


# WINDOW FILM IN HOSPITALITY APPLICATIONS



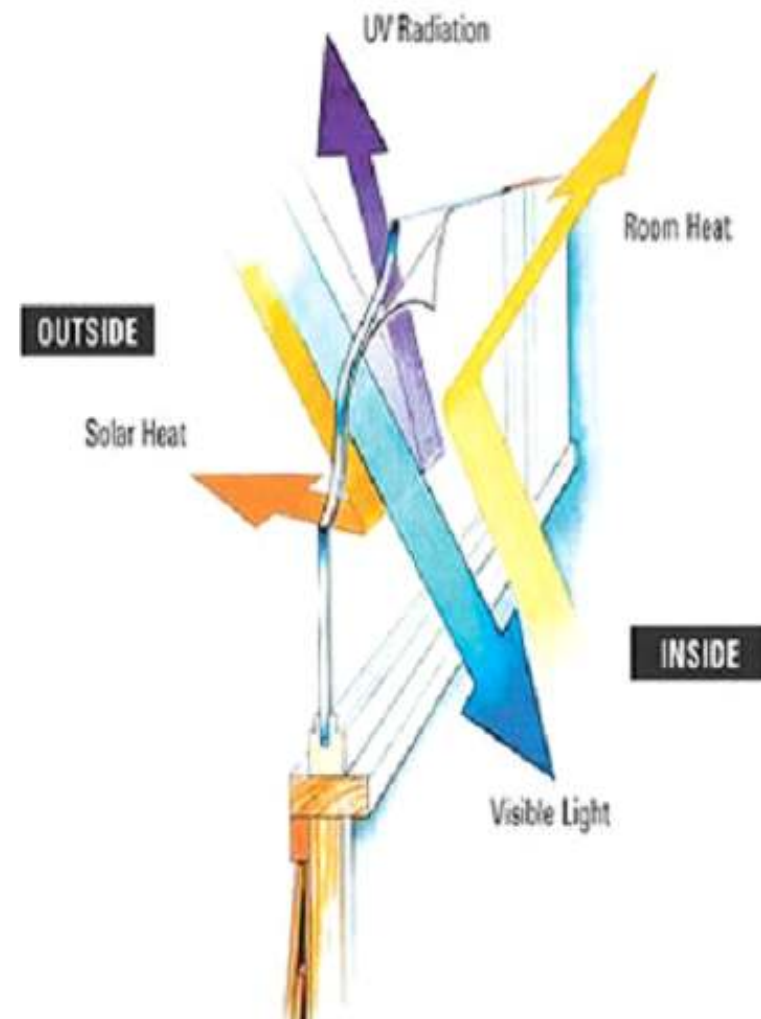
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# WHAT IS WINDOW FILM?

