



In'Flector Window Insulator

Solar Loading & Insulator
Evaluation

Celsius Temperature Recording

Western Ontario, Canada

Winter

2009



Solar Loading Temperature Recording Nov. 29 & 30 2009

The solar loading performance and the insulating performance of the In’Flector Window Insulator was recorded with East facing double pane low-e argon gas filled windows. Conditions recorded every ½ hour include; the amount of sunshine, surface temperature recordings of the wall beside the window, surface temperature of the In’Flector with a window screen between the In’Flector and the window, surface temperature of the In’Flector and the surface temperature of a non-insulated double pane low-e window argon gas filled window. Test Location Windsor, Ontario; test equipment Raytek Raynger MX.

Nov. 29/09 East Facing Window

| Weather Conditions | Time of temp recording | Surface Temperature of wall | Surface Temperature of In’Flector | Surface temperature of low-e window non-insulated | Outside Temperature |
|---------------------------------|------------------------|-----------------------------|-----------------------------------|---|---------------------|
| Sunny with thin cloud | 8:00 AM | 19.4 | 21.1 | 17.7 | -0.2 |
| Sunny with thin cloud | 8:30 AM | 19.4 | 27.2 | 18.8 | -0.2 |
| Sunny with thin cloud | 9:00 AM | 19.4 | 30.5 | 19.4 | 0 |
| Sunny with thin cloud | 9:30 AM | 19.4 | 32.7 | 23.6 | 1 |
| Sunny with thin cloud | 10:00 AM | 19.4 | 31.1 | 21.9 | 2 |
| Minimal Sun striking the window | 10:30 AM | 19.7 | 27.5 | 21 | 2 |
| No Sun | 11:00 AM | 20 | 25.5 | 20.5 | 3 |
| No Sun | 11:30 AM | 20.5 | 24.7 | 19.4 | 3 |
| No Sun | 12:00 PM | 20.5 | 23.6 | 18.8 | 4 |
| No Sun | 12:30 PM | 20.2 | 21.6 | 18.3 | 4 |
| No Sun | 1:00 PM | 20 | 20.8 | 18.3 | 5 |
| No Sun | 1:30 PM | 20 | 20.5 | 18.3 | 5 |
| No Sun | 2:00 PM | 20 | 20.3 | 18.3 | 6 |
| No Sun | 2:30 PM | 19.7 | 20 | 18 | 6 |
| No Sun | 3:00 PM | 19.4 | 19.4 | 17.7 | 7 |

Nov. 30/09 East Facing window

| Weather Conditions | Time of temp recording | Surface Temperature of wall | Surface Temperature of In’Flector | Surface temperature of low-e window non-insulated | Outside Temperature |
|---------------------|------------------------|-----------------------------|-----------------------------------|---|---------------------|
| Clear & Sunny | 8:30 AM | 19.4 | 35 | 21.1 | 1 |
| Clear & Sunny | 9:00 Am | 19.4 | 36.1 | 21.3 | 1 |
| Clear & Sunny | 9:30 AM | 19.4 | 36.9 | 21.3 | 2 |
| Partial cloud cover | 10:00 AM | 19.4 | 35.3 | 21.3 | 2 |
| Overcast | 10:30 AM | 19.1 | 23.3 | 20 | 3 |
| Overcast | 11:00 AM | 19.1 | 21.9 | 19.4 | 3 |
| Overcast | 11:30AM | 19.1 | 20 | 19.1 | 3 |
| Overcast | 12:00 PM | 19.1 | 20 | 19.1 | 4 |
| Overcast | 12:30 PM | 19.1 | 20.2 | 19.1 | 4 |

Nov. 29/09 South Facing Window

| Weather Conditions | Time of temp recording | Surface Temperature of wall | Surface Temperature of In'Flector | Surface temperature of low-e window non-insulated | |
|-----------------------|------------------------|-----------------------------|-----------------------------------|---|---|
| Sunny with thin cloud | 10:00 AM | 19.4 | 33.9 | 25 | 2 |
| Sunny with thin cloud | 10:30 AM | 19.7 | 34.7 | 25 | 2 |
| Sunny with thin cloud | 11:00 AM | 20 | 36.1 | 27.2 | 3 |
| Sunny with thin cloud | 11:30 AM | 20.5 | 38.6 | 29.1 | 3 |
| Heavy Cloud | 12:00 PM | 20.5 | 32.7 | 25.5 | 4 |
| Heavy Cloud | 12:30 PM | 20.3 | 27.2 | 22.7 | 4 |
| Heavy Cloud | 1:00 PM | 20 | 24.4 | 20.8 | 5 |
| Heavy Cloud | 1:30 PM | 20 | 24.1 | 20.5 | 5 |
| Heavy Cloud | 2:00 PM | 20 | 21.6 | 19.7 | 6 |
| Heavy Cloud | 2:30 PM | 19.7 | 21.1 | 18.8 | 6 |
| Heavy Cloud | 3:00 PM | 19.4 | 20.3 | 18.8 | 7 |
| Heavy Cloud | 3:30 PM | 19.4 | 19.4 | 17.7 | 7 |

