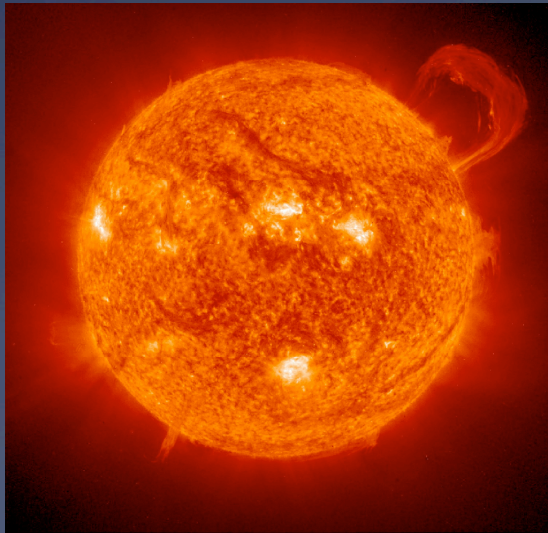


RESEARCH FRONTIERS INC.

SPD-SmartGlass™

Energy Efficiency and Windows Blocking Heat Gain from Sunlight



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Windows and Energy Efficiency: Blocking Heat Gain from Sunlight

Solar Heat Gain Coefficient

- SHGC: Measures how well a window blocks heat
- Expressed as a number between 0.00 and 1.00
- The lower the number – the less heat enters
- Example: 0.40 = 40% of sun's heat enters

SHGC in Typical Windows

One method to lower SHGC is by reducing visible transmission

<u>Typical Window</u>	<u>Visible Light Transmission</u>	<u>SHGC</u>
Clear single pane	71%	0.72
Clear IGU	63%	0.60
Tinted IGU	42%	0.38
Reflective coating IGU	10%	0.17

SHGC in Typical Windows

Another method to reduce SHGC is to use low-e coatings

<u>Typical IGU Window</u>	<u>Visible Light Transmission</u>	<u>SHGC</u>
Low-e + Clear Glass	57%	0.34
Low-e + Tinted Glass	43%	0.27

Energy Efficient Smart Windows

Light control leads to improved energy efficiency

- DOE Estimates: Tintable Smart Windows
 - Up to 40% savings on energy bills
 - Up to 20% savings on operating costs
 - Up to 24% reduction in peak demand
 - Up to 25% reduction in size of HVAC system

Introducing the World's Most Energy Efficient Windows

SPD-SmartGlass™

Typical SPD-Smart IGU Window

Visible Light Transmission

SHGC

SPD + Clear Glass

<0.5% - 51.0%

0.29 – 0.57

SPD + Low-e Glass

<0.5% - 37.0%

0.06 – 0.25

Source: DSET Laboratories, a division of Atlas Material Testing Technology
In accordance with ASTM and ASHRAE testing and calculation protocols.