



STATISTICAL ANALYSIS OF
COMFORTEX SYMPHONY® CELLULAR WINDOW SHADES
TO REDUCE UTILITY EXPENSES FOR MAJOR U.S. CITIES

REPORT PERFORMED: OCTOBER 2005
UPDATED: NOVEMBER 2006



Where Innovation is Always in Fashion™



Saving Energy Will Save Money

This winter, residential heating expenditures are projected to increase for all fuel types compared to last year's levels, according to forecasts released in September 2006 by the Energy Information Administration. With the price of crude oil hovering around \$70 per barrel and natural gas prices expected to average over \$8 per thousand cubic feet (mcf), consumers are seeking additional ways to reduce their homes' energy consumption. The average household can cut their utility expense by 30% by incorporating energy efficient products into their homes.

Insulating the home one of the fastest and most cost effective ways to reduce energy waste and maximize energy dollars. A good insulating system shields a home from outside temperatures and protects it against air leaks. While they are beautiful, windows are one of the greatest sources of wasted energy. The smallest gap or leak can produce as much airflow as an open window.

Heat always moves from warm areas to cold areas. In the winter, warm indoor air escapes through the windows to the outside. And since windows conduct heat easily, they also contribute up to 53% of the indoor heat present during the summer months. In the end, homeowners pay an average of 10% to 25% of their energy bill for air that escapes or enters through their windows.

Homeowners pay an average of 10% to 25% of their energy bill for air that escapes or enters through their windows.

With the exception of replacing windows, the installation of insulating window treatments is the best way to conserve energy and reduce utility bills. To be effective, window treatments must trap air between the shade or blind and the window glass. Symphony® Double Honeycomb Cellular Shades by Comfortex act as a barrier to heat flow, trapping air between the shade and window and helping to save money on energy costs. The addition of the ComforTrack™ Energy Saving Sidetrack System provides an additional barrier to seal drafty regions around the windows.

How Much Can Window Treatments Really Save?

Based on calculations using Lawrence Berkeley National Laboratory computer software, the savings per window can be substantial.

Burlington, VT

\$26.50* per window

\$432.21 based on 10 years

* These numbers are based on installing a Symphony® Double Honeycomb Cellular Shades with a ComforTrack Energy Saving Sidetrack System. Without the sidetrack system, energy savings will be reduced by 17%.

Overtime, these numbers add up, proving that window coverings are a worthwhile investment and a solid solution which improves the overall energy efficiency of a home.

What's U Got to Do with It? A Glossary of Energy Efficiency Terminology

To understand how we achieved our saving numbers, you need to understand the terminology.

The **U-factor** is a measure of the ability of window glass to inhibit the flow of heat through it. The lower the U-factor, the more energy-efficient the window, door or skylight is. The larger the heating bill, the more important a low U-factor becomes.

Solar heat gain coefficient (SHGC) refers to the amount of heat from the sun that passes through a window. SHGC is expressed as a number between 0 and 1.

In winter, by keeping shades raised on sunny days, this solar heat gain can offset the amount of heat necessary to keep a home warm. A product with a high SHGC rating is more effective at collecting solar heat gain during the winter. A product with a low SHGC rating is more effective at reducing cooling loads during the summer or in southern climates. The lower the SHGC, the less solar heat the window treatment transmits and the greater its shading ability.

Air leakage is measured in terms of the amount of air in cubic feet per minute (cfm) that passes through a unit area of a window, door or skylight (ft²) under given pressure conditions. Air leakage is expressed in units of cubic feet per minute per square foot of frame area (cfm/ft²). A product with a low air leakage rating is tighter than one with a high air leakage rating.

Why is air leakage so important? The uncontrolled movement of air into or out of a house is a cost to the homeowner. For example, any cold outdoor air that leaks into the home (infiltration) must be heated to room temperature to maintain the comfort of the occupants; therefore, air infiltration is a heating cost. The same problem occurs in air-conditioned homes during the summer, when warm outdoor air infiltrates, resulting in an additional cooling load.

When interior-conditioned air (either heated for winter or cooled for summer) leaks to the outside, the homeowner also pays the energy costs associated with that air leakage.

