IBHS Shutter Selection Guide

Insurance Institute for Business & Home Safety

Visit DisasterSafety.org for more information on protecting your home.

Keeping wind and water out is critical to your home's survival. Shutters should be a planned element of any vulnerable home. Plywood should be a last-minute alternative, and if used, it must be properly fastened.

PROTECTIVE BARRIERS CAN:

- Keep wind pressure from building up inside, which often leads to loss of the roof.
- Reduce the chance glass will break.
- Reduce the chance of wind-driven rain from soaking the home's interior.

On average, the window (and doors with windows) area to be shuttered is about 15 percent of the home's total square footage. For example, a 2,000 sq. ft. home would require about 300 sq. ft. to be covered by shutters. So the estimated cost to shutter that home with product that costs $20 per sq. ft. is:

300 SQ. FT. X $20=$6,000.

PLAN AHEAD:

- Choose permanent window and door protection, or
- Install permanent fasteners long before storm warnings, so panels can be put in place quickly and time can be spent focusing on other needs.

The range of products on the market today means it's easier to find protection that fits your budget. Commercially-installed shutters typically cost between $9 and $30 per square foot of openings. The costs increase for motorized units.

Do-it-yourself costs are about 50 percent less per square foot. Many homeowners opt for a mixture of protective measures as a means of maintaining the curb appeal of a home.

MAKE THE RIGHT CHOICE:

Choose a product with the proper approval rating for impact-resistance.

Know that just because a product is labeled "hurricane tested" does NOT mean it has passed the large-missile impact tests.

Look for these ratings:

Florida Building Code TAS 201, 202, 203
ASTM E 1886 and 1996-03
Miami-Dade Protocols PA 201, 202, 203

ASK YOURSELF:

- Am I a year-round resident?
- Am I capable of installing shutters alone? If no, you may want to consider installing permanent protection, such as impact-resistant glass.
- What are my physical limitations? Can I handle screens or lightweight corrugated plastic, but not aluminum or other shutters?
- Will I be comfortable with the look of permanent products, such as roll-down or accordion-style shutters? These often have visible storage "boxes" on a home's exterior when not in use.