Nov. 30/09 South Facing Window

| Weather Conditions | Time of temp recording | Surface Temperature of wall | Surface Temperature of In'Flector | Surface temperature of low-e window non-insulated | Temperature Outside |
|--------------------|------------------------|-----------------------------|-----------------------------------|---|---------------------|
| Clear & Sunny | 9:30 AM | 19.4 | 35.5 | 21.3 | 2 |
| Clear & Sunny | 10:00 AM | 19.4 | 36.4 | 21.3 | 2 |
| Overcast | 10:30 AM | 19.1 | 28.8 | 20 | 3 |
| Overcast | 11:00 AM | 19.1 | 28 | 18.8 | 3 |
| Overcast | 11:30 AM | 19.1 | 22.7 | 18.8 | 3 |
| Overcast | 12:00 PM | 19.1 | 23.3 | 18.8 | 4 |
| Overcast | 12:30 PM | 20 | 25.3 | 18.8 | 4 |
| Overcast | 1:00 PM | 19.7 | 25.8 | 18.8 | 4 |
| Overcast | 1:30 PM | 19.4 | 24.7 | 18.8 | 4 |
| Overcast | 2:00 PM | 19.4 | 23.3 | 18.8 | 4 |
| Overcast | 2:30 PM | 19.1 | 24.1 | 18.6 | 4 |

Important notes

- Nov. 29/09 the heating system did not come on between 7:30 and 2:30 PM = 7 hours free heat!
- Nov. 29/09 the interior ambient temperature of the home rose 1 degree Fahrenheit after 3 hours
- The In'Flector surface temperature remained warmer than the surface temperature of the wall, hours after no exposure to the sun!
- Nov. 30/09 occasional sun breaks caused temperature fluctuations of the surface temperature of the In'Flector

Dec. 01/09

Solar Loading

The solar loading performance and the insulating performance of the In'Flector Window Insulator was recorded with South facing double pane low-e argon gas filled windows. Conditions recorded every ½ hour include; the amount of sunshine, surface temperature recordings of the wall beside the window, surface temperature of the In'Flector with a window screen between the In'Flector and the window, surface temperature of the In'Flector and the surface temperature of a non-insulated double pane low-e window argon gas filled window.

Test Location Windsor, Ontario.

Test equipment Raytek Raynger MX.

Test Date Dec 1st/09

South Facing Window

| Sky Conditions | Time of temp recording | Surface Temperature of wall | Surface Temperature of In'Flector | Surface temperature of low-e window non-insulated | Outside Temperature |
|---|------------------------|-----------------------------|-----------------------------------|---|---------------------|
| Heavy Cloud | 10:00 AM | 19.4 | 19.1 | 17.7 | 4 |
| Thick Cloud occasional Sunny breaks | 10:30 AM | 19.4 | 23.3 | 17.7 | 4 |
| Sunny breaks with thin cloud | 11:00 AM | 19.4 | 31.6 | 20 | 5 |
| Sunny with thin cloud | 11:30 AM | 19.7 | 41.6 | 27.2 | 5 |
| Sunny | 12:00 PM | 20 | 44.7 | 29.1 | 5 |
| Sunny | 12:30 PM | 20 | 47.2 | 31.1 | 6 |
| Sunny | 1:00 PM | 20.2 | 48.6 | 31.1 | 6 |
| Sunny with thin cloud | 1:30 PM | 20.2 | 46.1 | 31.1 | 6 |
| Sunny with thin cloud | 2:00 PM | 20.5 | 42.7 | 27.8 | 6 |
| Sunny | 2:30 PM | 20.5 | 47.7 | 31.1 | 7 |
| Sunny with thin cloud | 3:00 PM | 20.5 | 45.5 | 30 | 7 |
| Sunny with thin cloud | 3:30 PM | 20.5 | 42.2 | 27.8 | 8 |
| Sun setting | 4:00 PM | 20 | 33.3 | 21.1 | 8 |
| Sunset | 4:30 PM | 19.7 | 26.1 | 18.8 | 7 |
| Dark | 5:00 PM | 19.4 | 23.3 | 17.7 | 7 |
| Dark | 5:30 PM | 19.4 | 20.2 | 17.7 | 6 |

Important notes

- Dec 1st/09 the heating system did not come on between 11:00 AM and 8:00 PM = 9 hours free heat!
- Dec 1st/09 the interior ambient temperature of the home rose 1.6 degrees Celsius after 3 hours
- The In'Flector surface temperature remained warmer than the surface temperature of the wall, hours after no exposure to the sun!