## Definition

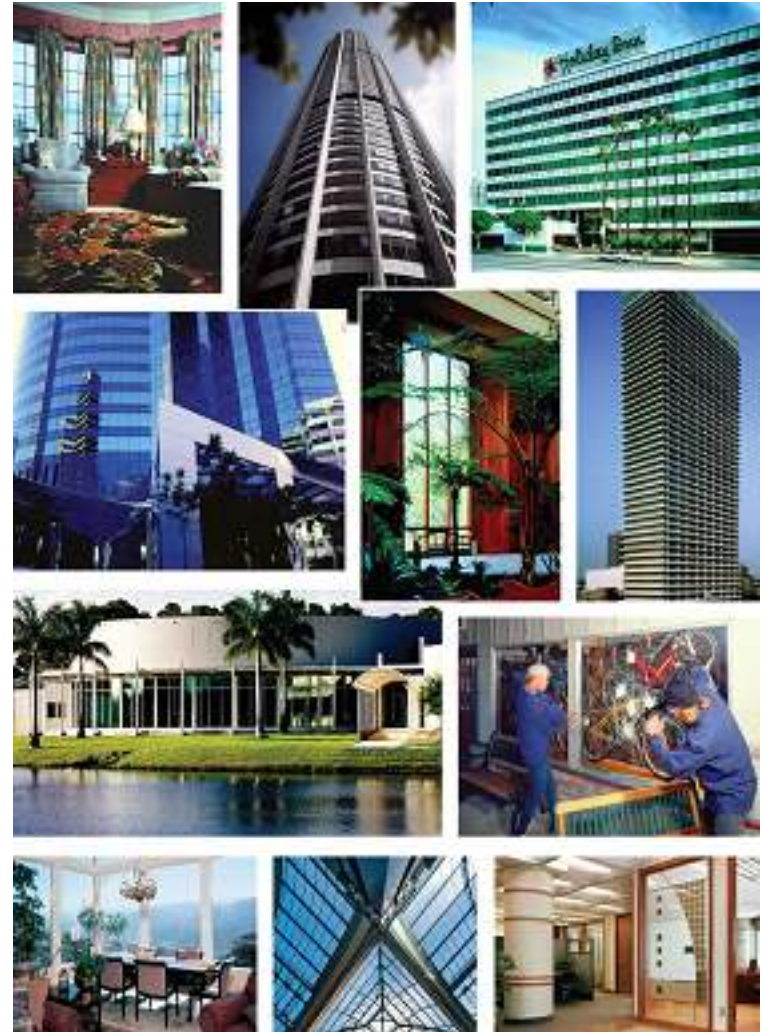
- **Window Film is a thin layer of polyester film with transparent layers of metallic coatings or nano-ceramic particles**
- **The metals or nano-ceramic layers reflect or absorb solar heat, significantly reducing solar heat gain into the building**
- **The film is protected with a durable, optically-clear, scratch-resistant coating.**
- **Film is professionally installed as a retrofit product on almost any type of glass.**
- **Typical warranties are 10-15 years**