	PLYWOOD	CORRUGATED STEEL PANELS	FABRIC PANEL SYSTEMS	CORRUGATED ALUMINUM PANELS	PERFORATED, CORRUGATED ALUMINUM PANELS
PRICE (PER SQUARE FOOT)	$1.00 TO $2.00 for DIY $3.00 TO $5.00 Installed by a carpenter or contractor	$3.00 TO $5.00 for DIY $6.00 TO $12.00 Professionally installed	$4.50- $6.00 for DIY $8.00 TO $12.00 Professionally installed	$6.00 TO $8.00 for DIY $9.00 TO $16.00 Professionally installed	$8.00 TO $10.00 for DIY $10.00 TO $18.00 Professionally installed
DESCRIPTION	1/2" to 3/4" CDX plywood available in 4'x8' sheets; OSB not recommended; You can use 2 layers of 3/8" material to obtain the same effect as one layer of 3/4" material.	Panels are available in widths from 13" to 16" and various lengths. They are typically overlapped to cover small to large openings. Available in 24 to 18 gauge thickness.	Panels are a strong polyester weave with a PVC coating on both sides. One panel can cover the entire opening. Complete DIY kits are available.	Panels are available in widths from 13" to 14" and are overlapped to cover small to large openings. The are available in .040 to .072 inches thick.	Panels are available in widths from 13" to 14" and are overlapped to cover small to large openings. The are available in .050 inches thick.
PRO'S	Lowest cost protection you can purchase. Available from many sources in all markets. Does not have to be custom ordered.	Inexpensive system with good protection. Easy to deploy when used with track systems.	Won't rot, warp, corrode or rust. They can be stored in place on the opening in a decorative cover. Lighter weight than most other systems; 70 percent lighter than metal products. Panels can be used for emergency roof repairs, stronger and more weather resistant than tarps or plastic. Panels are translucent so they let light in to house. Offer two, three or four-sided attachment options.	Lighter weight metal panel option than steel with good protection. Corrosion resistant when stored dry and separated from concrete floor.	Perforated with small holes on the upper ribs to allow light to enter room. Lighter weight metal panel option with good protection. Corrosion resistant when stored dry and separated from concrete floor.
CON'S	Heavy and hard to handle. Will warp when wet and during storage and may need to be replaced after a few storms. Should not be used for an opening larger than a 4'x8' unless extra framing is added - see APA guidelines. Panels are difficult to install on upper stories unless openings face onto a porch or balcony. 1/2" and 5/8" panels can be penetrated by 9 lb test missile allowing glass to break.	The lighter weight panels are easily bent by impacts and will allow the glass to break unless there is significant distance (3 to 4 inches) between the panel and glass. The heavier weight panels offer better protection, but can be hard to handle in longer lengths or if trying to carry several panels at once. Panels may corrode if improperly stored.	Significant deflection will occur if impacted by heavy objects. This will likely result in broken glass unless there is significant (1 foot or more) distance between fabric and glass.	The lighter weight panels are easily bent by impacts and will allow the glass to break unless there is significant distance (3 to 4 inches) between the panel and glass. The heavier weight panels offer better protection, but can be hard to handle in longer lengths or if trying to carry several panels at one time. Panels will suffer surface corrosion if improperly stored and will stick together.	Cannot be direct mounted without tracks. Panels will suffer surface corrosion if improperly stored and will stick together.
ADVANCE DEPLOYMENT TIME NEEDED	Initial installation: 1 hour per opening to cut the plywood and install anchors into the framing. After permanent anchors are installed it may take as little as 5 minutes per window to install.	Initial installation: 11/2 hour per opening to cut the metal panels and install anchors into the framing. After permanent anchors or tracks are installed it may take as little as 5 minutes per window to install.	Initial installation: 30 minutes per opening to install tracks or anchors into the framing. After permanent anchors are installed it may take as little as 5 minutes per window to install.	1 hour per opening to cut the tracks and install anchors into the framing.	1 hour per opening to cut the plywood and install anchors into the framing.
WATER PENETRATION RESISTANCE	May reduce water intrusion depending on installation - attaching weather stripping to top and sides of panels where they bear against wall may provide extra protection.	May reduce water penetration by reducing the amount of water being blown against window or door.	If generously overlapped, these can significantly reduce water penetration at all pressures.	May reduce water penetration by reducing the amount of water being blown against window or door.	Unlikely to significantly reduce water penetration; perforation will allow water through very easily.
POROUS OR NON-POROUS	Generally non-porous, if the sheet covers the entire opening. Only required to be attached on two opposite edges.	Does not keep wind pressure from building up on window or door. Non-porous by code definition unless it is built-out with a 1/4" or greater separation from the wall or the panels are shorter than the minimum required by the engineering to maintain the system as non-porous.	May reduce wind pressure buildup on windows or doors depending on attachment. Non-porous, fits against the openings on all sides. Optional three or four- sided attachment can be used to keep the system against the wall when wrapping over uneven details around the openings.	Does not keep wind pressure from building up on window or door. Non-porous by code definition unless it is built-out with a 1/4" or greater separation from the wall or the panels are shorter than the minimum required by the engineering to maintain the system as non-porous.	Does not keep wind pressure from building up on window or door. Non-porous by code definition if installed with track systems and using side and end closures. Considered porous by code definition if direct mounted with "F" track or just fasteners.
WINDSTORM INSURANCE DISCOUNTS	Does not qualify for discounts.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.
OPERATION	Must be taken out of storage and carried to each opening. Deploy well before tropical storm force winds arrive.	Must be taken out of storage and carried to each opening. Deploy well before tropical storm force winds arrive.	May be stored in place on the openings reducing installation time. If stored off-site, deploy well before tropical storm force winds arrive.	Must be taken out of storage and carried to each opening. Deploy well before tropical storm force winds arrive.	Must be taken out of storage and carried to each opening. Deploy well before tropical storm force winds arrive.
DO-IT-YOURSELF (DIY)	YES Home Improvement Centers	YES Home Improvement Centers	YES Home Improvement Centers	YES Home Improvement Centers	YES Special Order

Source: Institute for Business & Home Safety and Wayne-Dalton Corporation through an initiative of the Florida Department of Community Affairs.

