MEASURE 6.1.7 Install storm doors.

RATINGS

New Facilities	Retrofit	O&M
	D	

SUMMARY

Storm doors are clumsy and fragile, only cheap substitutes for a really good door. Usually limited to privately owned residences.

SELECTION SCORECARD

Savings Potential	$ $
Rate of Return	% %
Reliability	✓ ✓
Ease of Retrofit	☺ ☺ ☺

If the existing doors are especially leaky, you can reduce infiltration significantly by installing storm doors. Storm doors are especially effective for doors exposed to wind. The storm door dissipates the velocity pressure of the wind, greatly reducing infiltration through the inner door, even if the storm door itself is leaky. A storm door also protects an expensive inner door from rain damage.

The main advantage of storm doors is that they are relatively easy to install. Typically, you buy a complete assembly that consists of the storm door installed in a lightweight frame, perhaps with a primitive closer. The assembly is screwed into place over the existing door frame. Figure 1 shows a unit at the high end of the quality range.

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Fig. 1 Storm door This is a storm door of much better than average quality. Still, it is fragile compared to a conventional door, and it costs more. Note the closers at top and bottom.

Storm doors have serious disadvantages. Fundamentally, they are cheap. They exist primarily as a cheaper alternative to installing a good primary door. They are lightweight, so they are vulnerable to damage from rough handling and from being slammed open by wind. They have cheap closers. Eventually, the storm door gets out of alignment and hangs open, which defeats its purpose. Also, they are awkward to manipulate, since the user must manipulate two doors at the same time.

Where to Consider Storm Doors

Storm doors remain open as long as the primary door, so they are effective only in applications where the doors remain closed most of the time.

Storm doors are weak, so they are suitable only for environments where everyone who uses the door has an interest in protecting it and closing it fully. This tends to limit storm doors to privately owned residences.

Features to Seek

The price of storm doors is proportional to their quality. The cheapest units cannot survive long. Expect to spend almost as much for a good storm door as for a good primary door. Remember, the only major advantage of the storm door is ease of retrofit. Look for these features:

- ***rigidity.*** The door must resist twisting and sagging to remain as airtight as possible. No storm door is really rigid enough, but some are better than others.
- ***strong hinges and attachments.*** The hinges should be strong enough to keep the door from shifting in its frame over time, which will prevent it from closing. The door and frame should be reinforced at the points where the hinges attach.
- ***a durable latch.*** The latch should be durable and easy to use. An aluminum frame needs a steel strike plate. The latch should allow for a certain amount

of shifting of the door in the frame. The latch should work with minimum closing force, or it will hold the door open.

- ***effective weatherstripping.*** The purpose of the storm door is to block infiltration, so it needs effective weatherstripping to do its job. The weatherstripping should be durable and easy to repair, and it should not require a large closing force. Get an adjustable sweep to minimize leakage at the bottom.
- ***a good closer and back check.*** No storm door comes with a really good closer, but get the best you can find. A storm door must have an effective back check or shock absorber, because wind tends to destroy storm doors by slamming them open.

Install Them Carefully

To achieve the most benefit, be careful to install the frame of the storm door in a way that minimizes leakage all around. This requires snug contact between the storm door frame and the frame of the main door. If necessary, insert weatherstripping or filler pieces between the two frames.

Better Alternatives

If you want to install a storm door because your main door is leaky, consider installing a better main door. This is more expensive, but it avoids the awkwardness of multiple doors. This alternative is also more reliable and more enduring, and it resists conductive heat loss as well as air leakage. See Measure 6.1.4.

If you want to create an enclosed space between entry doors, consider installing an entry vestibule. (In houses, this may be called a "mud room.") See Measure 6.1.8, next.

ECONOMICS

SAVINGS POTENTIAL: *$10 to $100 per year per door, depending on climate, energy cost, space layout, etc.*

COST: *Different models cost from $50 to $200. Installation typically takes less than one hour.*

PAYBACK PERIOD: *Several years, or longer.*

TRAPS & TRICKS

CHOICE OF METHOD: *Stop and reconsider before selecting this approach. Although storm doors are common, they are not very desirable. A storm door is just a cheap, flimsy door. It may not survive long enough to pay for itself, and it is a nuisance in the meantime.*

SELECTING THE EQUIPMENT: *Ordinary storm doors are too flimsy. Go out of your way to find sturdier units. Expect them to cost more. Check for all the important features.*

INSTALLATION: *Install weatherstripping between the storm door frame and the opening, to prevent leakage around the frame. Adjust the frame so the door closes crisply, with no tendency to hang partly open. Install the closer so it works effectively. Adjust all the sealing features.*

MAINTENANCE: *When the storm door gets out of alignment, fix it. A defective storm door saves little energy.*