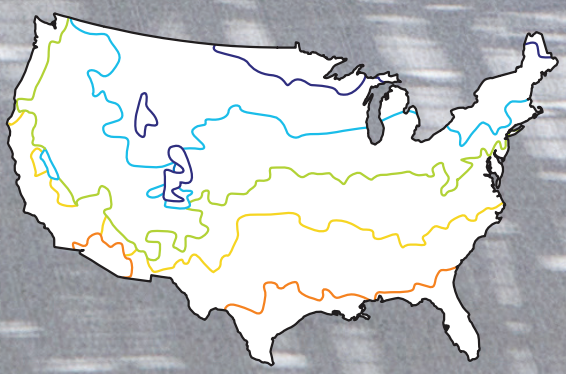
3M Science. Applied to Life.™

3M™ Commercial Window Films

Focus your energy on productivity.

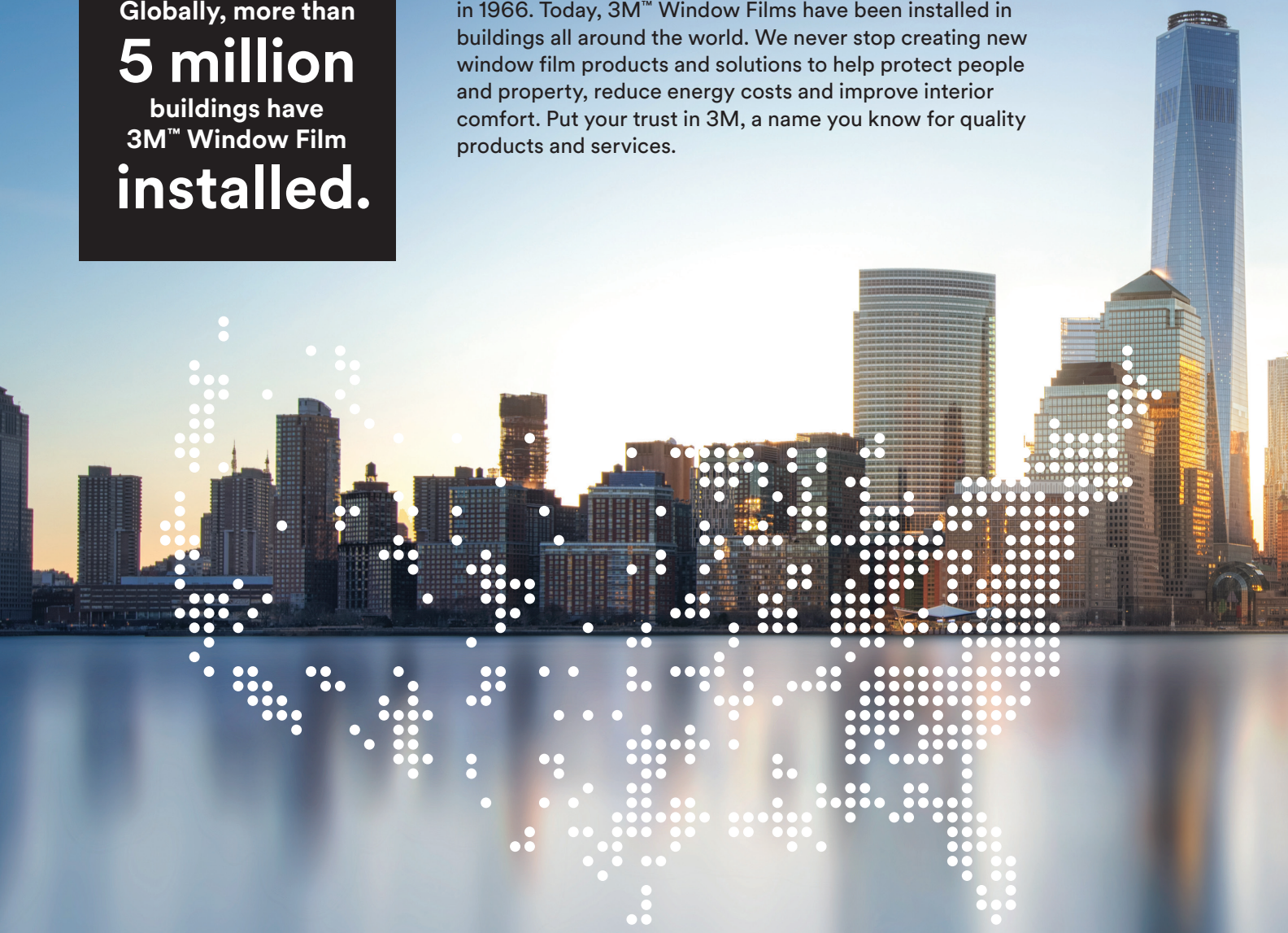


3M™ Window Film Innovation 50 Years Keeping You Protected

Protected by 3M™ Window Film

Globally, more than
5 million
buildings have
3M™ Window Film
installed.

3M was issued the first patent for sun control window film in 1966. Today, 3M™ Window Films have been installed in buildings all around the world. We never stop creating new window film products and solutions to help protect people and property, reduce energy costs and improve interior comfort. Put your trust in 3M, a name you know for quality products and services.



Miles of experience.

3M™ Window Films

Department of Energy (DOE) Study

Background

In 2011, the US DOE completed a study on the top 50 commercially available energy conservation technologies. The technologies were ranked in these categories:

- Payback
- Probability of success
- Overall energy savings
- Technologies with less benefit that may be considered for specific targeted applications

Results

- Ranked as top-tier technology
- Fastest payback ranking available — approximately 3 years
- Highest probability of success ranking (based on customer acceptance, ease of retrofit, knowledge base of the technology and supply chain strength)