	CORRUGATED POLYPROPYLENE PANELS	CORRUGATED CLEAR POLYCARBONATE PANELS	CELLULAR POLYPROPYLENE SHEET (4' x 8')	CELLULAR POLYCARBONATE SHEET (4' X 8')	MONOLITHIC POLYCARBONATE SHEET (4' X 8')
PRICE (PER SQUARE FOOT)	$6.00 TO $8.00 for DIY $10.00 to $18.00 Professionally installed	$6.00 TO $8.00 for DIY $15.00 to $20.00 Professionally installed	$3.00 TO $5.00 for DIY $6.00 TO $12.00 Professionally installed	$10.00 TO $15.00 for DIY $20.00 TO $30.00 Professionally installed	$10.00 TO $20.00 for DIY $30.00 TO $50.00 Professionally installed
DESCRIPTION	These are relatively new on the market. They are a flexible translucent plastic corrugated panel system.	Panels are available from most panel manufacturers, but some require mixing with metal panels installed on each side of polycarbonate panel to support edges.	Usually sold in 4' x 8' sheets. Honeycomb construction the sheets are about 1/2" to 5/8" thick.	Usually sold in 4' x 8' sheets. Honeycomb construction the sheets are about 1/2" to 5/8" thick.	Usually sold in 4' x 8' sheets. However, they are sold in various sizes up to 5' x 10'. Thickness for hurricane protection is generally 1/4" or 3/8" for larger openings.
PRO'S	Corrosion resistant Lets light in Lighter than steel or aluminum	Corrosion resistant Lets light in Lighter than steel or aluminum	Corrosion resistant Lets light in Lighter than plywood, steel or aluminum panels	Corrosion resistant Lets light in Lighter than plywood, steel or aluminum panels	Corrosion and UV resistant (XL-10 and MR-10) Optically clear and can be left in place year round. However, must not be left on bedroom windows unless there are two means of egress. Lets light in GE Lexan Xl-10 and MR-10 are designed for prolonged exposure and carry a 10 year warranty against discoloring.
CON'S	The increased impact resistance arising from the panel flexibility also means the system will allow breakage if hit by heavy objects unless there is significant distance (3 to 4 inches) between the panel and the glass. Chemical exposure can significantly reduce stregth.	The increased impact resistance arising from the panel flexibility also means the system will allow breakage if hit by heavy objects unless there is significant distance (3 to 4 inches) between the panel and the glass. Some systems are UV resistant and can be left up during the season on windows that do not provide emergency escape in bedrooms. Chemical exposure can significantly reduce stregth. Disorts view if left in place year round.	The increased impact resistance arising from the panel flexibility also means the system will allow breakage if hit by heavy objects unless there is significant distance (3 to 4 inches) between the panel and the glass. Some systems are UV resistant and can be left up during the season on windows that do not provide emergency escape in bedrooms. Chemical exposure can significantly reduce stregth. Must be fastened on all four sides.	The increased impact resistance arising from the panel flexibility also means the system will allow breakage if hit by heavy objects unless there is significant distance (3 to 4 inches) between the panel and the glass. Some systems are UV resistant and can be left up during the season on windows that do not provide emergency escape in bedrooms. Chemical exposure can significantly reduce stregth. Must be fastened on all four sides.	The sheets are expensive and may only be available through wholesale accounts. Some systems are only available to commercial contractors. XL-10 scratches easily