Why is the preventing air leakage so important? The uncontrolled movement of air into or out of the house is a cost to the homeowner.

Methodology

The data provided in this report was prepared using RESFEN5 modeling software. RESFEN is a software program created by the Windows and Daylighting Group at the Lawrence Berkeley National Laboratory located in Berkeley, California. It calculates energy use associated with the heating and cooling energy of residential windows. The software compares window factors such as U-factors, solar heat gain coefficients (SHGC) and air leakage (infiltration) rates. Additional information was provided by the New York State Energy Development Authority located in Albany, New York.

The model factors in variables such as heating and cooling equipment, common building types, costs for gas and electricity and weather conditions. The net results compare the difference between a bare window and one covered with a window treatment with properties similar to that of a Symphony Double Honeycomb Cellular Shade. The results also incorporate the performance of a window with the following window covering combination: a Symphony Shade with the ComforTrack Energy Saving Sidetrack System.

Assumptions used to make the calculations to provide saving amounts include:

Window size: The standard double pane window size used is 54" x 64" (24 ft²) with a U-Factor of 0.54, a SHGC of 0.90 and an air infiltration rate of 0.42 cfm/ft².

House size: The home size used in the model is a 2,000 ft² with a high performance gas furnace and a high performance electric air conditioner.

Cooling efficiencies: U-Factor of 0.29 and an SHGC of 0.38, with an air infiltration rate of 0.33.

Heating efficiencies: U-Factor of 0.29 and an SHGC of 0.90, with an air infiltration rate of 0.33.

Energy prices: Current energy prices are supplied to RESFEN through the United States Energy Information Administration (EIA).

Energy price increase assumptions: A 40% increase has been placed on supplied natural gas price and an 11% increase has been placed on the electric utility cost for the first year: winter 2005-2006. These numbers are based on published reports regarding the energy price increases expected during winter 2005-2006.

A further assumption is placed on the 10 year savings number that energy prices will rise in years 2-10. A 15% increase on supplied natural gas price per year with a 10% percent increase has been placed on the electric utility cost.

Energy Savings Using Symphony Double Honeycomb Cellular Shades with the ComforTrack Energy Saving Sidetrack System

Actual energy savings may vary for individual homes based upon house orientation, quality and window size, heating ventilation, air conditioning systems, the shading of landscape trees and shade usage (i.e. shades are lowered in the summer to block heat, etc.).

What does this all mean for your customers? By sharing this information with your customers, you can illustrate what the expected annual reduction of energy costs is by covering a window with a Symphony Shade and the ComforTrack Energy Saving Sidetrack System. You are also can determine how long it will take for the homeowners to pay back their investments in cellular shades based on their energy savings.

