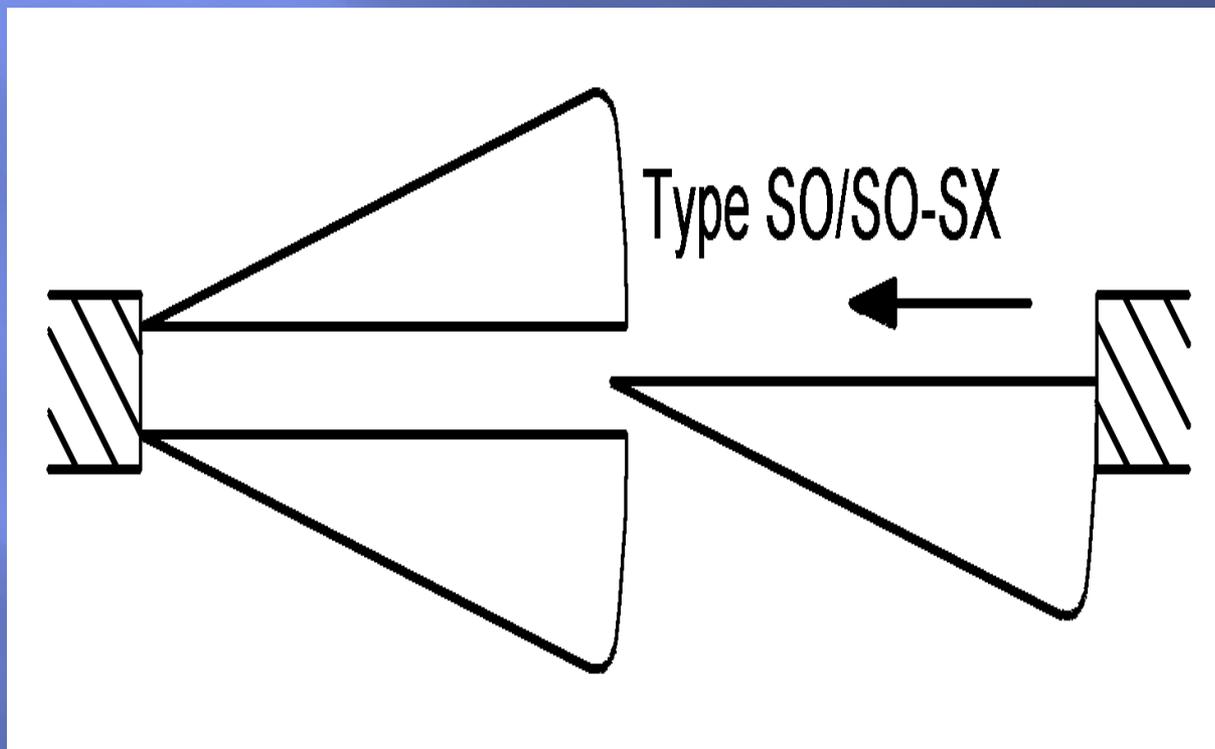
Bi- Parting Break-out



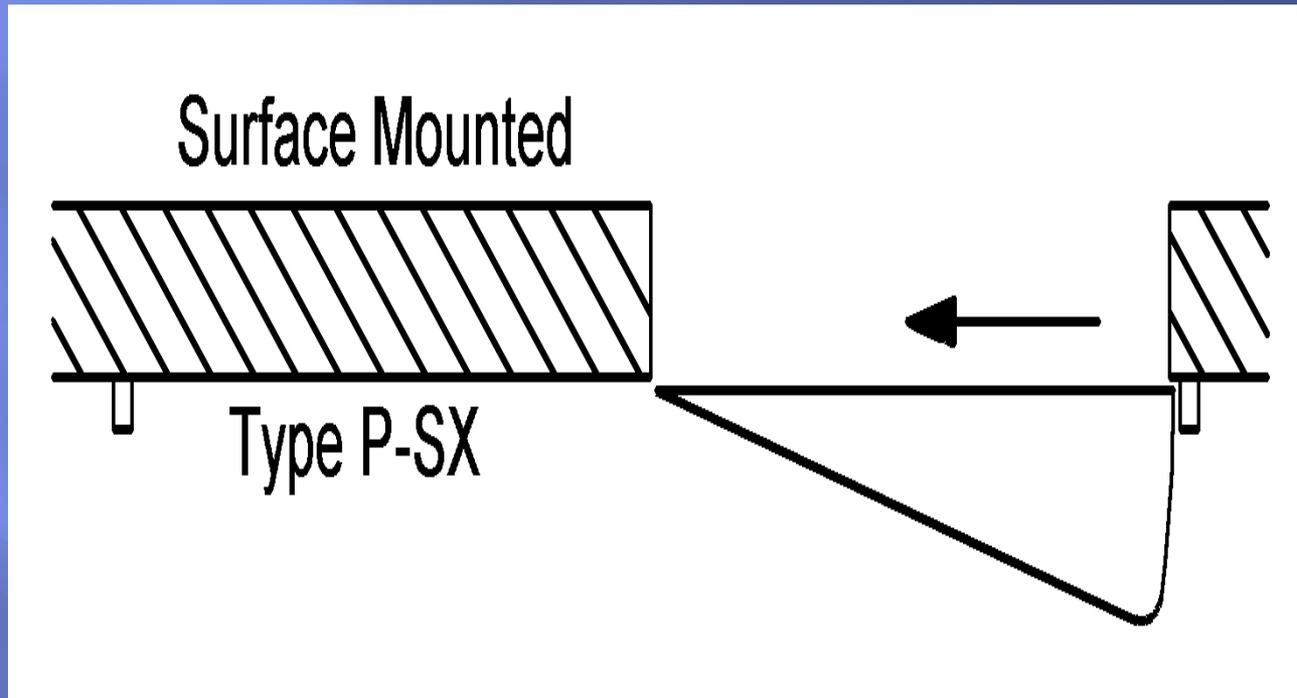
OTHER TYPES OF SLIDING DOORS

Pocket and surface applied packages

Pocket Door



Surface Applied Type



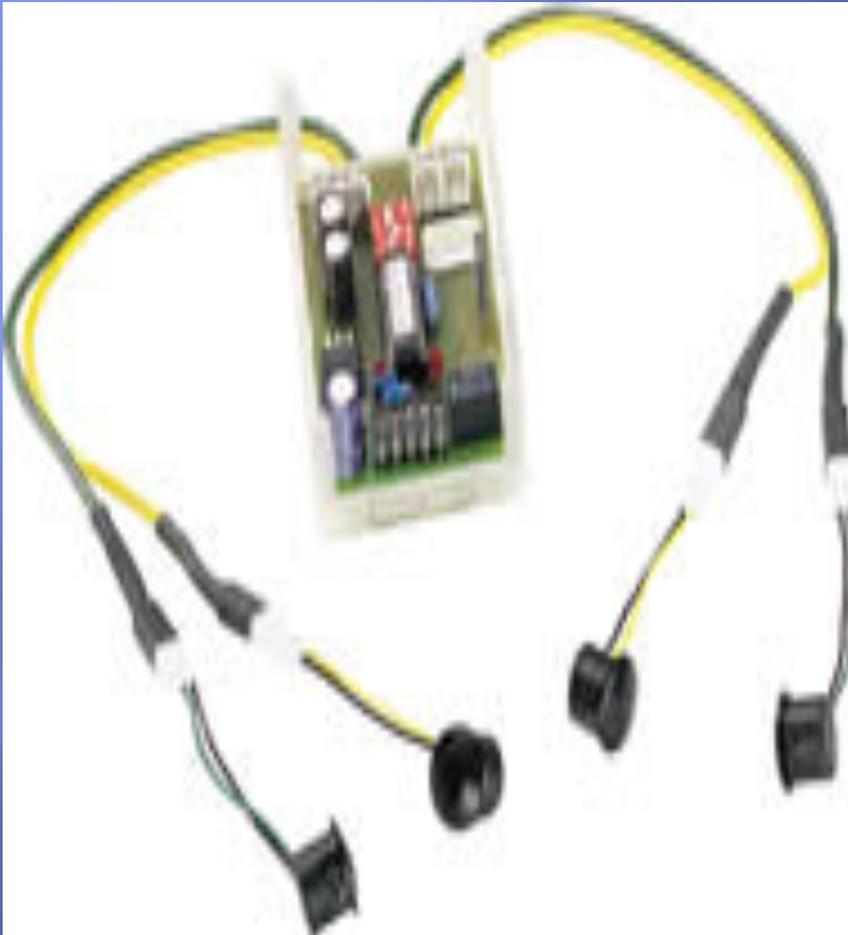
SLIDING DOOR SAFETY

Threshold Protection



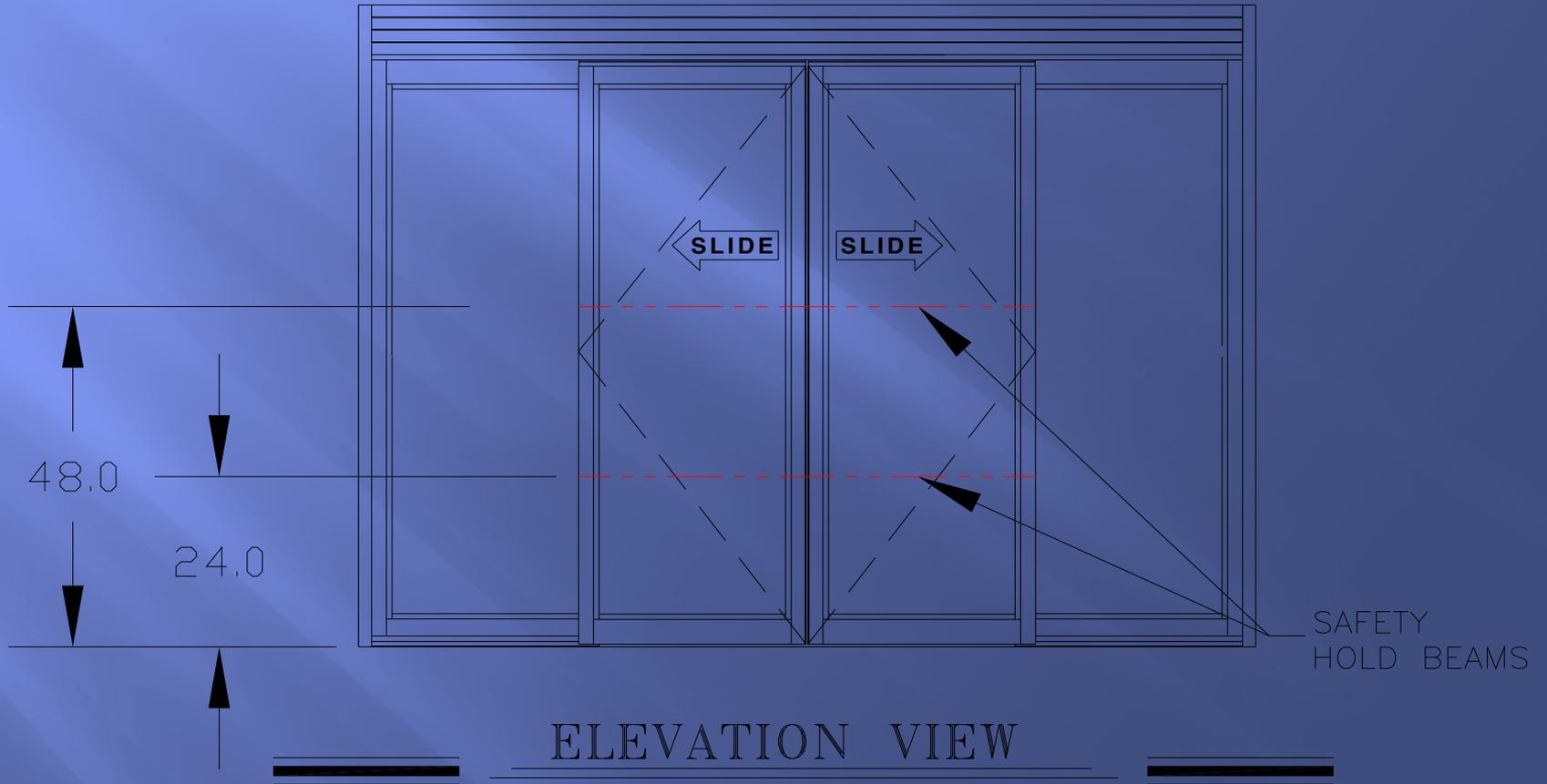
- ▣ Projects straight down into opening
- ▣ Prevents doors from coming into contact with an object
- ▣ Perfect for fallen people or obstructions in path of door

Dual Safety Beams



- ▣ Installed by door manufacturer in door stiles
- ▣ Installer wires
- ▣ Prevents doors from making contact with individual
- ▣ Emitter and Detector system

Safety Beams



Battery Back Up



- Completely concealed within the sliding door unit
- Allows for limited door use after power failure to ensure traffic flow safety
- Simple plug in hook ups
- No generator required
- Recharges when power is back on
- One cycle open to 100 additional cycles

Exit Devices



- ▣ Visual interpretation of exit
- ▣ Meets code requirements
- ▣ Used with electric locking when used in security applications

