

# RETROFIT Improvements

## Garage Door Reinforcement

Making  
Homes  
Safer in  
Disasters

### Retrofit Opportunity

- Garage door replacement
- Garage door reinforcement can be done at anytime

### Purpose

- To keep winds from hurricanes and tornadoes out of the garage where additional structural damage is often caused by wind

### Benefits

- Prevents structural damage
- Prevents damage to or loss of contents inside garage
- Prevents water damage to home

### Hazards

Wind



Rain



Flood



Seismic



Fire



Snow



### Summary

Garage doors are one of the most vulnerable areas to hurricane force winds and tornadoes because they cover large openings, and are usually constructed of unreinforced materials. Many garage doors are constructed of lightweight materials to conserve weight and expense. The lighter weight makes them easier to raise and lower, but it also makes them less durable in adverse weather conditions.

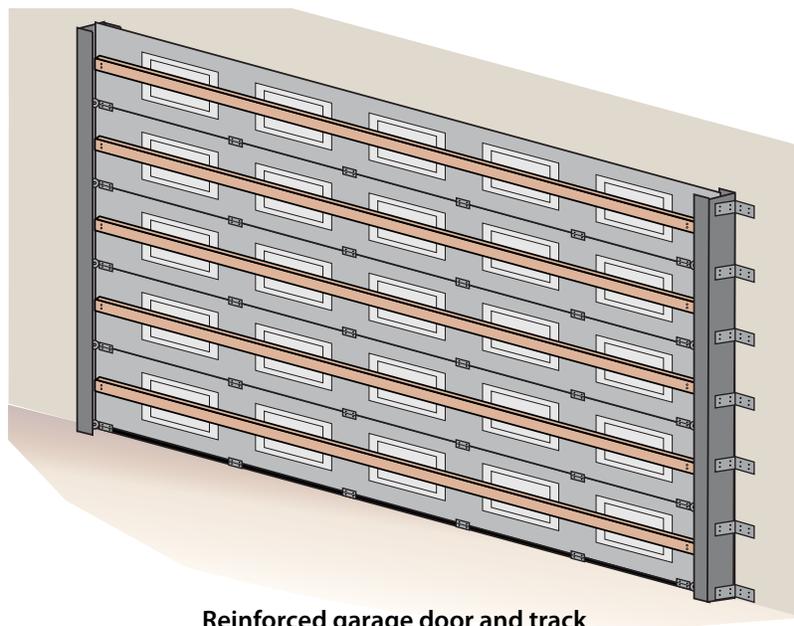
Single-car garage doors usually resist wind forces better than two-car garage doors due to the smaller span of the opening (across 8' rather than 16'). Wind damage may cause the doors to buckle, force the door-mounted bearings out of the roller track that supports the door, or a poorly-fastened track could even rip from the frame all together. Once the opening is unprotected, wind can rush into the garage space and cause damage by uplift and shear force on the walls. Reinforcing garage doors helps to protect not only the garage, but its contents as well.

Garages are also particularly vulnerable to earthquake damage because the narrow walls on either side of the garage door opening must be able to perform in seismic conditions. Reinforcing a garage door and its accessories, and bracing the walls at the sides of garage door opening should be accomplished by consulting with a professional. There are garage door reinforcing kits available for the handy homeowner; however, added weight to the door often changes the tension on the spring. Adjustment of the spring mechanism is best left to the experts.

Installing a new reinforced garage door starts at \$600 (per single opening) with the price varying widely, based on its design. Garage door retrofit kits range in price from \$175-\$500 (per single opening).

### Illustration

#### Retrofit



Reinforced garage door and track

## Potential Damage



Photo: US Department of Housing and Urban Development

## Key Steps

- This retrofit can be undertaken at anytime so long as there is access to the door and track from the inside of the garage.
- If you opt for the “Do-It-Yourself” approach, follow the manufacturer’s instructions.
- If you are buying a new door, select a style without windows. Be sure that it is impact resistant.
- Acceptable IRC impact resistance test standards include the Large Missile Test of ASTM E 1996 and ASTM 1886. The Florida Building Code Testing Application Standards TAS 201 & 203 and ANSI/DASMA 115 (garage doors only) are also acceptable. Acceptable IRC design pressure test standards include ANSI/DASMA 108 (garage doors only) or ASTM E 330 (products must be tested to 1.5 times design pressure). All installations must be in accordance with the manufacturer’s instructions.
- Your contractor may have additional ideas on how to improve the safety of your home.
- For more details about this retrofit improvement, please refer to the list of Resources in the section below.

## Resources

Federal Alliance for Safe Homes, *Hurricanes: Garage Door – Securing*

[http://www.flash.org/peril\\_inside.php?id=113](http://www.flash.org/peril_inside.php?id=113)

FEMA, *Protect Your Property from High Winds: Reinforce or Replace Garage Doors*

<http://www.fema.gov/library/viewRecord.do?id=3263>

Insurance Institute for Business & Home Safety, *Is Your Home Protected from Hurricane Disaster? A Homeowner’s Guide to Hurricane Retrofit*

[http://www.nhc.noaa.gov/HAW2/pdf/hurricane\\_retrofit.pdf](http://www.nhc.noaa.gov/HAW2/pdf/hurricane_retrofit.pdf)

Miami Dade County Government, *FAQ’s Garage Doors*

<http://www.miamidade.gov/buildingcode/faqs-garage-doors.asp>