	Average Savings Per Window	Ten Year Savings		Average Savings Per Window	Ten Year Savings
Birmingham, AL	\$15.48	\$243.49	Atlanta, GA	\$16.75	\$263.75
Mobile, AL	\$13.98	\$215.03	Augusta, GA	\$17.20	\$270.15
Montgomery, AL	\$14.80	\$228.13	Columbus, GA	\$16.20	\$252.21
Anchorage, AK	\$12.33	\$205.73	Macon, GA	\$16.37	\$255.16
Flagstaff, AZ	\$22.80	\$381.03	Savannah, GA	\$15.74	\$243.05
Phoenix, AZ	\$18.16	\$270.18	Hilo, HI	\$30.56	\$442.16
Prescott, AZ	\$18.69	\$301.45	Honolulu, HI	\$40.90	\$591.69
Tucson, AZ	\$16.44	\$249.10	Kahului, HI	\$41.17	\$595.59
Fort Smith, AR	\$17.19	\$271.21	Mason City, IA	\$26.52	\$433.81
Little Rock, AR	\$16.68	\$262.58	Boise, ID	\$16.19	\$262.36
Arcata, CA	\$12.69	\$165.26	Pocatello, ID	\$17.95	\$294.31
Bakersfield, CA	\$19.06	\$287.06	Chicago, IL	\$21.00	\$340.74
Fresno, CA	\$20.52	\$311.08	Moline, IL	\$21.47	\$346.19
Long Beach, CA	\$11.07	\$167.45	Peoria, IL	\$21.74	\$350.63
Los Angeles, CA	\$5.99	\$93.70	Rockford, IL	\$22.75	\$368.86
Sacramento, CA	\$17.99	\$277.34	Springfield, IL	\$21.38	\$343.48
San Diego, CA	\$7.11	\$107.19	Fort Wayne, IN	\$15.52	\$250.85
San Francisco, CA	\$8.79	\$146.08	Indianapolis, IN	\$14.99	\$240.26
Santa Maria, CA	\$8.88	\$148.19	South Bend, IN	\$15.17	\$245.08
Colorado Springs, CO	\$4.56	\$68.71	Des Moines, IA	\$23.28	\$376.44
Denver, CO	\$5.77	\$85.85	Sioux City, IA	\$23.93	\$386.94
Eagle, CO	\$3.13	\$48.36	Topeka, KA	\$20.40	\$326.11
Grand Junction, CO	\$8.51	\$125.35	Wichita, KA	\$20.52	\$326.45
Pueblo, CO	\$7.41	\$109.34	Covington, KY	\$18.39	\$297.71
Bridgeport, CT	\$25.41	\$410.96	Lexington, KY	\$17.98	\$290.29
Hartford, CT	\$26.74	\$430.90	Loiusville, KY	\$17.18	\$275.16
Washington, DC	\$24.50	\$396.50	Baton Rouge, LA	\$15.57	\$220.90
Wilmington, DE	\$21.68	\$348.71	New Orleans, LA	\$13.83	\$209.49
Daytona Beach, FL	\$17.74	\$265.34	Shrieveport, LA	\$14.00	\$231.74
Jacksonville, FL	\$19.65	\$299.41	Boston, MA	\$23.02	\$373.90
Key West, FL	\$20.86	\$301.31	Worcester, MA	\$24.72	\$403.34
Miami, FL	\$19.30	\$279.66	Caribou, ME	\$36.55	\$606.91
Tallahassee, FL	\$19.71	\$303.36	Portland, ME	\$30.18	\$496.35
Tampa, FL	\$18.94	\$281.01	Baltimore, MD	\$20.63	\$333.70
			Alpena, MI	\$19.06	\$313.81
			Detroit, MI	\$17.78	\$289.33
			Flint, MI	\$18.30	\$297.80
			Grand Rapids, MI	\$18.92	\$307.31

Energy Savings Using Symphony Double Honeycomb Cellular Shades with the ComforTrack Energy Saving Sidetrack System

	Average Savings Per Window	Ten Year Savings
Houghton, MI	\$19.76	\$324.31
Lansing, MI	\$20.08	\$324.05
Muskegon, MI	\$19.25	\$312.46
Sault Ste. Marie, MI	\$19.29	\$320.28
Duluth, MN	\$26.00	\$431.50
International Falls, MN	\$25.41	\$422.35
Minneapolis, MN	\$23.64	\$385.91
Rochester, MN	\$24.57	\$403.26
Columbia, MO	\$19.78	\$318.51
Kansas City, MO	\$20.35	\$326.19
Springfield, MO	\$18.63	\$298.76
Jackson, MS	\$14.38	\$220.39
Meridian, MS	\$13.49	\$207.11
Billings, MT	\$18.82	\$305.73
Helena, MT	\$17.94	\$293.15
Asheville, NC	\$18.13	\$289.91
Charlotte, NC	\$17.71	\$275.39
Greensboro, NC	\$18.34	\$289.18
Raleigh, NC	\$17.81	\$279.33
Wilmington, NC	\$17.00	\$261.81
Bismark, ND	\$21.63	\$354.24
Fargo, ND	\$22.85	\$375.45
Minot, ND	\$22.21	\$366.70
Norfolk, NE	\$20.30	\$329.70
North Platte, NE	\$19.21	\$312.55
Omaha, NE	\$18.51	\$299.09
Concord, NH	\$28.81	\$468.18
Atlantic City, NJ	\$20.03	\$317.78
Newark, NJ	\$20.33	\$322.64
Albuquerque, NM	\$17.24	\$272.36
Tucumcari, NM	\$17.49	\$275.23
Las Vegas, NV	\$19.01	\$287.05
Reno, NV	\$18.41	\$296.31
Tonopah, NV	\$19.71	\$316.13
Winnemucca, NV	\$20.93	\$337.51
Albany, NY	\$30.16	\$487.41
Binghamton, NY	\$28.53	\$468.61
Buffalo, NY	\$29.27	\$474.86
Massena, NY	\$31.43	\$514.15
New York, NY	\$27.16	\$433.13
Rochester, NY	\$30.74	\$495.13
Syracuse, NY	\$28.37	\$461.99
Akron, OH	\$20.37	\$331.49
Cleveland, OH	\$20.56	\$334.45
Columbus, OH	\$19.08	\$308.16
Mansfield, OH	\$21.26	\$345.50
Toledo, OH	\$21.97	\$357.75
Youngstown, OH	\$21.45	\$350.51
Oklahoma City, OK	\$16.67	\$263.90
Tulsa, OK	\$16.51	\$260.51

