

A better environment inside and out.®

Energy Efficiency and Financial Analysis Report

Capshot 2.2.11

July 24, 2018

Manchester HQ

Silver 20



Saint-Gobain Performance Plastics
4540 Viewridge Ave
San Diego, CA 92123
T + 1 858 576 0200
www.solargard.com



Re: Manchester HQ

Dear Sir,

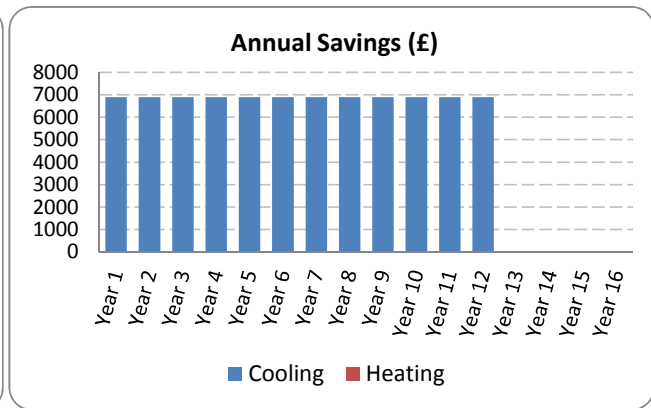
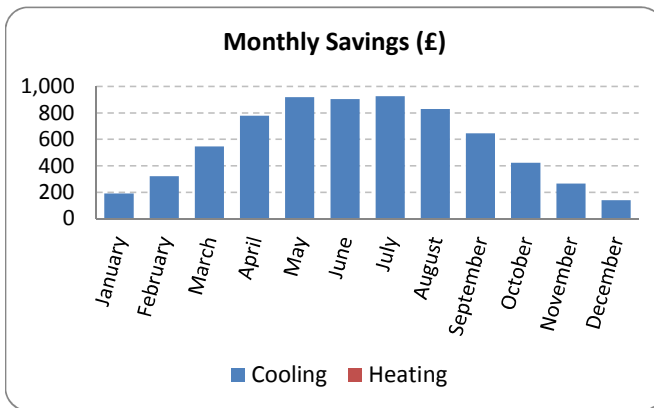
Thank you for the opportunity to perform an Energy Efficiency and Financial Analysis on your building. Solar Gard® solar control architectural film is a proven Energy Conservation technology with great Environmental Sustainability and Business benefits. We hope it will allow you to make a more informed decision regarding the purchase of Solar Gard energy control film.

Your dedicated Solar Gard Energy Conservation Team has generated the following estimated savings and benefits for your building:

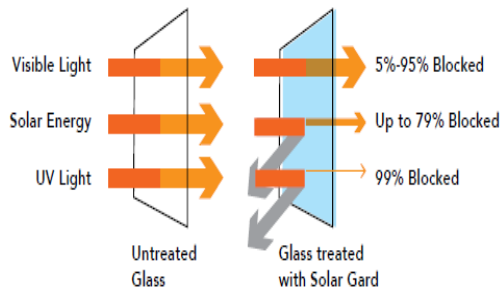
Simple Payback (Years) 3

	Annual	Warranty period
kWh reduction	53,016	636,188
Energy cost savings £	6,892	83,028
Carbon emissions reduction (kg CO²)	25,186	302,232

Carbon emission reduction is equivalent to	Annual	Warranty period
Barrels of oil saved	58	695
Trees planted	645	7,737



Window Film Benefits



- Block over 99% of harmful ultraviolet light
- Reduce fade damage
- Increase thermal comfort
- Reduce hot-spots
- Reduce computer monitor glare and eye strain
- Create uniform exterior appearance and privacy

Energy Analysis Modeling

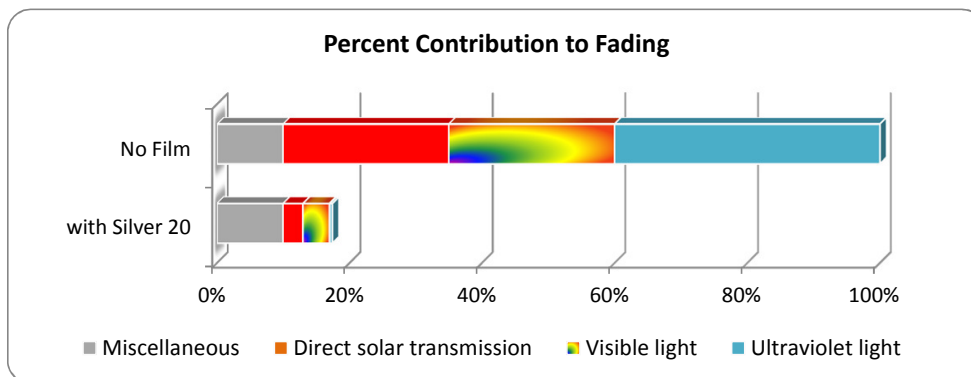
By submitting the glass type, area of glass surfaces and the orientation of glass, you have enabled us to conduct an energy analysis using a program called Capshot. Capshot software uses your building information, your regional weather information, your estimated HVAC efficiency, and utility gas and electric costs to calculate energy saved with the Solar Gard film.

