

NORTHERN <> COMFORT

Stop the Heat from Flying out Your Windows

Interior Thermal Magnetic Acrylic Storm Windows History

John Wilson has lived in Terrace Bay since 2007. After 28 years in the electrical trade and seeing the economy in North Western Ontario decline, he feels there is a need for people in this region to save money on their heating costs. He has found that this product is not a gimmick and actually saves you money on your heating bill so he opened Northern <> Comfort to supply the northern communities with a money saving product.

Product History

Interior Thermal Magnetic Acrylic Storm windows are not a new idea. They were first done in the deep southern states to reduce the cost of air conditioning and to dramatically reduce the level of noise pollution in homes and offices.

They have been done in Canada for over twenty years, with many public buildings in Eastern Ontario having them put on. (Belleville Hospital, North York Libraries, Timothy Eaton Memorial Church and many others)

The Acrylic panels used are the same as the windows' found on all airline jets because they do not transmit the bitter cold of the minus 70 Celsius temperatures that exist at the altitudes that the jets fly at. These panels have been used for over 40 years without being "improved upon" because nobody has found anything better.

The big question that seems to be asked is "Why don't the window manufacturers just make their windows with acrylics right from the start?" Well, actually, one manufacturer did.

Around 1986, Wilmar windows (also makers of the brand "Hi-Therm") put a transparent sheet of "mylar" as the center pane in a normal-looking triple pane window. Mylar is roughly in the same family of acrylics and this produced amazing "R" values in the window...for a while. Unfortunately for Wilmar windows, another property of acrylics is that they expand and contract in heat and cold and the transparent film didn't stay in the frame very well. Due to thermal expansion and contraction the sheet ripped apart inside the frame. That is why we have our sheet of acrylic in a frame that will allow the sheet to move within the vinyl frame without disrupting the air-tight seal.

The acrylic we use is FF grade acrylite that is U. V. stable and is optically virtually the same as glass. It also has an "R" value of 1.7.

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We combine this fantastic material to a magnetic frame and bond coloured metal banding to the windows' perimeter not unlike the seal that refrigerators and deep freezers use, thereby creating an air tight seal against all drafts, creating a dead air space that forms an insulating barrier that extends to the outside pane of glass. The result is a window of more than double the "R" value of the very best window you can buy. This trouble free system is very simple, with no moving parts to ever wear out or break down.

Facts About Dual and Triple Pane Windows

The basic sad fact is that glass is great to look through but is a horrible insulator.

Glass windows were made to see through and keep out the wind and rain.

Window manufacturers know this and add Low E coatings and fill the space between the window panes with a heavy inert gas like argon, to try to reduce the amount of temperature transfer, but by their very nature cause them to conduct heat and cold easily.

Windows can develop a seal failure, causing fogging between panes and a loss of efficiency.

This is caused by the cold window glass creating condensated water that runs down to the bottom and is absorbed by the desiccant that the window manufacturer put there to insure a sealed unit. Once this desiccant is saturated and the outside temperature drops enough to freeze this water, the frozen ice expands and physically separates the glass pane from the seal, creating a gap that allows water to creep up the center and gives the foggy window appearance.

Over a period of time, this water will rot the sills and create mold on the walls themselves. The cause of this condensation on the inside glass is because your windows are basically doing the job of a dehumidifier. Warm, moist air comes in contact with a very cold surface and the air can no longer keep the water that is dissolved in it and this water collects on the cold surface. This is what is referred to as the "Dew Point."

To try to combat this "window sweating" the manufacturers' will try to persuade the consumer into buying triple pane windows with Argon gas inside them. This is the best insulating window with an "R" value of approx. R 4.3. This is also the most expensive window you can buy. This also makes the windows' "sash" very heavy and can cause them to wear out sooner. It's really simple, 3 panes of glass make the window sash 50 percent heavier, and many retrofit window manufacturers just squeeze an extra pane of glass into a dual-pane frame so you only have two one-quarter inch dead air spaces. Not only is an expensive window to buy, it absolutely does not increase your "R" value any appreciable amount. Simply put, you are getting scammed.

Why Is My House Cold?

To understand this, we need a short lesson in thermo dynamics. First, there is no such thing as “cold”, only an absence of heat. Second, hot always moves towards cold. Try an experiment at home. Boil 2 eggs in a 10 inch diameter pot. After about 5 minutes of boiling, remove from the heat and, in your sink, run cold water on the opposite side of the pot from the eggs. Magically the eggs will move to the cold water stream. The same thing occurs in your house. The warm air moves toward your windows and cools down. In the case of a drafty window, the air actually leaves the house. This creates a net drop in pressure in the house and forms a slight vacuum. This vacuum then pulls outside air into the house through the tiny cracks and fissures in the house. (i.e. door frames, wall electrical plugs), and anywhere else air can seep in. If these pathways that warm air escapes are shut off, then outside air will not enter because a room will not self-pressurize.

