

## 3M™ Night Vision Window Film Provides Big Savings and Improved Comfort While Preserving Views at Embarcadero Center.

## C A S E H I S T O R Y



Payback period: Less than one year for 345,000 square foot installation project.

### Description

Spanning four blocks in the heart of San Francisco's prime commercial district, Embarcadero Center is one of the largest mixed-use complexes in the western United States. In 2004, the center's property managers approved the installation of 3M™ Night Vision Window Film to reduce heat gain and glare, while preserving the views. The project resulted in substantial cost and energy reductions, including a \$344,000 Pacific Gas and Electric rebate, a more than 3 million kilowatt-hour annual reduction in energy demand, and a less than one-year payback period. The installation also included a benefit that was not initially considered — a substantial reduction in ultraviolet (UV) rays for improved health and safety of tenants and increased protection for interior furnishings.

### Problem

Embarcadero Center's four office towers provide breathtaking views of the San Francisco landscape. However, tenants on the south, east and west sides of the buildings often needed to close off the beautiful panoramas with heavy draperies to cover the 345,000 square feet of windows that invited intense heat gain and glare when the sun was beating down during the day.

"Many of our tenants chose the Embarcadero Center office towers because of the views," says Danny Murtagh, Director of Engineering for Boston Properties, which owns and manages the

Embarcadero Center complex. "So, naturally, they were not entirely satisfied when they had to cover their windows to stay comfortable on bright, sunny days."

In addition, maintaining a comfortable temperature throughout the four buildings during California's sunny days was an ongoing — and expensive — challenge.

### Solution

After spending several years investigating various options to reduce heat gain and reflectivity and improve tenant comfort, Embarcadero Center property managers eventually zeroed in on window film.

"We watched window film technology evolve over the years to the point where we felt we were ready to bring it to our four office towers," Murtagh says. "Our original goals for a window film installation centered on energy savings and tenant comfort. However, during our investigation, we realized another substantial benefit that we hadn't initially considered — a significant reduction in UV rays. This had the potential to improve the health and safety of our tenants and reduce wear and tear on their furnishings. We quickly realized that installing window film would be a win-win for everyone."

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No more heavy drapes: Tenants continue to enjoy their views of the city and bay on sunny days since 3M Night Vision Window Film blocks solar heat by up to 75 percent, reduces glare by up to 83 percent and cuts down on UV rays by up to 99 percent.





Benefits for tenant and landlord alike: The energy savings made possible by 3M window films usually pay back the cost of a project within three to five years.

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The company interviewed several window film manufacturers and dealers and extensively reviewed their capabilities. Ultimately, Murtagh says, they chose Climate Insulating Products, a 3M Authorized Dealer. The deciding factors included the performance of 3M's Night Vision Window Film product line, as well as the company's worldwide reputation and product warranties.

According to Brett Terry, General Manager of Climate Insulating Products, the 3M Night Vision Window Film was the perfect choice for Embarcadero Center: "We used 3M™ Night Vision 25 on the building's south, east and west sides because of the film's superior ability to reduce solar heat and decrease glare. We knew that the film would help accomplish the Embarcadero Center's goals to reduce costs and energy consumption, allow tenants to enjoy clear views both day and night, and reduce tenants exposure to harmful UV rays."

Often, films that reduce solar heat and glare are so reflective that they're difficult to see through, especially at night. 3M Night Vision Window Film Blocks solar heat by up to 75 percent, reduces glare by up to 83 percent, and cuts down on UV rays by up to 99 percent — all while preserving views. The same technology that tones down reflectivity also makes the film color-stable, ensuring that the color won't change over time.



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## Results

As soon as the window film installation project was underway, tenants began reporting improvements, Murtagh recalls: "In fact, we even got a couple of calls asking us to turn down the air-conditioning. Now, on that warm southern face of the building, some tenants were cold!"

But the paybacks didn't stop with tenant comfort alone. Four years later, Murtagh says the complex is saving more than three million kilowatt-hours in energy consumption each year.

"The total cost of the project was approximately \$650,000," he states. "That's a big number. But when you consider that we received a \$344,000 rebate from Pacific Gas and Electric for installing the energy efficient window film, and you couple that with calculated average annual energy savings of \$320,000, the payback period occurred within the first year after installation. Even better, we've continued to enjoy significantly lower operating expenses each year."

Finally, as a testimony to the success of the Embarcadero Center project, several tenants have since hired Climate Insulating Products to install 3M Night Vision film at their own homes.

## The 3M Difference

"3M is a worldwide brand," says Murtagh. "3M products are used throughout the industry — tapes, sealants, coatings, epoxy products...you name it. As a result, we felt comfortable putting our trust into 3M's window film. As it turns out, the film installation accomplished all of our goals and more."



## Project Summary

3M Dealer: Brett Terry, General Manager of Climate Insulating Products

Installation Date: March through October 2004

Window Area Covered: 345,000 square feet

Installation Time: Eight months, with most of the work completed at night

Type of Film: 3M Night Vision 25 on the south, east and west sides of the buildings

Remedies Considered Prior to Window Film Installation: Heavy lined draperies

Payback Period: Less than one year

Annual Savings: Calculated average annual savings of \$320,000 and more than three million kilowatt-hours of energy.

Five buildings were filmed but the fifth building was sold after film installation and was not included in the energy analysis.