We have assumed the following information in the Capshot energy analysis:

• Radiation profile for:	UK, Manchester
• When the heater is on during the day:	Cloudy
<i>Usually cloudy conditions were used – Intermittent solar heat gains still need to be removed by air conditioning</i>	
• Internal building heat load:	High occupancy
• Building occupancy schedule:	24 hours per day
• Window type:	Double pane clear
• Window film name:	Silver 20
• Warranty term: (Years)	12
• Total install cost: (£)	21,000
• North facing glass: (m ²)	0
• East facing glass: (m ²)	0
• South facing glass: (m ²)	300
• West facing glass: (m ²)	300
• Skylight facing glass: (m ²)	100
• HVAC efficiency: (EER)	12
• Averaged electricity cost:(£)	0.13/kWh
• Boiler/heating efficiency:	75%
• Averaged gas cost:(£)	Gas not used

Fade Reduction & UV Protection

The Solar Gard energy control film also reduces fading by blocking up to 99% of ultraviolet radiation (UV). Fade reduction will reduce the rate at which interior furnishings such as carpeting and furniture need to be replaced. Solar Gard films help by filtering visible light, rejecting solar heat and blocking over 99% of harmful UV light – significantly reducing fading damage potential.



Glare Reduction

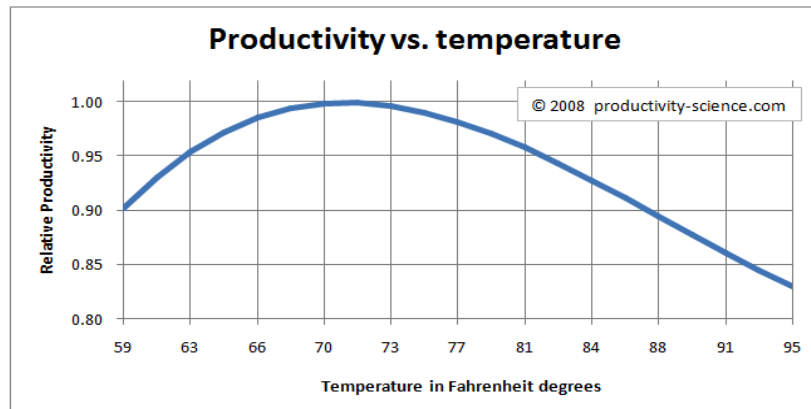
The Solar Gard energy control film will not only provide the estimated energy savings detailed above but will also cut computer monitor glare, reduce the use of blinds and other window coverings, letting in natural light and adding to a building's aesthetics. It can also help reduce light pollution in the night sky.

Productivity vs. Temperature

Scientific studies confirm that indoor temperature can significantly impact on productivity and most performing 'comfort zone' lays between 72° F (22° C) and (77° F) 25° C. The graph below is from research by Helsinki University of Technology and Lawrence Berkeley National Laboratory. Read report here:

<http://energy.lbl.gov/ied/pdf/60946.pdf>

Solar Gard architectural film can help reduce the Solar Energy and Heat inside your building which can reduce your cooling load and help you keep your occupants more comfortable and productive. 'Effect of Temperature on Task Performance in Office Environment' shows how relative productivity changes with the temperature.



Next Step

We thank you for working with Solar Gard on your Energy Conservation Project and look forward to hearing from you to make this project a great success. Should you have any questions regarding this report, please contact:

Name: Mr Richard Lancaster
Title: Lustalux
Address 1:
Address 2:
Phone: 01772726622
email: richard@lustalux.co.uk

Disclaimer

The following report (the "Report") has been generated by software belonging to Saint-Gobain Solar Gard LLC ("Solar Gard") and is provided to you for information purposes only.

The Report is based on the information provided by you and is based on simulated conditions inside and outside the building. Actual weather patterns and temperatures inside and outside the building may vary significantly from year to year.

This Report is not meant to be representative of the conditions of any other climate zone or any other building and it is not predicative of future conditions.

Therefore, all data contained in this Report are estimates only. Reliance upon this Report is in any way at your sole risk.

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