A five gallon pail only holds five gallons of water no matter how much you try to put in!

The same holds true with the air inside your home, seal off the escape and no more drafts can enter and those colder rooms will now be warmer.

Now For The Good News,...

The Inside Thermal Magnetic Acrylic Thermal storm window will not permit your costly inside warm air from touching the cold glass and leaving your home so all the money you spend to warm your home does not “fly out the window”.

Here in Ontario, we live in an environment that can and does get temperatures that can go as low as minus 50 Fahrenheit with the “wind-chill” and we need an average temperature of plus 70 Fahrenheit to be comfortable. **That is a difference of 120 degrees.** For this type of thermal protection, the fact is that glass alone is simply not enough. The best protection from the extreme bitter cold and horrendous wind-chill is the same acrylic windows that the airlines rely on, and now, this is available to you.

Inside Thermal Magnetic Acrylic Storm windows also greatly increase your windows’ seal life by stopping the warm air inside your home from touching the glass in the first place and effectively eliminating the formation of all that horrible condensation.

Much is said about “solar heat gain” and “passive solar heating”. This is the free heat from the sun in the form of short wave radiation. This heat passes right through acrylic. The only difference acrylic windows make on this form of heat is that while the glass amplifies this heat so that you feel it, the glass also conducts the outside cold so as you get nearer to the glass window, you feel the cold radiating from it.

With the Inside Thermal Magnetic Acrylic Storm window on the worst window ever made , the solar heat comes through but now there is no cold feeling from the glass itself so the window actually warms the home much more than before and due to the “R” value being three times what it was, *the heat STAYS much longer.*

True or false? Is a well insulated house warmer in the winter, AND cooler in the summer????

Anyone that spends the cash to run an air-conditioner in the summer knows, the more insulation, the better. Roughly speaking, it costs twice as much money to remove one degree of heat in your home as it does to add one degree!

Acrylic storm windows will cut window surface temperature in a home by 3 degrees.

(Actual testing done at Nolalu Eco Center on First Street Nolalu)

Financial Returns

Your furnace probably puts out anywhere from 110,000 to 160,000 Btu’s per hour and this heat is what maintains your comfort level and keeps the water lines from bursting. To decrease this expense you must do one of two things. Either make more heat from the same money, or stretch the heat you make now, farther.

Imagine your home heating situation as if it was a colander under a kitchen faucet

All of the areas in your home that lose heat can be compared to the holes on the colander. If you try to use the kitchen faucet to fill the colander you find that the water runs out before it fills. The biggest “holes” in your home are the windows. Even an un-insulated house still has fairly decent “R” value in the walls and attic because the wood itself insulates pretty good.

In a “well” insulated house the walls are probably R 20 or greater and the attic “R” 30 or greater.

The fact is a normal house has about 120 square feet of window area at “R” 2.6 or less.

"R" VALUES OF WINDOW MATERIALS

<u>Type</u>	<u>"R" Value</u>
Dual Pane Glass	2.1
Dual Low E w Argon	2.8
Triple Pane	3.1
Triple Pane & Dual Hardcoat Low E & Dual Argon Gas Filled	4.1
Acrylic	1.7
Acrylic with 3 Inches Captured Air	2.7

TOTAL= 4.3 to 4.4

Plus whatever you had originally = 6.5 "R" value or better!

What all these numbers mean is that when we triple the " R " value , we cut the heat you lose through the windows to one third of what it was , or like sealing off the vast majority of those colander holes so you need much less water to fill it !

Basically, the very best glass window that can be bought, (regardless of price) is still,

Roughly half as good as your present window with a Thermal Magnetic Acrylic Storm window attached to the inside of your home.

So What Are my Options?

In previous years the heat bill was high, the home was cold and uncomfortable, water was on the glass and on the window sill, and you wished it would all go away.

First option is, do nothing and what happened last year will happen this year.

Your heat bill will rise and you will not be happy.

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Second option is the conventional wisdom of replacing your windows with new ones.

The third option, add Interior Thermal Magnetic Acrylic Storm Windows.

Let us look at this from a monetary standpoint, because this IS to save money, right?

If the Thermal Magnetic Acrylic Interior window system cost the same as new replacements and, because they have up to 3 times the "R" value of replacement windows then that would make the Thermal Magnetic Acrylic Storm window system three times better the value of replacing.

The good news is that the Inside Thermal Magnetic Acrylic Storm system is only one-third the cost of replacements.