	Average Savings Per Window	Ten Year Savings
Eugene, OR	\$15.76	\$257.23
Portland, OR	\$15.13	\$246.56
Redmond, OR	\$21.15	\$346.18
Salem, OR	\$16.13	\$263.08
Allentown, PA	\$24.22	\$391.93
Erie, PA	\$25.71	\$420.38
Harrisburg, PA	\$23.27	\$373.41
Philadelphia, PA	\$22.59	\$363.48
Pittsburgh, PA	\$23.63	\$382.90
Wilkes-Barre, PA	\$24.67	\$402.49
Providence, RI	\$27.20	\$397.36
Charleston, SC	\$17.53	\$271.85
Columbia, SC	\$17.51	\$273.66
Greenville, SC	\$18.84	\$298.25
Pierre, SD	\$22.72	\$369.71
Rapid City, SD	\$21.60	\$353.93
Sioux City, SD	\$23.35	\$380.90
Chattanooga, TN	\$15.66	\$247.49
Knoxville, TN	\$16.63	\$263.53
Memphis, TN	\$17.55	\$128.31
Nashville, TN	\$18.65	\$296.28
Austin, TX	\$17.51	\$263.54
Corpus Christi, TX	\$16.28	\$241.26
El Paso, TX	\$16.27	\$247.99
Fort Worth, TX	\$17.63	\$269.54
Houston, TX	\$16.08	\$242.23
Lubbock, TX	\$17.81	\$279.78
San Antonio, TX	\$17.26	\$260.13
Victoria, TX	\$16.11	\$240.56
Wichita Falls, TX	\$19.30	\$299.04
Cedar City, UT	\$15.15	\$244.74
Salt Lake City, UT	\$16.01	\$256.56
Lynchburg, VA	\$20.27	\$325.04
Norfolk, VA	\$19.44	\$309.14
Richmond, VA	\$19.94	\$318.79
Roanoke, VA	\$19.52	\$313.50
Burlington, VT	\$26.50	\$432.21
Olympia, WA	\$15.15	\$250.21
Seattle, WA	\$13.67	\$226.31
Spokane, WA	\$20.55	\$337.69
Yakima, WA	\$18.19	\$296.71
Green Bay, WI	\$25.81	\$423.09
Madison, WI	\$23.82	\$388.40
Wilwaukee, WI	\$24.69	\$403.28
Charleston, WV	\$15.16	\$243.53
Huntington, WV	\$15.73	\$251.78
Casper, WY	\$18.91	\$310.58
Cheyenne, WY	\$14.64	\$271.96
Sheridan, WY	\$17.66	\$288.44



Where Innovation is Always in Fashion™

COMFORTEX WINDOW FASHIONS
21 Elm Street, Maplewood, New York 12189
(800) 843-4151 (phone) (800) 336-4580 (fax)
www.comfortex.com www.comfortexdealers.com

511004RPT

© 2006 COMFORTEX CORPORATION

is a trademark of Comfortex Corporation. ® is a registered trademark of Comfortex Corporation. U.S. and foreign patents pending. All rights reserved.

Window treatment products are not included in the federal ENERGY STAR program which qualifies and labels energy efficient residential windows, doors, and skylights.

Thermography/Photography provided by Seiki Living Design. Testing conducted and photos taken by the Laboratory for Construction Materials in Tokyo, Japan.