Additional Results

Only four technologies received both a fastest payback rating and highest probability of success:

- Window films
- PC power management
- Condensing water heaters
- Air side economizers and filters for data centers

Replacement windows were also studied, but they received much slower payback ratings and lower probability of success due to the significant initial investment costs and disruption to tenants required for a new window replacement.[1]

ConSol Study

Background

ConSol Energy and Environmental Solutions is a leading consulting firm for builders, government agencies, utilities and trade associations. ConSol utilized the US DOE-recommended software platform, Energy Plus, to calculate the effects of adding window film to a commercial building. The commercial building model used was the DOE-recommended Energy Plus Commercial Building Benchmark Model. The study was completed in ICC Climate Zones 1, 2 and 3.

Results

This study further justified the DOE study with the following results:

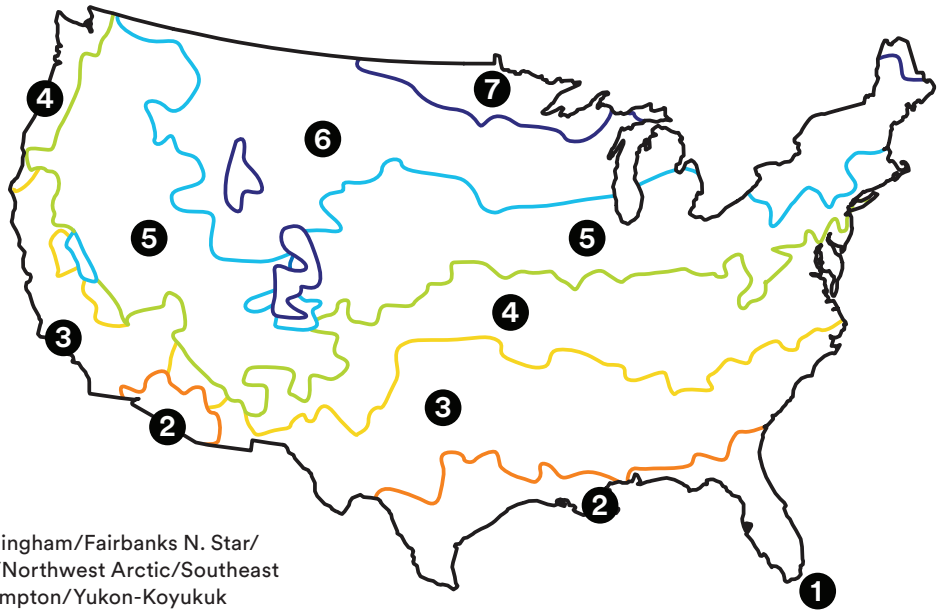
- Single-pane glass showed paybacks in as short as 1.4 years
- Double-pane glass showed paybacks in as short as 2.1 years
- Annual energy savings as much as 19 kWh/sq ft (200 kWh/sq m) of glass
- An 8.8% carbon emission reduction would occur if every home in California had window film installed

