

Window Retrofit Option Interior Insulating Blinds

Description

Insulated cellular shades and quilted window blinds provide all the benefits of conventional shades and blinds, but offer markedly better thermal performance, particularly in cold climates. Both provide insulation by effectively trapping air within their cores as well as between the shade or blind and the window. Both are available with a metallized polyester layer (radiant barrier) to further boost thermal insulation. Insulated shades and blinds with a reflective outer surface reduce unwanted solar heat gain. To save energy, shades and blinds must be deployed.

Insulated Cellular Shades

Insulated cellular shades are made of a pleated material and designed to fold up, accordion-like, usually at the top of the window but sometimes at either top or bottom, which provides maximum adjustability for daylight control, view, and privacy. Some insulated shades contain multiple air layers in a honeycomb cross-section. Insulated cellular shades are typically installed inside the window opening. The best-performing cellular products fit into edge tracks with good weather stripping to control air leakage (see photo). Motorized operation and automated controls are available with some products.

Quilted Window Blinds

Quilted blinds are typically face mounted and either roll up at the top of the window—with the roll exposed or hidden by a valance—or pull up so that the fabric is folded at the top of the window. Some vertical folding options are also available. The vertical edges of quilted roller blinds fit into edge channels, the bottom edge has foam or felt gasketing, and the top of the blind fits snugly against a compression bar. Motorized operation is available with some products. Less expensive (and less adjustable) quilted window blinds are available that use continuous Velcro or snaps to attach the blind to the window trim.



Photo: Gordon's Decor

The side tracks available for many insulated cellular shades significantly improve their thermal performance. The magnetic strips that secure the side tracks make for easy adjustment and removal of the entire window treatment, as needed.

When To Consider

- Existing windows are old, leaky, and in relatively poor shape.
- Climate is cold, so reducing heat loss in the winter months is a top priority.



Top-down/bottom-up insulated cellular shades provide among the strongest combination of thermal performance, privacy, daylighting, glare control, and view.

Photo: Hunter Douglas

Overall Thermal Performance

Insulated cellular shades without side tracks increase the insulating (R-) value of windows by about 1–2. Insulated cellular shades with side tracks and quilted window blinds with similar tight-fitting perimeters increase the R-value by about 4.

When to consider this retrofit—Ownership

x	Homeowner
x	Apartment Renter - Long Term
	Apartment Renter - Short Term
x	Live in a Condo
x	Live in a Historical District

When to consider this retrofit—Window conditions

x	Existing window single-glazed
x	Existing window double-glazed, no low-e*
	Existing window double-glazed with low-e

* low-emissivity coating

Key Benefits

- Provides privacy
- Reduces nighttime heat loss through windows
- Minimizes cold drafts near windows
- Reduces unwanted daytime solar heat gain through windows during the summer
- Controls daylight—most effective with blinds that both lower from top and raise from bottom



Window quilts such as this one fit tightly against the window trim, running in side tracks and fitting snugly against both the top roller mechanism and the window stool.

Photo: Window Quilt Insulated Shades

Key Drawbacks

- Full benefit requires proper deployment at all times
- Fully deploying blinds eliminates views through windows

Aesthetics

- Quilted blinds objectionable to some because of utilitarian appearance
- Greater variety in color and style available with cellular blinds than quilted blinds

Tips/Cautions

- Consider product warranty; specific term warranties (e.g. 5-year) or transferable lifetime warranties are better.
- Consider professional installation, particularly of roller quilted window blinds.
- Maximum savings depends significantly on routine adjustment.
- There is some potential insulated glazing unit damage when high performance insulated shades or blinds are used with double-pane sealed windows for controlling solar heat gain.

Recommended Installer

x	Do it Yourself (most insulated cellular shades)
x	Carpenter
x	Manufacturer or supplier

Complementary Options

- Window repair
- Exterior awnings or shades

Operation

x	Motorized
x	Sensor
x	Manual

Considerations

	1	2	3	4	5
Ease of Installation (low = easier)		x	x		
Availability (low = more available)		x	x	x	
Cost (low = lower cost)		x	x	x	
Average Total Cost for 30- by 60-inch window					
Roller quilted window blind			\$225		
Top-down/bottom-up insulated cellular shade with side tracks			\$525		

Digging Deeper

Energy Modeling Tools for Professionals

	<i>RESFEN</i>
	<i>EnergyPlus-based tools</i>
x	<i>WINDOW 6</i>

References

“Insulating Window Shade Evaluation: Quantifying the Benefits of Double Honeycomb with Air-Sealing Side Tracks”

To find these window attachments, use the internet search terms: insulated window shades/insulated window quilt

For more information visit: www.windowattachments.org