ADVANCE DEPLOYMENT TIME NEEDED	Initial installation: 1 hour per opening to cut the panel and install anchors into the framing. After permanent anchors are installed it could take as little as 5 minutes per opening to install.	Initial installation: 1 hour per opening to cut the panel and install anchors into the framing. After permanent anchors are installed it could take as little as five minutes per opening to install.	Initial installation: 1 hour per opening to cut the panel and install anchors into the framing After permanent anchors are installed it could take as little as five minutes per opening to install.	Initial installation: 1 hour per opening to cut the panel and install anchors into the framing. After permanent anchors are installed it could take as little as five minutes per opening to install.	Initial installation: 1 hour per opening to cut the panel and install anchors into the framing. After permanent anchors are installed it could take as little as five minutes per opening to install.
WATER PENETRATION RESISTANCE	May reduce water penetration depending on installation - attaching weather stripping to top and sides of panels where they bear against wall may provide extra protection from water intrusion.	May reduce water penetration depending on installation - attaching weather stripping to top and sides of panels where they bear against wall may provide extra protection from water intrusion.	May reduce water intrusion depending on installation - attaching weather stripping to top and sides of panels where they bear against wall may provide extra protection from water intrusion.	May reduce water intrusion depending on installation - attaching weather stripping to top and sides of panels where they bear against wall may provide extra protection from water intrusion.	May reduce water intrusion depending on installation - attaching weather stripping to top and sides of panels where they bear against wall may provide extra protection from water intrusion.
POROUS OR NON-POROUS	Does not keep wind pressure from building up on window or door. Non-porous by code definition unless it is built-out with a 1/4" or greater separation from the wall or the panels are shorter than the minimum required by the engineering to maintain the system as non-porous.	Does not keep wind pressure from building up on window or door. Non-porous by code definition unless it is built-out with a 1/4" or greater separation from the wall or the panels are shorter than the minimum required by the engineering to maintain the system as non-porous.	Generally non-porous if the sheet covers the entire opening. Be sure to attach on all four sides.	Generally non-porous if the sheet covers the entire opening. Be sure to attach on all four sides.	Generally non-porous if the sheet covers the entire opening. Only required to be attached on two opposite edges.
WINDSTORM INSURANCE DISCOUNTS	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Manufactured system with a frame system that' has an FBC Approval or Miami-Dade NOA will qualify. Sheets attached to the opening without a frame will not qualify.
OPERATION	Must be taken out of storage and carried to each opening. Deploy well before Tropical Storm force winds arrive.	Must be taken out of storage and carried to each opening. Deploy well before Tropical Storm force winds arrive.	Must be taken out of storage and carried to each opening. Deploy well before Tropical Storm force winds arrive.	Must be taken out of storage and carried to each opening. Deploy well before Tropical Storm force winds arrive.	May be permanently installed over windows that do not provide Emergency Escape from bedrooms. Removable panels will have to be stored and carried to each opening for deployment.
DO-IT-YOURSELF (DIY)	Yes Home Improvement Centers	YES Home Improvement Centers	YES Home Improvement Centers	YES Home Improvement Centers	YES Specialty Suppliers Home Improvement Centers