After this study was published in 2011, the state of California updated its building code to include window films.[2]

1. www.eere.energy.gov/femp/technologies/new_technologies.html
2. www.consol.ws/index.php

Proven savings in every climate.

The US is broken down into eight different climate zones in accordance with building codes today — Climate Zone 1 being the hottest and Climate Zone 8 the coldest. 3M™ Window Films can save energy in all climate zones.



Climate Zone 1

Includes: Guam/Hawaii/
Puerto Rico/Virgin Islands

Climate Zone 7

Includes: Alaska
Some Alaska boroughs are also included in Zone 8

Climate Zone 8

Includes: Bethel/Dillingham/Fairbanks N. Star/
Nome/North Slope/Northwest Arctic/Southeast
Fairbanks/Wade Hampton/Yukon-Koyukuk

Climate Zone 1 | Case Study:

Mount Terrace Condominium, Hawaii Kai, Hawaii

Challenge: To retain a consistent look for the condominium complex while also finding ways to reduce the cost of managing the building.

Solution: 3M™ Sun Control Window Film Prestige 50 was chosen to obtain a maximum amount of energy rejection while maintaining the current look of the building. In addition, the 3M™ Prestige Series Window Film product was chosen because it has no metals and therefore no possibility of corrosion from the ocean air.

Results:

Payback — Less than 2 years
Savings — Greater than $270,000 annually
Energy saved — 17 kWh/sq ft (180 kWh/sq m) of glass
Date completed — 2012

Climate Zone 2 | Case Study:

National Bank of Arizona, Phoenix, Arizona

Challenge: To retain the natural lighting while reducing both the heat it generated and glare on the banking floor. Minimizing disruption to normal banking operations was paramount.

Solution: 3M™ Sun Control Window Film Prestige Exterior 40 was installed because of its high infrared heat and harmful ultraviolet ray rejection. It is non-metallic and thus will not corrode, negating the need for edge sealing and minimizing installation time. Much of the project's cost was offset by an energy-efficiency rebate from Salt River Project (SRP).

Results:

Glass — Double pane tinted
Payback — Less than 5 years
Savings — Greater than $25,000 annually
Energy saved — 12 kWh/sq ft (130 kWh/sq m) of glass
Date completed — 2011

Climate Zone 3 | Case Study:

Century Plaza Towers, Los Angeles, California

Challenge: To solve interior temperature imbalance and make the towers more energy efficient without drastically changing the look of the historic buildings.

Solution: 3M™ Sun Control Window Film Neutral 35, which offers high heat rejection and neutral light appearance, was installed. Much of the project's cost was offset by a rebate of $116,000 from the Los Angeles Department of Water and Power.

Results:

Payback — Less than 1 year
Savings — Greater than $200,000 annually
Energy Saved — Greater than 15 kWh/sq ft (161 kWh/sq m) of glass
Date Completed — 2009

Climate Zone 4 | Case Study:

Fifth Third Center, Cincinnati, Ohio

Challenge: To control incoming light and heat in order to keep tenants comfortable, reduce energy costs and maintain the building's striking aesthetics.

