



Evaluating Wind Resistance of Large Commercial Doors

About Commercial Roll-Up, Overhead, and Sectional Doors:

Commercial warehouse doors are large and, therefore, vulnerable to wind-induced pressure during severe windstorms. Inward and outward forces will find a weak link, if it is present, and cause the door to fail. The doors, tracks, and structural connections are all key elements in a continuous load path that transfers these forces into the building. In addition to the standard door accessories, there are simple additions to the door system that create a more wind-resistant design. Depending upon the door type there are varying means for improving performance.

Inspection Process:

When conducting a visual inspection of a large door, look for a certification label as shown in Figure 1, which may include wind speed (mph), pressure rating (psf or DP), or an approval rating. When a label is not present, close examination of the door, track and attachment details can provide some guidance about whether the door is actually wind resistant. Since design pressure varies depending on location, terrain exposure and building size, a pressure rating is preferred. A pressure rating on the certification label is a good indicator that the manufacturer is trustworthy. Doors should be tested to and pass 1.5 times their design load.

Roll-up and overhead doors equipped with wind locks, as shown in Figure 2, will keep doors from being forced out of the tracks during a windstorm, which is a common failure point in commercial buildings. It is important to note that roll-up steel doors can be designed to meet the building code requirements without necessarily including wind locks. Sectional doors may have horizontal or vertical bracing. These features do vary slightly within the commercial door industry with each manufacturer having their own proprietary design.

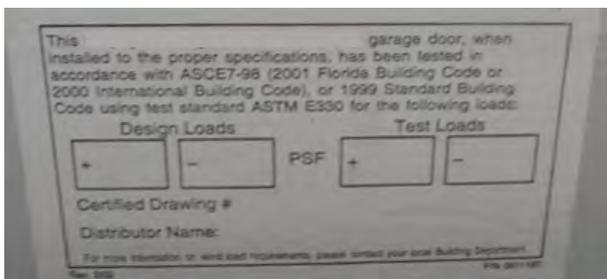


Figure 1. Check for a certification label like that pictured above when conducting a visual inspection of a commercial door. Keep in mind that labels are formatted in a variety of ways.



Figure 2. The roll-up door pictured above is equipped with wind locks that will keep the door from being forced out of the tracks during a windstorm.

Inspection Process:

Use the following checklist to identify key areas of inspection:

Roll-Up, Overhead Doors

| Yes | No | |
|-----|----|--|
| | | 1. Is there a label? Approvals: MDCA <input type="checkbox"/> Florida Product Approval <input type="checkbox"/> Wind speed: ____mph Pressure rating: ____ psf/DP |
| | | 2. All impact-rated doors must meet the requirements of approved test standards, such as the Large Missile Test of ASTM E 1886 and E 1996; Florida Building Code standards TAS 201, 202 and 203, or ANSI/DASMA 115. Does a label indicate that the door has met one of these requirements? |
| | | 3. Are wind locks on the door that slide in the track? |
| | | 4. Are tracks sturdy? Tracks are considered weak if you can rotate them in a twisting motion. |
| | | 5. Are brackets attaching the track to the wall loose, broken or missing bolts or nuts? |
| | | 6. Are any elements of the curtain, tracks, brackets, or accessories rusted? |
| | | 7. Are any elements of the curtain, tracks, brackets, or accessories badly dented? |

Assessing Roll-Up, Overhead Doors:

- If there is a label indicating the approval, wind speed (mph) or pressure rating (psf); the door is likely designed to the local code and may be high-wind rated.
- If there is a label indicating the approval, wind speed (mph) or pressure rating (psf), and a large missile impact test requirement, the door is likely designed to the local code, high-wind rated, and impact rated.
- If the answers are “Yes” to questions 3 and 4, the door is likely designed to meet the local code and is high-wind rated.
- If the answers are “No” to questions 3 and 4, the door is likely not rated for high winds.
- If any of the answer is “Yes” to questions 5-7, the door needs repair or possibly replacement.



Figure 3. Inspect for rust on commercial doors. The picture above shows a severe case of rusting on a roll-up door, which can greatly decrease its strength.

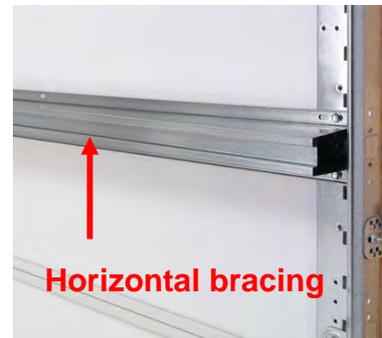


Figure 4. Horizontal bracing on the sectional door pictured above creates a more wind-resistant door, reducing the risk of damage.

Use the following checklist to identify key areas of inspection:

Sectional (Garage-type) Doors

| Yes | No | |
|-----|----|--|
| | | 1. Is there a label? Approvals: MDCA <input type="checkbox"/> Florida Product Approval <input type="checkbox"/> FM <input type="checkbox"/> Wind speed: ____mph Pressure rating: ____ psf/DP |
| | | 2. All impact-rated doors must meet requirements of approved test standards, such as the Large Missile Test of ASTM E 1886 and E 1996; Florida Building Code standards TAS 201, 202 and 203, or ANSI/DASMA 115. Does a label indicate that the door has met one of these requirements? |
| | | 3. Does the door have at least one horizontal strut across each of the panels as shown in Figure 4 and/or are there plates above the door and in the floor for vertical supports? |
| | | 4. Are the tracks sturdy? Tracks are considered weak if you can rotate them in a twisting motion. |
| | | 5. Are the rollers metal and are the axels through the rollers solid metal? |
| | | 6. When the door is closed, do the brackets supporting the track line up with the rollers? |
| | | 7. Are the brackets that hold the track to the wall loose, broken, or missing bolts or nuts? |
| | | 8. Are any elements of the panels, tracks, brackets, or accessories rusted or rotted? |
| | | 9. Are any elements of the panels, tracks, brackets, or accessories dented? |
| | | 10. Are the hinges between panels loose, broken, or missing bolts or nuts or screws? |

Assessing Sectional (Garage-type) Doors:

- If there is a label indicating approval, wind speed (mph) or pressure rating (psf), the door is likely designed to the local code and may be high-wind rated.
- If there is a label indicating approval, wind speed (mph) or pressure rating (psf), and a large missile impact test requirement, the door is likely designed to the local code, high-wind rated, and impact rated.
- If the answers are "Yes" to questions 3-6, the door is likely designed to the local code and is high-wind rated.
- If any of the answers to questions 3-6 are "No", the door is likely NOT rated for high winds.
- If any of the answers to questions 7-9 are "Yes", the door is need of repair or possibly replacement.

Strengthening or Replacing Commercial Roll-Up, Overhead, and Sectional Doors

For retrofit improvements and door replacement information, please check with the door manufacturer for guidance on how to strengthen the door and its track so that it has the properties found in new wind-rated doors appropriate for your location.

For Sectional door retrofit improvements and replacement information, please see:
<http://disastersafety.org/hurricane/retrofits-for-garage-doors/>