# WHY WINDOW FILM?

## Reasons for installing film in a hotel

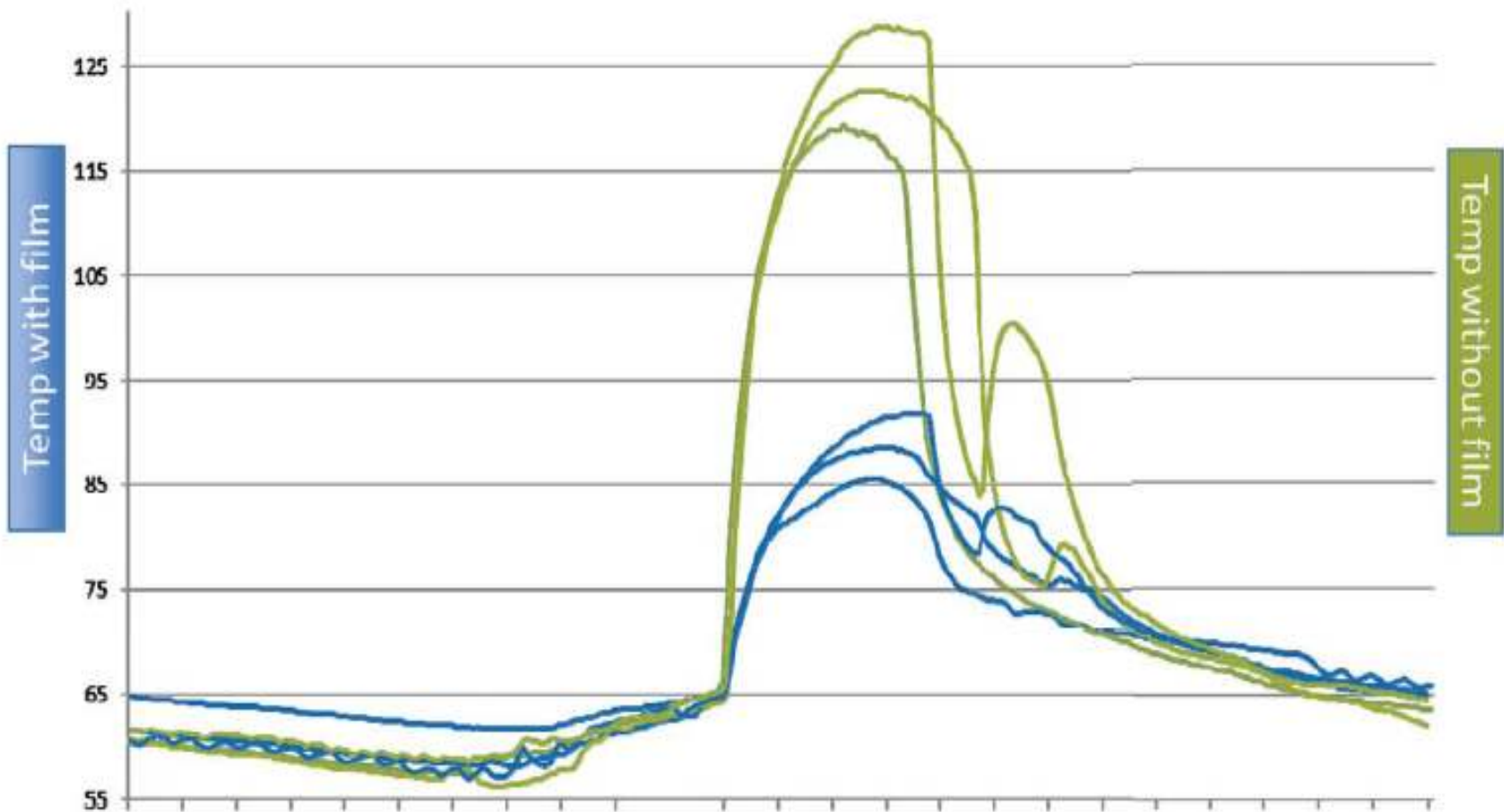
- **Guest Comfort**
- **Reduce Heat Build-Up in Summer**
- **Reduce Glare**
- **UV Protection – reduce fading of drapes, carpets, furnishings**
- **Improve hotel's exterior appeal**
- **Energy Savings (typical annual savings of 5-10% in total energy bills, with ROI often in 2-5 years)**
- **Utility rebates offered in most states (customized rebates)**
  - Typically pays for 15-50% of project costs



# Improving Guest Comfort

Daytime summer temperatures near windows ~30 deg F cooler with film

## Six Room Comparison



# WINDOW FILM USES AND TYPES

## Types of Films

- **Solar-Control**
  - Typical costs \$5-\$7/sqft of glass
  - Often applied to all exposures for uniformity of appearance, but sometimes applied only to “non-North” exposures or to a particularly “bad” exposure
- **Low-E**
  - Typical costs \$6-\$8/sqft of glass
  - Usually applied to all exposures
- **Protective (Safety/Security)**
- **Anti-Graffiti**
- **Decorative**



# SOLAR CONTROL FILMS

## Case Study

Marriott Winston-Salem, NC

### Goals of Project:

- Improve Guest Comfort (Room temps near 78 deg F in summer)
- Provide good ROI from energy savings

### Results:

- Room temps now comfortable
- Cost \$75,000
- Savings \$24,000
- ROI 3.1 years

After Film



Before Film



# SOLAR CONTROL FILMS

## Case Study

HYATT REGENCY, LOS ANGELES, CALIFORNIA

### Goals of Project:

- **Guest comfort issues due to undersized HVAC System**
- **Avoid costly (> \$1 million) HVAC retrofit**
- **Reduce excessive heat and glare**
  
- **ALL goals achieved, with an added ROI from energy savings**



# SOLAR CONTROL FILMS

## Case Study

ADAM'S MARK (now a SHERATON), DALLAS, TEXAS

### Goals of Project:

- **Alternative to costly replacement of existing windows**
- **Create high performance glazing**
- **Reduce energy costs**
- **Improve guest comfort**
- **Improve exterior appeal**





