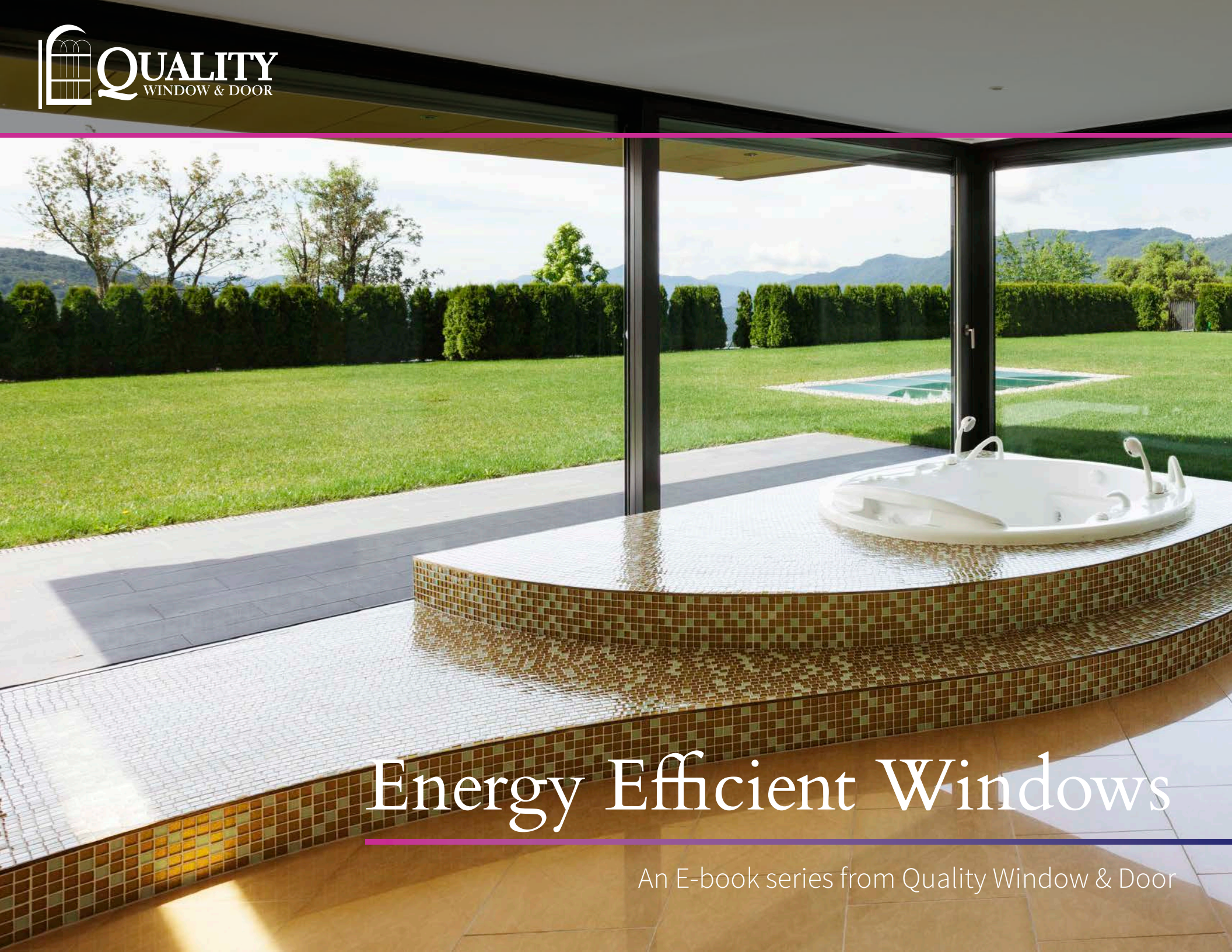


QUALITY
WINDOW & DOOR

Energy Efficient Windows

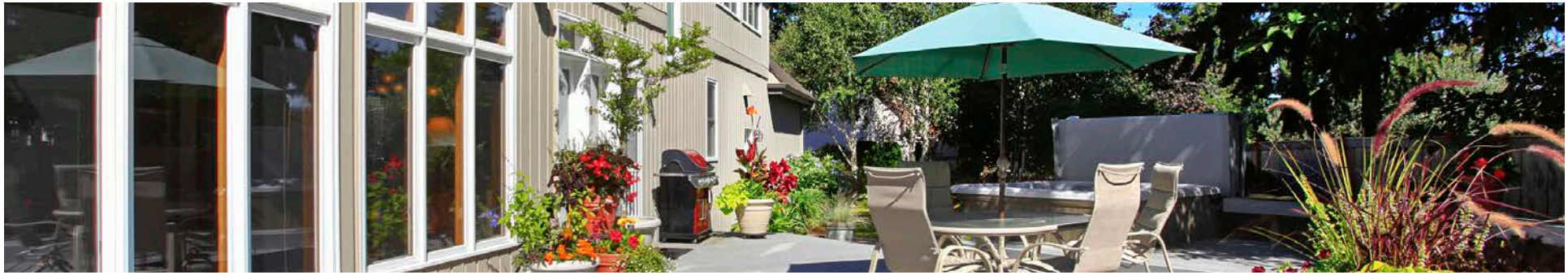
An E-book series from Quality Window & Door

Energy Efficient Windows

Purchasing Energy Efficient Windows

Homeowners, builders, contractors, and architects alike want to ensure that any new construction or remodel project not only adds value and beauty to the property but is also energy efficient. With rising energy costs and a better understanding of individual carbon footprint, energy efficiency is a major factor to consider when installing new windows. **But how do you know which windows are best (and most energy efficient)?**

Many states have adopted an energy efficiency rating system for windows developed by National Fenestration Rating Council (NFRC). ENERGY STAR® qualified products also can provide you with an unbiased rating of the performance of windows and doors. In this E-book, we've provided a guide on selecting the best energy efficient windows for your home.



About NFRC

NFRC is a non-profit organization that administers the only uniform, independent rating and labeling system for the energy performance of windows, doors, skylights, and attachment products. Their goal is to provide fair, accurate, and reliable energy performance ratings so that:

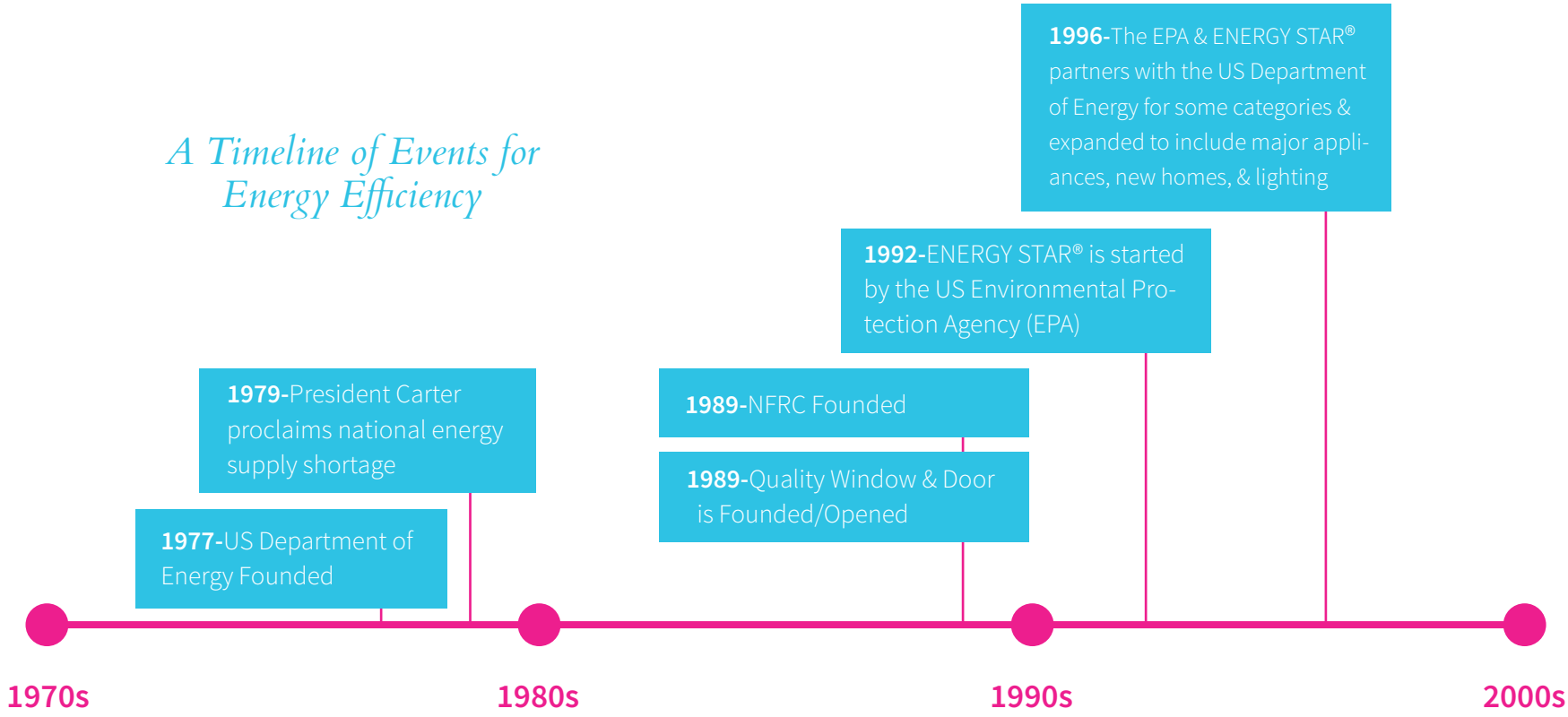
Architects, builders, code officials, contractors, homeowners, and others can compare different products and make informed product choices.

Building officials, state government employees, and others involved in code development and enforcement can determine if products meet local codes.

Government- and utility-run energy efficiency programs can establish performance requirements and standards.

Manufacturers have a fair and level playing field to compare products and an accurate method of showing the energy benefits of new designs or technology.

National Fenestration Rating Council®



The History of the NFRC & Energy Efficient Windows

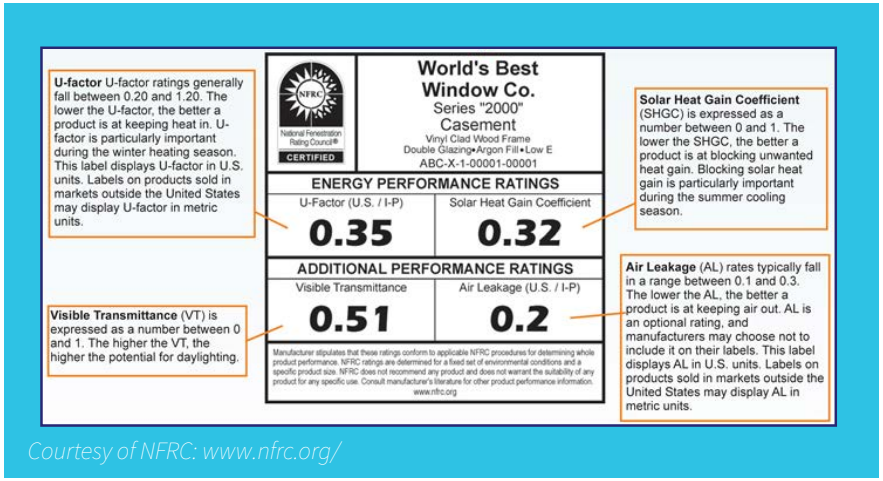
Ultimately, NFRC was formed in response to the energy crises of the 1970s. To address concerns about energy consumption, the fenestration industry developed a host of new energy efficient technologies:

- **Low-e coatings**
- **Gas fills**
- **Low-conductance spacers**
- **And more**

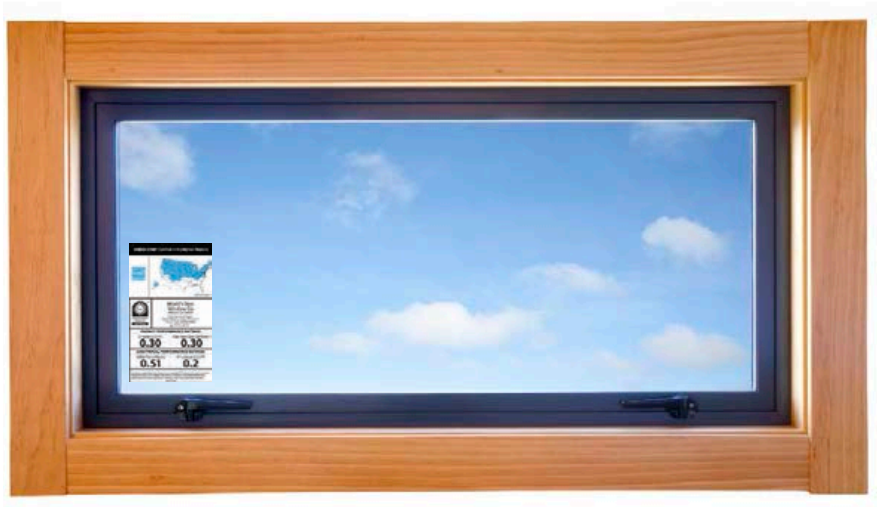
Unfortunately, in advertising these new technologies, some manufacturers made outlandish claims about the performance of their products. Consumers complained, and the federal government began to investigate allegations of unscrupulous practices in the industry.

By the late 1980s, key industry stakeholders began to realize that something had to be done to prevent widespread confusion, federal intervention, and perhaps costly litigation. They came together in Vancouver, British Columbia in 1989 and founded NFRC to provide independent verification of product performance.

An Example of the NFRC Label You Should Look for & the Numbers You May See



Courtesy of NFRC: www.nfrc.org/



The NFRC Label

The National Fenestration Rating Council (NFRC) energy performance label can help you determine how well a product will perform the functions of helping to:

- **Cool your building in the summer**
- **Warm your building in the winter**
- **Keep out wind**
- **Resist condensation**

By using the information contained on the label, builders and consumers can reliably compare one product with another and make informed decisions about the windows they buy. NFRC adopted a new energy performance label in 2005. It lists the manufacturer, describes the product, provides a source for additional information, and includes ratings for one or more energy performance characteristics.

The information contained on the label is also available in the NFRC's online Certified Products Directory.

Energy Efficiency Factors in Your Windows

U-Factor

U-factor measures how well a product prevents heat from escaping. The rate of heat loss is indicated in terms of the U-factor (U-value) of a window assembly. U-Factor ratings generally fall between 0.20 and 1.20. The insulating value is indicated by the R-value, which is the inverse of the U-value. **The lower the U-value, the greater a window's resistance to heat flow and the better its insulating value.**

Solar Heat Gain Coefficient

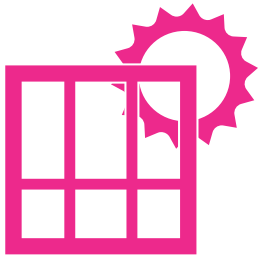
Solar Heat Gain Coefficient (SHGC) measures how well a product blocks heat caused by sunlight. The SHGC is the fraction of incident solar radiation admitted through a window, both directly transmitted, and absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. **The lower a window's solar heat gain coefficient, the less solar heat it transmits.**

Visible Transmittance

Visible Transmittance (VT) measures how much light comes through a product. The visible transmittance is an optical property that indicates the amount of visible light transmitted. VT is expressed as a number between 0 and 1.

0 → 1

The higher the VT, the more light is transmitted.