Dec. 06/09

Solar Loading

The solar loading performance and the insulating performance of the In'Flector Window Insulator was recorded with East facing double pane low-e argon gas filled windows. Conditions recorded every ½ hour include; the amount of sunshine, surface temperature recordings of the wall beside the window surface temperature of the In'Flector and the surface temperature of a non-insulated double pane low-e window argon gas filled window.

Date: Dec. 06/09
 Test Location Windsor, Ontario;
 Test equipment: Raytek Raynger MX.

East Facing Window

| Sky Conditions | Time of temp recording | Outside Temperature | Surface Temperature of In'Flector | Surface Temperature of low-e window non-insulated | Surface Temperature of interior wall beside window |
|------------------------|------------------------|---------------------|-----------------------------------|---|--|
| Sunny with thin cloud | 8:00 AM | -4 | 21 | 18.3 | 19.5 |
| Sunny with thin cloud | 8:30 AM | -3 | 23.3 | 18.8 | 19.5 |
| Sunny | 9:00 AM | -2 | 30.6 | 21.2 | 19.6 |
| Sunny with thin cloud | 9:30 AM | -2 | 31.4 | 21.7 | 19.6 |
| Sunny with thin cloud | 10:00 AM | -2 | 36.8 | 24.7 | 19.6 |
| Sunny with thin cloud | 10:30 AM | -2 | 32.5 | 23.4 | 19.6 |
| No Sun striking window | 11:00 AM | -2 | 27.6 | 20.1 | 19.7 |
| No Sun striking window | 11:30 AM | -1 | 23.2 | 18.8 | 19.8 |
| No Sun striking window | 12:00 PM | 0 | 23.2 | 18.8 | 20.3 |
| No Sun striking window | 12:30 | 1 | 22.5 | 18.8 | 21.4 |

South Facing Window

| Sky Conditions | Time of temp recording | Outside Temperature | Surface Temperature of In'Flector | Surface Temperature of low-e window non- insulated | Surface Temperature of interior wall beside window |
|-----------------------|------------------------|---------------------|-----------------------------------|--|--|
| Sunny with thin cloud | 9:30 AM | -2 | 23.6 | 19 | 19.6 |
| Sunny with thin cloud | 10:00 AM | -2 | 36.8 | 24.7 | 19.6 |
| Sunny with thin cloud | 10:30 AM | -2 | 42.5 | 27.3 | 19.6 |
| Sunny | 11:00 AM | -2 | 47.1 | 29.4 | 19.7 |
| Sunny | 11:30 AM | -1 | 49.2 | 30.4 | 19.8 |
| Sunny | 12:00 PM | 0 | 50.2 | 31.6 | 20.3 |
| Sunny | 12:30 PM | 1 | 52.3 | 32.6 | 21.4 |
| Sunny | 1:00 PM | 1 | 53.8 | 32.6 | 21.7 |
| Sunny | 1:30 PM | 2 | 52.5 | 32.3 | 21.7 |
| Sunny | 2:00PM | 2 | 52.7 | 32.6 | 22 |
| Sunny | 2:30 PM | 2 | 50 | 31.8 | 22 |
| Sunny | 3:00 PM | 2 | 47.3 | 30.6 | 22 |
| Thin cloud | 3:30 PM | 2 | 32 | 23.6 | 21.6 |
| Cloud Cover | 4:00 PM | 1 | 26.4 | 20.2 | 21.1 |

Important notes

- Due to the changing tilt of the Earth on its axis as we approach the Winter Solstice the windows receive more direct sunlight; this is evident by the increased surface temperature of In'Flector from temperature recordings taken on November 29th/09.
- Dec. 06/09 the heating system did not come on between 10:00 AM and 6:30 PM = 8 1/2 hours free heat!
- Dec. 06/09 the interior wall temperature of the home rose from 19.5 degrees Celsius to 22 degrees Celsius
- The In'Flector surface temperature remained warmer than the surface temperature of the wall, hours after no exposure to the sun!