Source: Institute for Business & Home Safety and Wayne-Dalton Corporation through an initiative of the Florida Department of Community Affairs.

	FLEXIBLE WIND ABATEMENT SCREEN SYSTEMS	ALUMINUM ACCORDION SHUTTERS	FABRIC PULL-DOWN SHUTTERS	ROLL-UP SHUTTERS EXTRUDED ALUMINUM SLATS	ROLL-UP SHUTTERS HIGH DENSITY FOAM FILLED ALUMINUM SLATS
PRICE (PER SQUARE FOOT)	Not Available for DIY $10.00 TO $20.00 Professionally installed	Not Available for DIY $18.00 TO $28.00 Professionally installed	Not Available for DIY $28.00 TO $35.00 Professionally installed	Not Available for DIY $28.00 TO $50.00 Professionally installed	Not Available for DIY $28.00 TO $50.00 Professionally installed
DESCRIPTION	Light weight flexible screen that is attached with straps and buckles to the wall, eave, or beams with large eye-bolts or uses ground anchor screws. Some systems use clips, carabineers or grommets.	Aluminum slat folding shutter system that moves horizontally and folds out of the way on either side of the opening.	Fabric shutter system that uses a counter balance spring and a hood to store the shutter when not in use. Similar to a Roll-Up but only uses a 4" hood rather than a 8-12" hood for storage.	Extruded aluminum slats are the strongest and most impact resistant. The blades are double wall hollow slats with a wall thickness ranging from .040 to 060 inches thick.	High-density, foam-filled slats are made with thin roll-formed aluminum that is wrapped around a foam core that provides the stiffness.
PRO'S	Lightest weight protection product on the market. Capable of easily covering large areas at a relatively low cost. Easily folds up for storage, some manufacturers provide storage bags with orders. Some systems have a Miami-Dade NOA and reduce the likelihood of glass breakage from flying debris. Some systems are designed as Non-porous and allow glass breakage when impacted.	Moderately priced, easily covers large openings, excellent protection from flying debris. Can be closed in seconds, deploys faster than most other systems. Security with locks. Can be used for upper windows and operated from the inside if you have single/double hung or sliding windows and in swing or sliding glass doors. Commonly used to enclose entire balconies. Build-out tracks reduce the need for unsightly frames and additional tubes.	Moderately priced, low profile hood system that can be hidden into soffits or even decorative trims. Can be closed in seconds and deploys faster that any other operable system. Can provide excellent water intrusion protection. Can be used for upper windows and operated from the inside if you have single/double hung or sliding windows and in swing or sliding glass doors.	Motorized systems can be automated by using anemometers, timers, remote controls or even long distance phone or computer operating systems. Offer good security for absentee owners or properties that are evacuated. One of the better systems for water penetration resistance when using unvented slats. Can be manually operated from inside so is suitable for all styles of operable or fixed windows and in swing or out swing doors.	Lightweight slats allow larger shutters without the need to motorize. Motorized systems can be automated. Offer good security for absentee owners or properties that are evacuated. One of the better systems for water penetration resistance when using unvented slats. Can be manually operated from inside, so it is suitable for all styles of operable or fixed windows and in-swing or out-swing doors.
CON'S	The reinforcing is sewn into screening, stitching can break down from long UV exposure weakening the system. Large Screens may require 2 or more persons to deploy Not easy to install for openings above the first floor. Not recommended for installation on the edges of cantilevered concrete decks or balconies unless design is checked by an engineer. The screen can apply great uplift and/or downward forces possibly overloading the anchors or damaging the structure itself.	Adds a lot of material around openings that is sometimes viewed as unattractive. Needs regular maintenance and cleaning to keep the system from seizing or freezing up. Some condominiums complain of the noise they make when closing and opening and restrict use.	