# SOLAR CONTROL FILMS

## Case Study

ADAM'S MARK, DALLAS, TEXAS

### Solution:

- **High Performance Window Film**  
Rejects 78% of solar heat
- **Approximate installed cost \$1 million**
  - **Very large film project – most hotel projects \$50k-250k**
  - **Compared to \$5-\$7 million for new windows**
- **Simple Payback: approx 2 years was also eligible for utility rebate (approx \$200k)**



# DETERMINE ENERGY SAVINGS

## Energy Analysis

**Using DOE-2 or EnergyPlus programs that show film:**

- **Kilowatt-hour savings by month**
- **Kilowatt demand reduction**
- **Heating fuel savings (using low-e films)**
- **Projected Annual Energy Savings in Dollars**
- **Projected Return on Investment in Years**
  
- **Usually these Energy Audits are accepted & used by local utilities for rebate applications**

# LEED GREEN BUILDING CERTIFICATION

## Window films – can assist in various areas with LEED Certification

- **Optimizing Energy Performance**
- **Improving Guest Comfort**
- **Improving Daylighting and Views**
- **Light Pollution Reduction**
- **Innovations in Operations & Upgrades**
  - Upgrade windows to safety glass
- **Optimize Use of Alternative Materials**
  - Projects within 500 mi of mfg



# LOW-E FILMS

## Definition

- **Similar to solar-control only films in that they reduce solar heat gain to:**
  - Increase guest comfort
  - Reduce glare
  - Enhance the exterior appearance of building
  - Reduce fading of interiors
- **Low-e films also reduce radiant heat loss in winter and improve window insulating performance**