Dec 12/09

Solar Loading

The solar loading performance and the insulating performance of the In'Flector Window Insulator was recorded for East and South facing double pane low-e argon gas filled windows. Conditions recorded every ½ hour include; sky conditions, surface temperature recordings of the wall beside the window, surface temperature of the In'Flector and the surface temperature of a non-insulated double pane low-e window argon gas filled window.

Date: Dec. 12/09
 Test Location Windsor, Ontario;
 Test equipment: Raytek Raynger MX

East Facing Window

| Sky Conditions | Time of temp recording | Outside Temperature | Surface Temperature of In'Flector | Surface Temperature of low-e window non-insulated | Surface Temperature of interior wall beside window |
|------------------------|------------------------|---------------------|-----------------------------------|---|--|
| Sunny with thin cloud | 8:00 AM | -5 | 21 | 17.7 | 19.2 |
| Sunny with thin cloud | 8:30 AM | -4.6 | 23.3 | 17.7 | 19.2 |
| Sunny | 9:00 AM | -4 | 30.1 | 17.7 | 19.2 |
| Sunny with thin cloud | 9:30 AM | -3.1 | 35.1 | 24.3 | 19.2 |
| Sunny with thin cloud | 10:00 AM | -2 | 34.9 | 24.1 | 19.4 |
| Sunny with thin cloud | 10:30 AM | -0.8 | 33.8 | 23.7 | 19.4 |
| No Sun striking window | 11:00 AM | 0 | 29.2 | 20 | 19.4 |
| No Sun striking window | 11:30AM | .3 | 23.4 | 17.7 | 19.4 |
| No Sun striking window | 12:00 PM | 1 | 22.3 | 18.3 | 20.2 |
| No Sun striking window | 12:30 PM | 1 | 21.9 | 18.1 | 20.6 |

South Facing Window

| Sky Conditions | Time of temp recording | Outside Temperature | Surface Temperature of In'Flector | Surface Temperature of low-e window non-insulated | Surface Temperature of interior wall beside window |
|-----------------------------|------------------------|---------------------|-----------------------------------|---|--|
| Sunny | 9:00 AM | -4 | 28 | 17.7 | 19.2 |
| Sunny | 9:30 AM | -3.1 | 35.1 | 24 | 19.2 |
| Sunny | 10:00 AM | -2 | 39.2 | 26.9 | 19.4 |
| Sunny | 10:30 AM | -0.8 | 41.9 | 28.4 | 19.4 |
| Sunny | 11:00 AM | 0 | 45.9 | 31.1 | 19.4 |
| Sunny | 11:30 AM | .3 | 52.6 | 32.7 | 19.4 |
| Sunny | 12:00 PM | 1 | 52.9 | 34 | 20.2 |
| Sunny | 12:30PM | 1 | 53.2 | 34 | 20.6 |
| Sunny | 1:00PM | 2 | 54.4 | 37.3 | 20.9 |
| Sunny | 1:30 PM | 2 | 51.8 | 32.1 | 21.2 |
| Sunny | 2:00 PM | 2 | 53.1 | 32.3 | 21.4 |
| Sunny with thin cloud | 2:30 PM | 2 | 50.6 | 31.6 | 21.4 |
| Sunny patches heavier cloud | 3:00 PM | 2 | 47 | 30.4 | 21.3 |
| Heavy cloud no sun | 3:30 PM | 2 | 38.4 | 27.8 | 20.7 |
| Heavy cloud no sun | 4:00 PM | 2 | 29.3 | 22.3 | 20.3 |
| Heavy cloud no sun | 4:30 PM | 1.5 | 21.4 | 17.6 | 20 |

Important notes

- Due to the changing tilt of the Earth on its axis as we approach the Winter Solstice the windows receive more direct sunlight; this is evident by the increased surface temperature of In'Flector from temperature recordings taken on December 06//09.
- Dec. 12/09 the heating system did not come on between 8:00 AM and 4:45 PM = 8 hours and 45 minutes of free heat!
- Dec. 12/09 the interior wall temperature of the home rose from 19.2 degrees Celsius to 21.4 degrees Celsius which is lower than the interior wall temperature of Dec. 06/09 temperature recordings however the overall temperature in the home from the solar loading produced an extra 15 minutes of free heat over that of Dec. 06/09
- The In'Flector surface temperature remained warmer than the surface temperature of the wall, hours after no exposure to the sun!