Flexible material allows contact with the door or glass when impacted by large missiles. System is limited in size to 7 feet wide by 7'- 8" tall. Moderate design pressure limits use in coastal areas.	Extruded aluminum is the heaviest slat on the market and will require motors at around 45 sq. ft. of coverage increasing the cost. Requires vertical storm bars to keep the slats from being pulled out of the track system for large spans or high design pressures. Large hoods are not easy to hide and can be unattractive. Must be built-out to prevent contact with door or glass.	Lightweight slats bend more easily than the extruded aluminum slats. The roll-formed aluminum can bend causing problems with the operation of the shutter over time. Requires more storm bars since the unsupported span is less than that for the extruded aluminum slats; meaning the system is roughly the same price or slightly higher than that for the extruded aluminum slat system. Large hoods are not easy to hide and can be unattractive. Must be built-out to prevent contact with door or glass.
ADVANCE DEPLOYMENT TIME NEEDED	Must be taken out of storage and carried to each opening. Deploy well before Tropical storm force winds arrive.	Since the system is permanently mounted it can be closed very quickly, allowing more time to prepare for evacuation or to prepare for sheltering in place.	Since the system is permanently mounted it can be closed very quickly, allowing more time to prepare for evacuation or to prepare for sheltering in place.	Since the system is permanently mounted it can be closed very quickly, allowing more time to prepare for evacuation or to prepare for sheltering in place.	Since the system is permanently mounted it can be closed very quickly, allowing more time to prepare for evacuation or to prepare for sheltering in place.
WATER PENETRATION RESISTANCE	May reduce water penetration by reducing the amount of water being blown against window or door, particularly if installed some distance from window or door.	May reduce water penetration by reducing the amount of water being blown against the window or door. However, it may not significantly reduce water penetration under high pressures unless mounted on the edge of a porch or balcony several feet away from the opening being protected.	Excellent water penetration resistance even at high pressures.	May reduce water penetration by reducing the amount of water being blown against the window or door. However, it may not significantly reduce water penetration under high pressures unless mounted on the edge of a porch or balcony several feet away from the opening being protected.	May reduce water penetration by reducing the amount of water being blown against the window or door. However, it may not significantly reduce water penetration under high pressures unless mounted on the edge of a porch or balcony several feet away from the opening being protected.
POROUS OR NON-POROUS	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition since the open weave is less than 10% ventilated.	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition.	Non-Porous Only. Will likely reduce pressures on window or door being protected.	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition.	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition.
WINDSTORM INSURANCE DISCOUNTS	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.
OPERATION	Use loops, buckles, straps, carabineers, clips or grommets to secure the system to permanent or removable anchor systems.	Pull the shutter sections together to shut and engage either the locking pins, locks or both depending on the systems design.	Pull the shutter down and engage the locking pins.	Manually crank the shutter down or activate the motor using a switch or remote option.	Manually crank the shutter down or activate the motor using a switch or remote option.
DO-IT-YOURSELF (DIY)	NO Professional Installation Only	NO Professional Installation Only	NO Professional Installation Only	NO Professional Installation Only	NO Professional Installation Only