# Winter Performance

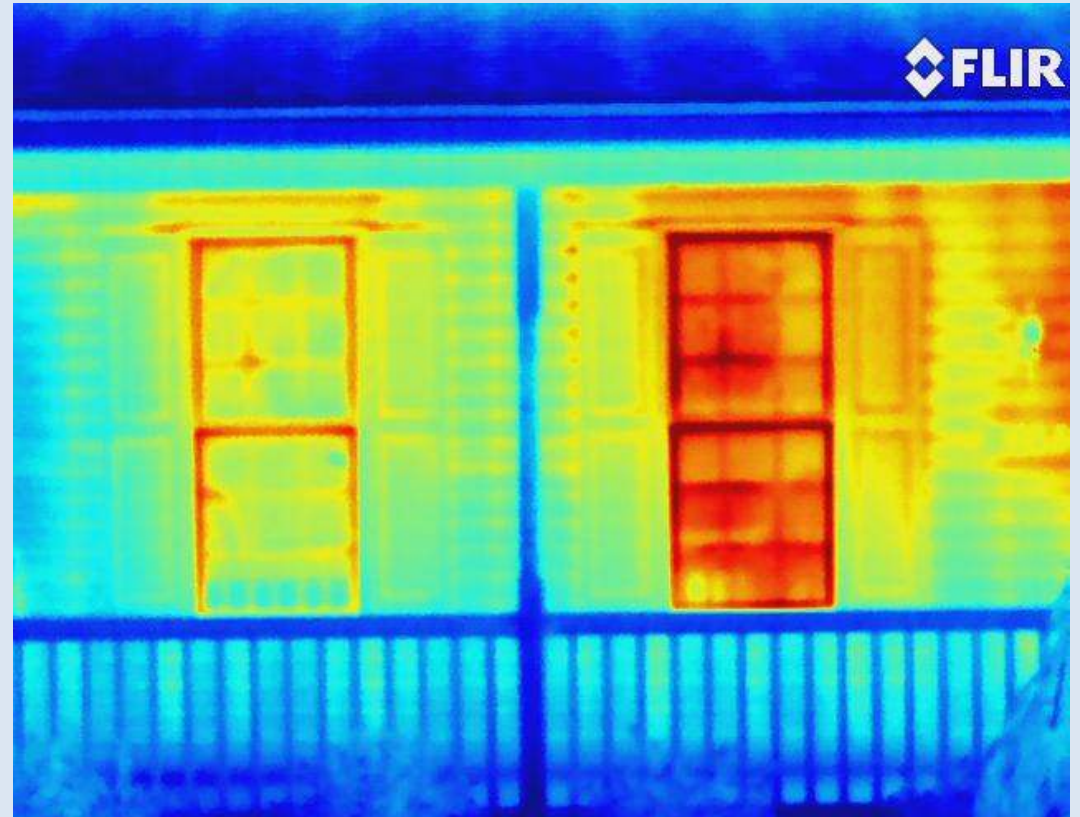


**EnerLogic low-e window film is an almost perfect reflector of Near-IR heat, reflecting this heat back into the room, preventing 93% of this heat from escaping – helping to lower heating costs**

# Winter Performance



**With EnerLogic    Without EnerLogic**



**Window with EnerLogic low-e window film is substantially cooler on the exterior, demonstrating less of the home's heat being lost through the window**

# LOW-E FILMS

## Upgrading Window Insulating Performance

- **Single-pane windows plus some types of low-e films provides dual-pane performance**
- **Dual-pane windows plus some types of low-e films provides triple pane performance**



# Hyatt Regency Houston Case Study



Film installation in July 2012 EnerLogic VEP35 Film  
SW and SE sides only, film not applied to NE exposure  
Energy savings measured by third-party, Green Generation  
Solutions

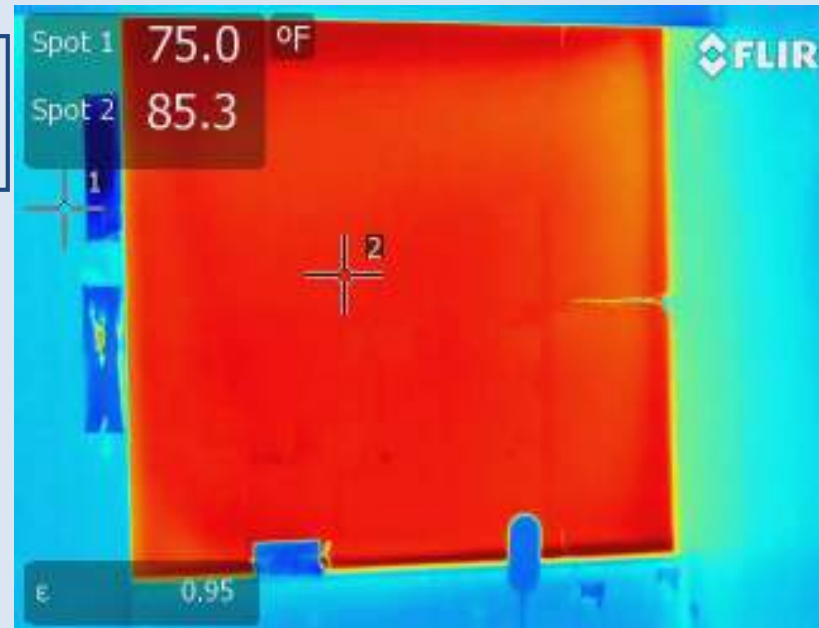
Savings: \$32,000/yr  
23% savings on cooling 25% savings on heating  
ROI 3.6 years (including \$35k utility rebate)