Solution: Solar Tint, which had installed 3M™ Window Film in 1980, was chosen to update the facility's window film to further reduce energy costs by installing 3M™ Sun Control Window Film Neutral 20.

Results:

Payback — Less than 1 year
Savings — Greater than $100,000 annually
Date Completed — 2000

Climate Zone 5 | Case Study:

1501 Clinton Avenue, Baltimore, Maryland

Challenge: To non-intrusively cut energy costs and increase interior comfort in a short time frame without affecting the tower's reflective modernism. Paramount was the issue of paying for up-front job costs on a limited budget.

Solution: 3M™ Sun Control Window Film Ceramic Series 30, which offers high clarity and outstanding heat reduction, was installed. To help pay for the project, 3M facilitated a custom rebate program with ICF International, the entity that supports Baltimore Gas and Electric's (BGE) energy efficiency programs.

Results:

Payback — Less than 1 year
Savings — Greater than $100,000 annually
Date completed — 2000

The energy efficiency upgrade cycle.

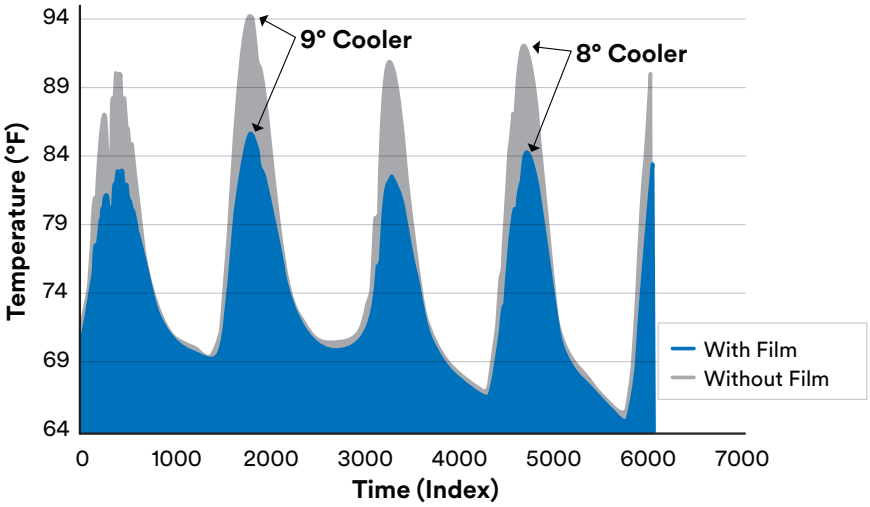
Optimize your building with envelope improvements.

There are many energy conservation technologies available to help you save money. It is essential not only to choose the right products but also to complete your upgrades in a sequential order such that you can maximize your profits. Often, envelope upgrades (such as window film) are overlooked, and owners jump right to optimizing their HVAC system. If you create a more efficient building envelope before HVAC improvements, you can downsize your HVAC equipment in the future, enabling you to reach the maximum possible performance for your profits.

These improvements are often overlooked but should be considered before making HVAC improvements.

Comfortably cool.

3M™ Sun Control Window Film can reduce the temperature in direct sunlight by as much as 9° F, making your space much more usable and comfortable. The graph below shows a four-day temperature logging experiment conducted in an office building.



LEED Certification

Window films may be used toward the following LEED credits:

▸ SS-8	▸ EQ-7.1
▸ EA-1	▸ EQ-7.2
▸ MR 1.1-1.2	▸ EQ-8.1-8.2
▸ MR 5.1-5.2	▸ ID

RECOMMENDED Skin Cancer Foundation

The Skin Cancer Foundation recommends the use of window film in automobiles and commercial and residential buildings due to its properties that screen out UV rays.

3M

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