Source: Institute for Business & Home Safety and Wayne-Dalton Corporation through an initiative of the Florida Department of Community Affairs.

	ROLL-UP SHUTTERS FLEXIBLE PVC SLATS	COLONIAL HINGED SHUTTERS	BAHAMA AWNING SHUTTERS	STAINLESS STEEL WOVEN SCREEN BARRIERS	PERFORATED STEEL BARRIER SYSTEMS
PRICE (PER SQUARE FOOT)	Not Available for DIY $28.00 TO $50.00 Professionally installed	Not Available for DIY $38.00 TO $50.00 Professionally installed	Not Available for DIY $38.00 TO $50.00 Professionally installed	Not Available for DIY $28.00 TO $50.00 Professionally installed	Not Available for DIY $40.00 TO $60.00 Professionally installed
DESCRIPTION	PVC slats use an end retention clip system to keep the slats from pulling out of the side tracks.	Authentic swinging shutters fold back to the sides of the windows. Available in louvered and raised panels that are made of alumni-nun reinforced PVC or fiberglass.	The Bahama awning shutter adds a decorative look to hurricane protection. Very popular in the islands where the shutter is used to shade and keep rain out of screened openings.	Looks like a heavy insect screen in a heavy duty welded or mechanically assembled frame.	Steel sheets are perforated using small round holes to create a screen type effect. Frames are welded with the steel sheets mechanically fastened to the frame and/or sub frame.
PRO'S	Lightweight slats allow larger shutters for manual operation before having to go to motorized systems. Motorized systems can be automated. Offer good security for absentee owners or properties that are evacuated. One of the better systems for water penetration resistance when using unvented slats. Can be manually operated from inside so is suitable for all styles of operable or fixed windows and in swing or out swing doors.	Due to the decorative look, these shutters are widely accepted where historical or architectural review committees strictly control aesthetics. Permanently mounted and usually it only takes a screwdriver to attach the additional locking hardware. Adds a decorative accent to existing structures.	Due the decorative look, these shutters are widely accepted where historical or architectural review committees strictly control aesthetics. Permanently mounted and usually it only takes a screwdriver to attach the additional locking hardware. Adds a decorative accent to existing structures. One other benefit of this system is shading the window which can significantly reduce energy costs.	Always in place so there is no need to deploy the system. Used to reduce or eliminate glass breakage from vandalism for schools and public buildings. Screen reduces solar glare and can aid in reducing energy costs. Stainless steel screen will not rust or corrode even if exposed to salt spray. Screen does not distort or block view like perforated barriers.	Always in place so there is no need to deploy the system. Used to reduce or eliminate glass breakage from vandalism for schools and public buildings. barrier reduces solar glare and can aid in reducing energy costs. Stainless steel perforated sheet will not rust or corrode even if exposed to salt spray.
CON'S	Lightweight slats bend more easily than the extruded aluminum slats. The PVC can become brittle over time causing the slats to disengage. Requires more storm bars than extruded aluminum because the unsupported span length is shorter. Consequently, the system is roughly the same price or slightly higher than the extruded aluminum slat system. Large hoods are not easy to hide and can be unattractive. Must be built-out to prevent contact with door or glass.	Most of these systems have to be closed and secured from the outside. Outside locking shutters are not practical above the first floor. One of the most expensive shutter systems on the market. Needs room on each side of the opening for the shutter to fold back. Multiple folding panels have bulky look when trying to cover triple or larger mulled windows units. System works best on single or twin windows.	Most of these systems have to be closed and secured from the outside. Outside locking shutters are not practical above the first floor. One of the most expensive shutter systems on the market. Gets rather bulky when trying to cover triple or larger mulled windows units.	Generally requires heavy build out framing structures to mount multiple units. Porous system may allow some internal pressurization if a glass opening fails from pressure.	Generally requires heavy build out framing structures to mount multiple units. Porous system may allow some internal pressurization if a glass opening fails from pressure. Regular perforated steel screen will rust in salt conditions, stainless steel perforated sheet is very expensive. Round holes in barrier can cause distortions in outside view, not as optically clear as the screen barrier systems.
ADVANCE DEPLOYMENT TIME NEEDED	Since the system is permanently mounted it can be closed very quickly, allowing more time to prepare for evacuation or to prepare for sheltering in place.	After initial installation it takes 15 to 30 minutes per shutter, depending on the type of system selected.	After initial installation it takes 10 to 30 minutes per shutter, depending on the type of system selected.	No deployment necessary, system stays in place year round.	No deployment necessary, system stays in place year round.
WATER PENETRATION RESISTANCE	May reduce water penetration by reducing the amount of water being blown against the window or door. However, may not significantly reduce water penetration under high pressures unless mounted on the edge of a porch or balcony several feet away from the opening being protected.	Does not significantly reduce water penetration. Open louver systems or perforated panel backs will let water in which creates opportunity for window and door leaks.	Does not significantly reduce water penetration. Open louver systems or perforated panel backs will let water in which creates opportunity for window and door leaks.	Does not reduce water penetration due to the open weave and approximate 40% porosity of the system	Does not reduce water penetration due to the open weave and approximate 40% porosity of the system
POROUS OR NON-POROUS	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition.	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition.	Does not keep wind pressure from building up on window or door. Generally all systems are considered non-porous by code definition.	Porous only: Does not reduce pressure on window or door.	Porous only: Does not reduce pressure on window or door.
WINDSTORM INSURANCE DISCOUNTS	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.
OPERATION	Manually crank the shutter down or activate the motor using a switch or remote option.	Shutters use a spring clip to hold them open. To close, they will likely need additional bars, clips or other types of mechanically fastened hardware. This can be stored when not in use.	Shutters use a telescoping arm with a locking thumb screw to hold them open. To close, they will likely need additional clips, or other types of mechanically fastened hardware. This can be stored when not in use.	No Deployment needed, shutters are always in place.	No Deployment needed, shutters are always in place.
DO-IT-YOURSELF (DIY)	NO Professional Installation Only	NO Professional Installation Only	NO Professional Installation Only	NO Professional Installation Only	NO Professional Installation Only