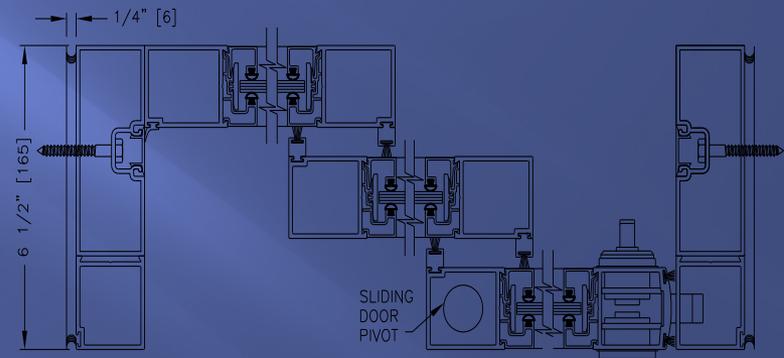
Electric Locking



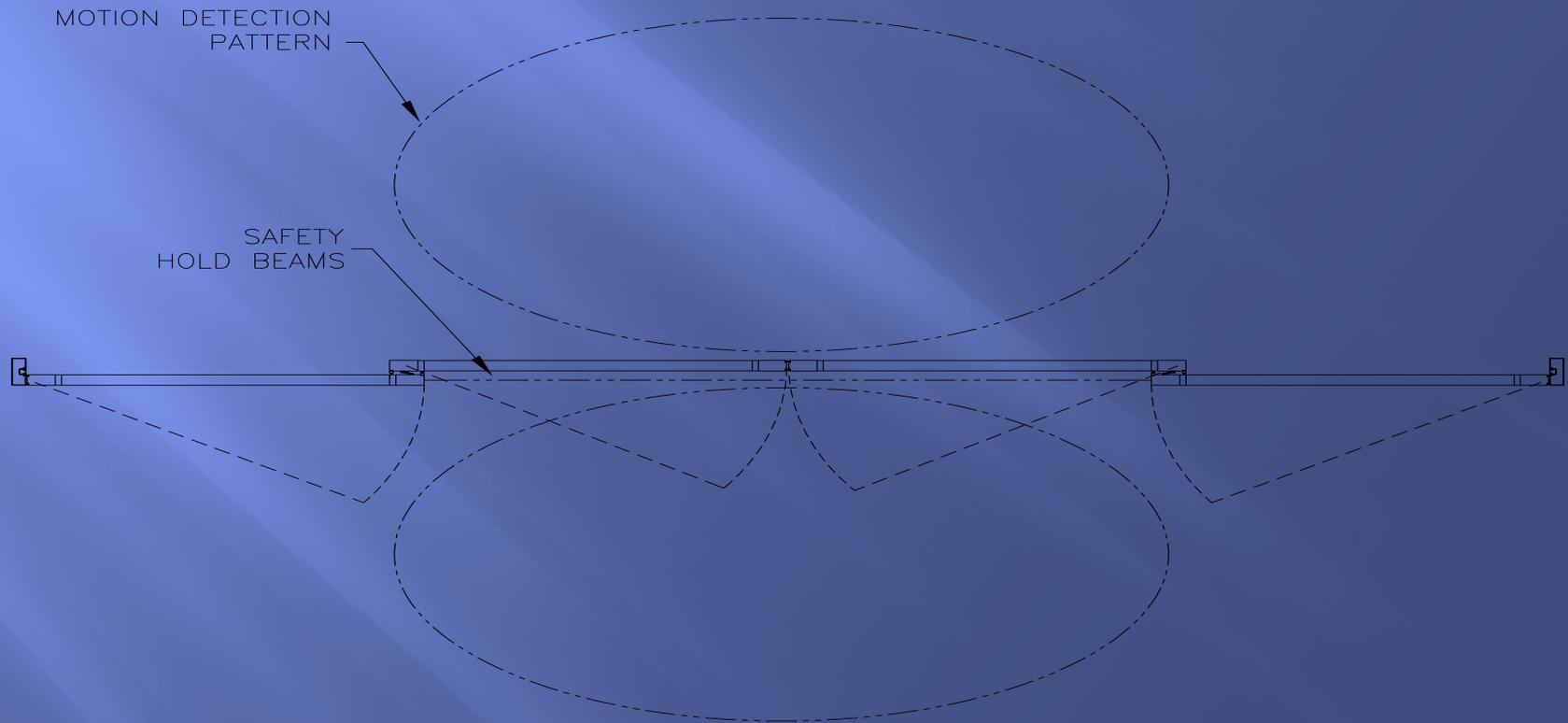
- Completely concealed within sliding door header
- Prevents use of crowbars to stop theft
- Fail Safe versus Fail Secure
- Supplied by automatic door manufacturer

Sliding Door Packages

- ▣ Available in single slide, bi-part, or telescopic slide
- ▣ Vestibules should be a minimum of 9 feet in depth
 - 43" Projection



Sensors and Patterns



Folding Doors



- ❑ Folding doors- space saving solution where the opening width is restricted to roughly 6 to 8 feet and there is a desire to move traffic in both directions through a singled opening.

IN CONCLUSION....

Convenient... **YES!**

Safe.... **YES!**

We do it all for you!



QUESTIONS

ANSWERS

