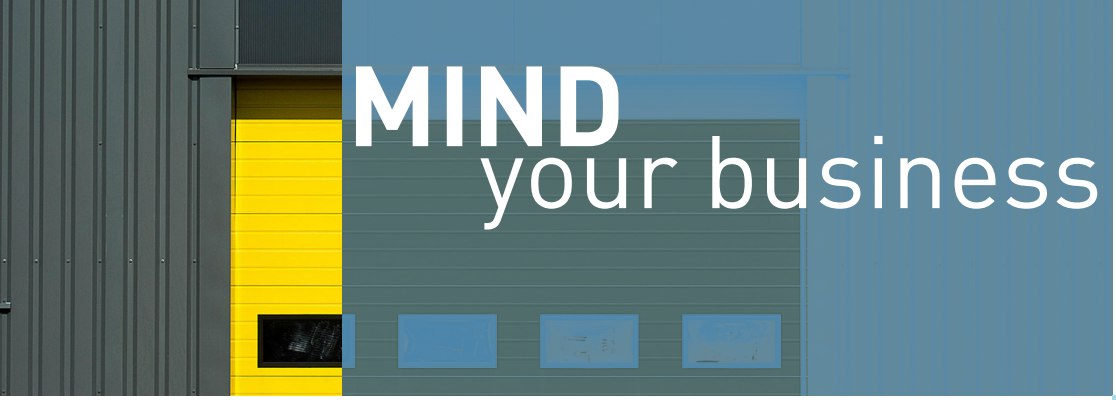

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Building resilient communities

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Large commercial doors and high winds

Did you know that large commercial doors are a damage amplifier when subjected to high winds? In fact, when they are damaged, they often cause significant issues and structural damage to the roof(s) and walls of the facility. This makes attention to commercial doors an important part of protecting your commercial property. This handy guide will help you identify the different types of commercial doors, understand typical modes of failure, and identify the signs of a more resilient door.

Types of commercial doors

There are 3 main types of large commercial doors:

1. **Roll-up doors**: Roll-up doors are lifted into a single coil above the opening. This type of commercial door has thin slats that create a flexible door that can coil up around itself. These are typically used when there is not enough room for tracks.
2. **Sectional doors**: Sectional doors have larger panels/slats that are held together by hinges and travel on a guided track that can move the door to a horizontal position with the ceiling. If space permits, some sectional doors can raise vertically without making any turns.
3. **Overhead doors**: Overhead doors have large panels/slats that are held together by hinges and travel on guided tracks that move vertically. The door does not move horizontally like sectional doors.

Commercial door components

- **The door**
- **Heavy-duty rollers**
- **Guide track**
- **Locks/latches**

Wikimedia Commons credits:

1. *Gregory David Harington;*
2. *Project Kei;*
3. *U.S. Government Accountability Office.*

Typical modes of failure

Commercial doors have large surface areas that can be impacted by wind during severe convective storms, hurricanes, and tornadoes. These inward and outward forces always find a weak line, if present, and cause the door to fail.

There are 3 main modes of failure:

1. Rollers popping out of their track
2. Track pulling away from the wall
3. Door deteriorating/aging (rusting)

Signs of a more resilient door

1 When inspecting an existing commercial door to determine its resilience, first identify what types of doors are present and look for a certification label for each door.

Certification labels may include:

- Wind speed
- Pressure rating
- Approval rating

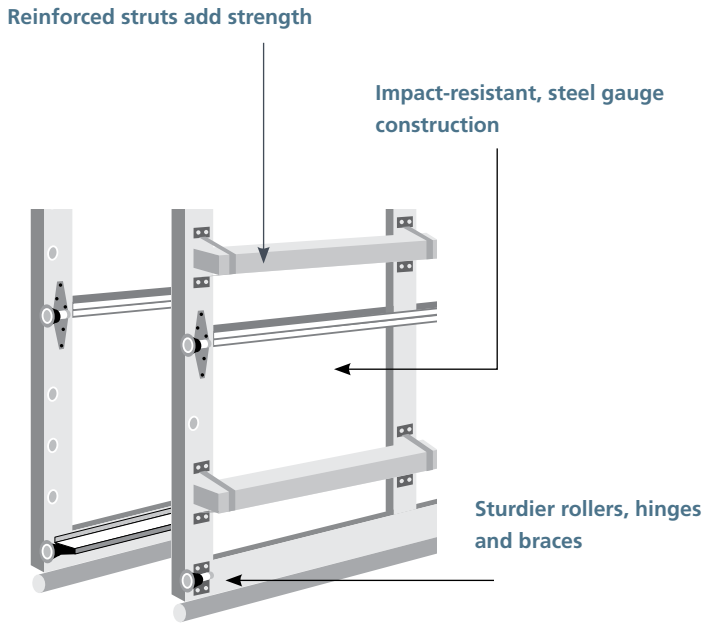
A pressure rating is preferred, since design pressure varies depending on location, terrain exposure, and building size. A pressure rating on the certification label is a good indicator that the manufacturer is trustworthy and typically means the door has been tested to pass 1.5 times its design load.

2 Closely examine the door, track, and attachment details.

- Make sure all track connections to the building's structure are tightly secured.
- Verify that the door seals and there are no large gaps when the door is in the down position.
- Identify if reinforced struts and sturdier rollers/hinges/braces were used.
- Look for wind rating sticker.
- Consider retrofit options to increase resiliency.

3 If you are recommending a replacement or installing new doors, the doors should:

- Be wind rated for the site-specific design pressures.
- In hurricane-prone regions, meet the requirements of:
  - ANSI/DASMA 115 Standard Method for Testing Sectional Doors, Rolling Doors, and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure.
- Be installed by a licensed and verified contractor.



The Insurance Institute for Business & Home Safety (IBHS) created the source document, Large Commercial Doors & High Winds*, used here with our sincere appreciation. The IBHS mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses, and communities against natural disasters and other causes of loss. Learn more about IBHS at IBHS.org.*

Institute for Catastrophic Loss Reduction

Mission

To reduce the loss of life and property caused by severe weather and earthquakes through the identification and support of sustained actions that improve society's capacity to adapt to, anticipate, mitigate, withstand and recover from natural disasters.

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