

3M<sup>™</sup> Commercial Window Films

# Focus your energy on productivity.



Protected by 3M<sup>™</sup> Window Film

Globally, more than **5 million** buildings have 3M<sup>™</sup> Window Film **installed.**  3M was issued the first patent for sun control window film in 1966. Today, 3M<sup>™</sup> 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<sup>™</sup> 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.<sup>1</sup>

# **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 DOErecommended 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.<sup>2</sup>

# 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<sup>™</sup> 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



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<sup>™</sup> 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<sup>™</sup> 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



5

4

3

# 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<sup>™</sup> 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:**

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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<sup>™</sup> 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<sup>™</sup> Window Film in 1980, was chosen to update the facility's window film to further reduce energy costs by installing 3M<sup>™</sup> 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<sup>™</sup> 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.



# Comfortably cool.

3M<sup>™</sup> 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.



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HVAC improvements.

# **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



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