Air Leakage*

Air Leakage (AL) is indicated by an air leakage rating expressed as the equivalent cubic feet of air passing through a square foot of window area (cfm/sq ft). Heat loss and gain occur by infiltration through cracks in the window assembly. A typical range is between 0.1 and 0.3.

** This rating is optional and manufacturers can choose not to include it.*

0.1 ← 0.3

The lower the AL, the less air will pass through cracks in the window assembly.

All About ENERGY STAR®

ENERGY STAR® is a dynamic government/industry partnership that offers businesses and consumers energy efficient solutions, making it easy to save money while protecting the environment for future generations.

In 1992, the U.S. Environmental Protection Agency (EPA) introduced ENERGY STAR® as a voluntary labeling program designed to identify and promote energy efficient products to reduce greenhouse gas emissions. Computers and monitors were the first labeled products. Through 1995, the EPA expanded the label to additional office equipment products and residential heating and cooling equipment. In 1996, the EPA partnered with the U.S. Department of Energy for particular product categories.

The ENERGY STAR® label is now on major appliances, office equipment, lighting, home electronics, and more. The EPA has also extended the label to cover new homes and commercial and industrial buildings.

Update & Improve Windows

Before

After

Replacing old windows with **ENERGY STAR** qualified windows lowers household energy bills by an average of **12 percent nationwide.**
According to **ENERGY STAR**, a typical home can replace their windows with qualified **ENERGY STAR** products and save:

- **$126–$465 a year when replacing single-pane windows**
- **$27–$111 a year over double-pane, clear glass replacement windows**

Through its partnerships with more than 8,000 private and public sector organizations, ENERGY STAR® delivers the technical information and tools that organizations and consumers need to choose energy efficient solutions and best management practices. ENERGY STAR® has successfully delivered energy and cost savings across the country, saving businesses, organizations, and consumers about $30 billion in 2010 alone. Over the past decade, ENERGY STAR® has been a driving force behind the more widespread use of such technological innovations as LED traffic lights, efficient fluorescent lighting, power management systems for office equipment, and low standby energy use.

Recently, energy prices have become a hot news topic and a major concern for consumers. ENERGY STAR® provides solutions with its trustworthy label on over 50 product categories (and thousands of models) for the home and office. These products deliver the same or better performance as comparable models while using less energy and saving money. ENERGY STAR® also provides easy-to-use home and building assessment tools so that homeowners and building managers can start down the path to greater efficiency and cost savings.

About Quality Window & Door

The Replacement Window Experts in Washington, DC, Maryland & Virginia

Our vision began with the company's owner and president, Bob Neidig (photo and quote box), who founded Quality Window & Door in 1989 on the idea that every customer should love the finished product for years to come.

The desire to consistently deliver an unparalleled customer experience is the foundation of our company, and we look forward to extending our award-winning services to every customer we meet and work with. We carry a wide selection of top-quality products from manufacturers you know and trust.

Our motto is to always put yourself in the customers shoes and do everything like you were working on your own home – providing a first class experience when working with our company.

New and replacement windows, we've got it all. No matter what style, material, or design, our expert team will educate you on all the options available and recommend products that match your preferences. We want you to be more than satisfied with your new windows.

Quality Window & Door works with many window manufacturers to offer our customers a wide selection of the best windows on the market. One of our top partners is Weather Shield—window products featured in this E-book are from Weather Shield's selection of high quality, beautiful windows.

"Whether you are a homeowner, architect, or contractor, I believe you will find our approach unique. Our sales and marketing philosophy revolves around providing an educative approach to offering a non-proprietary distribution from multiple brands of windows and doors. The more you know about windows and doors, the more likely you are to buy them from Quality Window & Door."

– Bob Neidig, President

QUALITY
WINDOW & DOOR

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6700 Distribution Drive
Beltsville, MD 20705

Merrifield Showroom
2820 Dorr Avenue
Merrifield, VA 22031

Qualitywindowanddoorinc.com | Call 800.657.1373 to schedule a free consultation!