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	SINGLE GLAZED IMPACT GLASS LAMINATED WINDOWS	DOUBLE GLAZED IMPACT GLASS LAMINATED WINDOWS (Double Glazed means Insulated Glass or IG)	SINGLE GLAZED IMPACT GLASS LAMINATED DOORS	DOUBLE GLAZED IMPACT GLASS LAMINATED DOORS (Double Glazed means Insulated Glass or IG)	IMPACT RESISTANT GARAGE DOORS
PRICE (PER SQUARE FOOT)	Not Available for DIY $28.00 TO $50.00 Professionally installed	$40.00 TO $60.00 for DIY $50.00 TO $70.00 Professionally installed	$40.00 TO $60.00 for DIY $50.00 TO $70.00 Professionally installed	$40.00 TO $60.00 for DIY $50.00 TO $80.00 Professionally installed	Single Bay Door $750.00 to $900.00 Each Double Bay Door $985.00 to $1295.00 Each
DESCRIPTION	Single-glazed windows are referred to as single pane, usually available in aluminum uninsulated frames only. The single sheet of glazing is comprised of two sheets of glass with a laminate between them.	Double glazed is insulated glass and is more energy efficient. The laminate is bonded between two pieces of glass on the inside, the outside piece of glass is regular glass.	Single glazed doors are referred to as single pane, usually available in steel, aluminum, fiberglass or wood doors. The single sheet of glazing is comprised of two sheets of glass with a laminate between them.	Double glazed is insulated glass and is more energy efficient. The laminate is bonded between two pieces of glass on the inside, the outside piece of glass is regular glass.	Available in steel-insulated pan or foam-core doors from a variety of manufacturers. These should not be confused with windload-rated doors that are generally not impact resistant.
PRO'S	Hurricane protection is always in place no deployment necessary. Provides additional security protection. Low impact to aesthetics of the structure.	Hurricane protection is always in place no deployment necessary. Provides additional security protection. Low impact to aesthetics of the structure.	Hurricane protection is always in place no deployment necessary. Provides additional security protection. Low impact to aesthetics of the structure. Using an impact glass door instead of a shutter can give you an additional means of escape and may be cost effective if combined with shutters on other openings.	Hurricane protection is always in place no deployment necessary. Provides additional security protection. Low impact to aesthetics of the structure. Using an impact glass door instead of a shutter can give you an additional means of escape and may be cost effective if combined with shutters on other openings.	Hurricane protection is always in place no deployment necessary. Provides additional security protection. Low impact to aesthetics of the structure. Lowest cost option to protect garage doors, covering with shutters is generally more expensive.
CON'S	Single glazed windows do not meet energy efficient standards for solar heat gain. When the glass breaks, replacement costs are a covered - but expensive - loss. Replacing impact glass windows is more expensive than replacing shutters.	Even if only the outer piece of glass breaks the entire insulated glass unit must be replaced, this is expensive. Replacing impact glass windows is more expensive than replacing shutters.	Single glazed doors do not meet energy efficient standards for solar heat gain. When the glass breaks replacement costs are a covered - but expensive - loss. Replacing impact glass doors is more expensive than replacing shutters.	Even if only the outer piece of glass breaks the entire insulated glass unit must be replaced, this is expensive. Replacing impact glass doors is more expensive than replacing shutters.	Most impact garage doors will not have decorative glass panels. May require an automatic garage door opener with a larger motor than existing unit since impact-rated garage doors require a minimum 1/2 HP motor.
ADVANCE DEPLOYMENT TIME NEEDED	Always in place, none needed.	Always in place, none needed.	Always in place, none needed.	Always in place, none needed.	Always in place, none needed.
WATER PENETRATION RESISTANCE	Does not reduce water penetration in hurricane or tropical storm conditions. The openings will leak a little at lower pressures and water will pour through them at higher pressures. Using casement and fixed windows will help to reduce water penetration.	Does not reduce water penetration in hurricane or tropical storm conditions. The openings will leak a little at lower pressures and water will pour through them at higher pressures. Using casement and fixed windows will help to reduce water penetration.	Does not reduce water penetration in hurricane or tropical storm conditions. The openings will leak a little at lower pressures and water will pour through them at higher pressures. Using out swing doors may help reduce the amount of water penetration.	Does not reduce water penetration in hurricane or tropical storm conditions. The openings will leak a little at lower pressures and water will pour through them at higher pressures. Using out swing doors may help reduce the amount of water penetration.	N/A
POROUS OR NON-POROUS	Non-porous only	Non-porous only	Non-porous only	Non-porous only	Non-porous only
WINDSTORM INSURANCE DISCOUNTS	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.	Qualifies for discounts if all openings are protected with a FBC or Miami-Dade Approved system.
OPERATION	Always in place, none needed.	Always in place, none needed.	Always in place, none needed.	Always in place, none needed.	Always in place, none needed.
DO-IT-YOURSELF (DIY)	No Professional Installation Only	YES Home improvement Centers	YES Home improvement Centers	YES Home improvement Centers	NO Professional Installation Only

Source: Institute for Business & Home Safety and Wayne-Dalton Corporation through an initiative of the Florida Department of Community Affairs.