# Summer Performance

No film – Glass warmed by sun’s heat radiating heat into room



Hyatt Regency Houston window and room configuration

With EnerLogic– Warm glass, **but with almost no heat radiating into room**

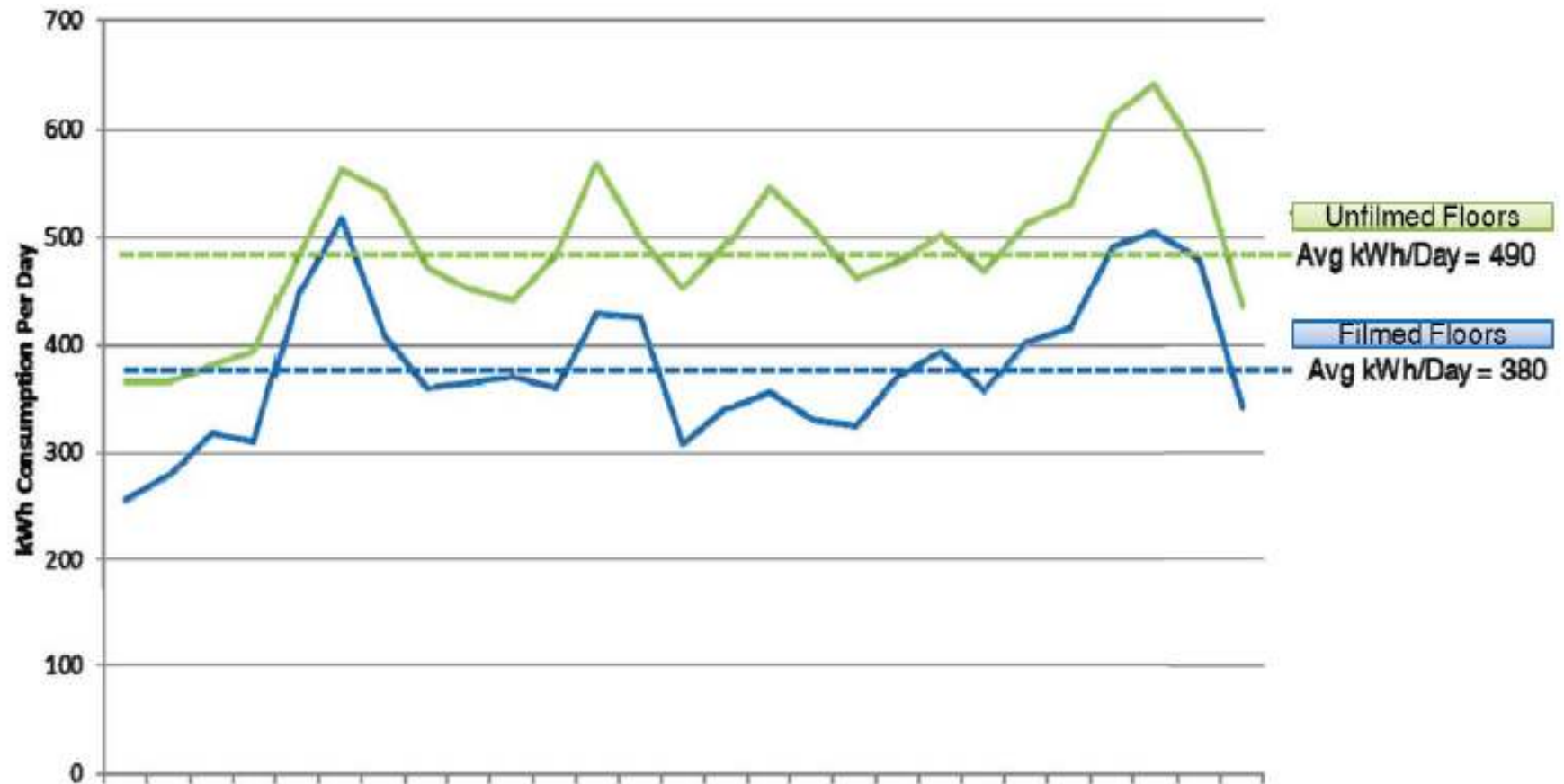


# Summer Performance

During the period below, for the Hyatt Regency Houston, EnerLogic provided a 22.4% savings in summer cooling kwh

## Summer kWh Comparison - July 23, 2012 to August 20, 2012

- The chart below compares measured energy use from 7/23 to 8/20 across all unfiled and filmed floors
- The filmed floors consumed 22.4% less energy than the unfiled floors for the summer period
- Both filmed and unfiled rooms follow a similar energy use pattern, but filmed rooms consume less energy
- Loads closely match weather conditions