At one-third the cost of replacement windows and three times the heat efficiency, this makes adding the Interior Thermal Acrylic Storm windows the best choice NINE TIMES over!!!! If the experts say that replacing your windows is fiscally prudent, then would not NINE TIMES the return be better?

All heating fuel is very expensive and is not ever going to get cheaper.

You can expect to reduce your heating bill by anywhere from 20-30%, and do it all at a cost of roughly 1 / 3 the cost of replacement windows.

(Note: any replacement windows you buy are still only made of glass and the very best of them is still only about half as good as an interior thermal magnetic acrylic storm window)

Insulating your windows for cost savings.

Average cost to heat a home \$1,600.00/yr

Average **savings** with acrylic storms \$ 500.00/yr (more if A/C equipped)

Average cost of acrylic storm window system \$ 2200

Payback in 4 years

Noise Reduction

Noise pollution can be a real pain in your special sanctuary if you desire the quiet freedom from traffic, construction, noisy semi-trucks rattling down the road and in general, just plain old headache-causing clatter. Noise is reduced by approx 50 % with the 3.0 mm (one-eighth inch) acrylic panels. Office people especially benefit from a serene atmosphere and homeowners will enjoy the peace and tranquility that acrylic storm windows provide. This amazing window system even keeps out U. V. radiation that causes sun-fading on your furniture, wall, and floor coverings. Oh, another thing, indoor plants thrive with Interior Thermal Magnetic Acrylic storm windows.

The Bottom Line

As a rule, residential and commercial heating vents are centered under the window. So when your furnace cycles on to make heat, the heat made has to “fight” the cold of the glass and warm that glass up enough to allow the warm air to "roll" up to the ceiling and increase the room's temperature to the point that the thermostat (which is always on the inside wall) will send the signal to cycle off.

Since the Interior Thermal Magnetic Acrylic Storm window is not a cold surface, the heat produced will begin to “roll” right away and build up the temperature in the room. Also, because the heat created by the furnace leaves your home at only a small fraction of the rate that it did before, the heat WILL STAY much longer. You therefore use less heating fuel so the heating bill will drop.

While upgrading windows with new, more efficient and attractive replacements is a good idea and will give some money back upon sale of the house, the general thought should be one of simple economics. If you have to spend \$ 7,000 to \$ 10,000 to save \$ 300 a year on heating costs then that path is probably not a prudent choice. If you put, let us say \$ 7,000 in a bank, it would PAY you \$ 300 a year in interest. If the money to pay for these new windows is borrowed, the money actually spent is much, much greater due to the interest rates.

BUT, if you spend about a third of that \$ 7,500, and get double or more the savings, then the wisdom of getting Interior Thermal Magnetic Acrylic storm windows is pretty plain.

If you plan on selling your home, one of the first things a prospective buyer will look at is the heating bill. A home that spends only two-thirds the heating cost of a similar house will be a much more attractive property and sell much faster

Benefits

1. Do you like to be warm in the winter? No more window drafts or “cold spots!”
2. Replaceable in seconds, light weight.
3. Noise pollution is dramatically reduced.
4. Suitable for all window types.
5. Installed without disruption of the surroundings.
6. Eco-Friendly: 25% less heating fuel equals 25% less G.H.G. emissions.

Some people will want old windows, but the sad fact is a great percentage of it ends up in a landfill site.

7. FF grade acrylite does **NOT YELLOW**, (Bowater has had these on for 23 years)
8. Air conditioning costs are reduced.
9. Improves solar heat gain, because the warming radiation still comes through
10. Doesn't change the look of your home (heritage homes retain their elegance)
11. Very durable
12. Pay back on your investment is approximately 3 to 4 years
13. **Locally made and locally backed**
14. The seals in your present windows will last longer, due to the fact that they will not be subjected to condensation abuse anymore.
15. Lower heating bills equals increased resale of your home
16. **Condensation is eliminated**

SUMMARY

Much is said about adding insulation to attics, because we know heat rises and adding a vapour-barrier with Styrofoam to walls will reduce drafts, but a glaring fact is until now, no-one has addressed the one area of our homes that has been un-insulated, our windows.

An average home of 1200 square feet may have up to 120 square feet of “R” 2.1 or 3.1 at best with triple pane windows.

Up to now, the only options that were available to the homeowner was either put that saran-wrap with the sticky tape that makes a mess of the wood trim when it is removed every spring or spending large amounts of money on heavy, thick insulated drapery that does indeed makes things a little warmer but unfortunately defeats the whole purpose of having a window in the first place.

The Interior Thermal Magnetic Acrylic Storm window system is like putting an invisible shield to protect you against the outside elements that rob you of your comfort and cash from that special place you call your home!