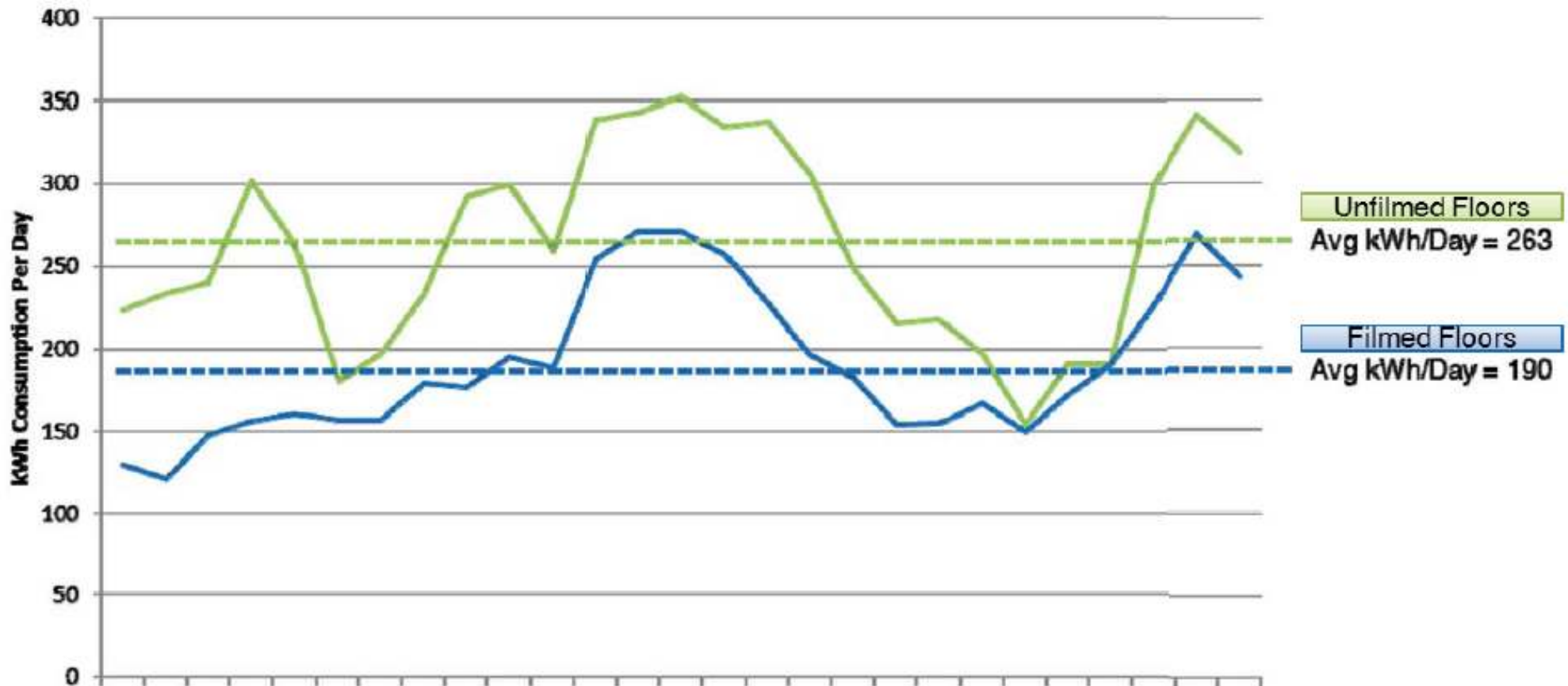


# Winter Performance

During the period below, for the Hyatt Regency Houston, EnerLogic provided a 27.8% savings in heating kwh

## Winter kWh Comparison – December 20, 2012 to January 17, 2013

- The chart below compares measured energy use from 12/20 to 1/17 across all unfilmed and filmed floors
- The filmed floors consumed 27.8% less energy than the unfilmed floors for the winter period



# ABOUT THE PRODUCT

## Care and Maintenance

- **Most installations should be allowed to cure for 7 to 30 days.**
- **Non-abrasive window cleaners may be used once the film is cured.**
- **With a little care, the film's scratch-resistant coating will offer years of durability – many installations in use for 10-20 years.**



# CONCLUSION

Are There Any Questions?

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