

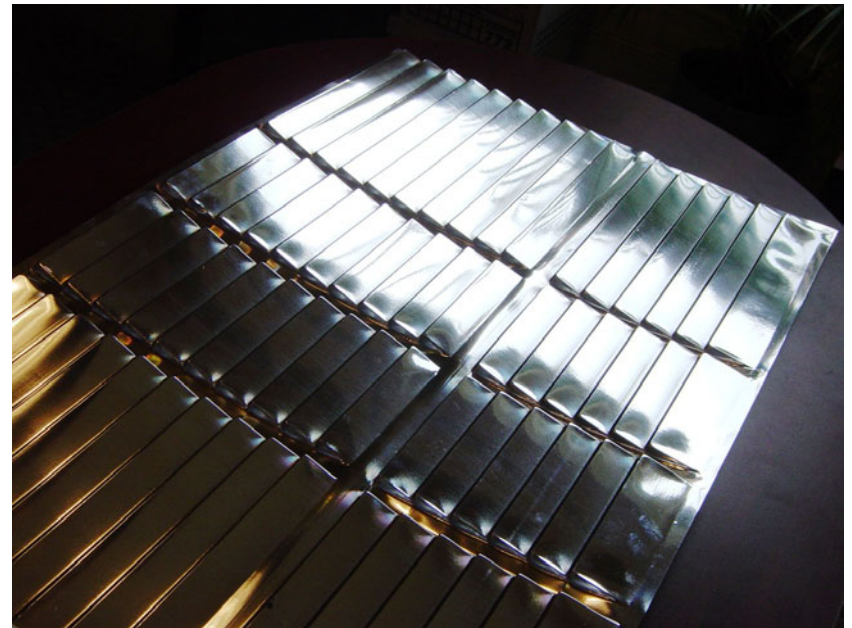
NOVITHERM™
HEAT REFLECTORS
REDUCE HEATING COSTS
and
IMPROVE COMFORT

What are Novitherm™ Heat Reflectors?

Heat Reflectors are an energy saving product designed for hot water heating systems in buildings older than 1980.

Scientifically designed to reflect radiant heat, they are installed in between the hot water heating units and the cold exterior wall.

This reduces heat loss and reflects the heat back into your home or building resulting in improved comfort levels, reduced energy heating requirements and reduced greenhouse gas.



THREE TYPES OF HEAT TRANSFER:

RADIATION

- DOES NOT BECOME HEAT UNTIL IT IS ABSORBED
- AIR IS NOT WARMED BY RADIATION

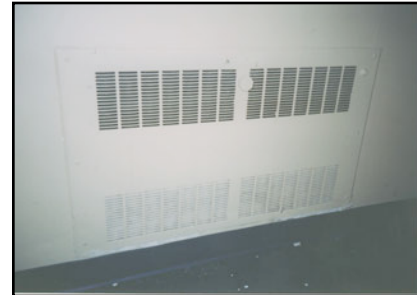
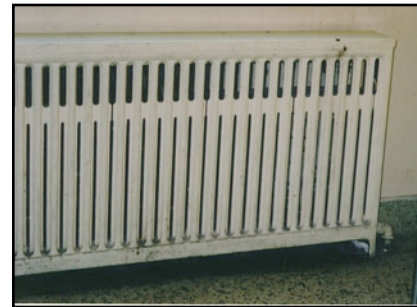
CONDUCTION

- TRANSFER OF HEAT ENERGY PHYSICALLY FROM MOLECULE TO MOLECULE

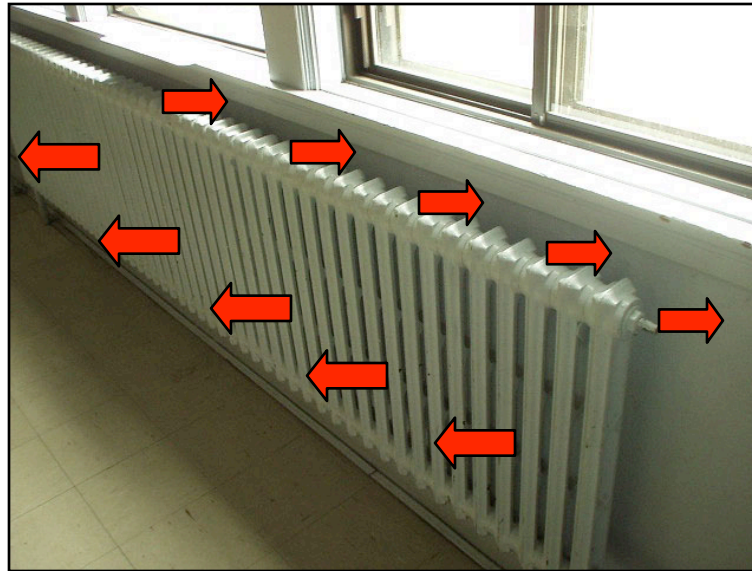
CONVECTION

- HEAT ENERGY IS TRANSFERRED THROUGH A GAS OR LIQUID BY CIRCULATION
- GOOD CONVECTION CURRENTS WILL MINIMIZE LAYERING

CONVECTORS and RADIATORS...

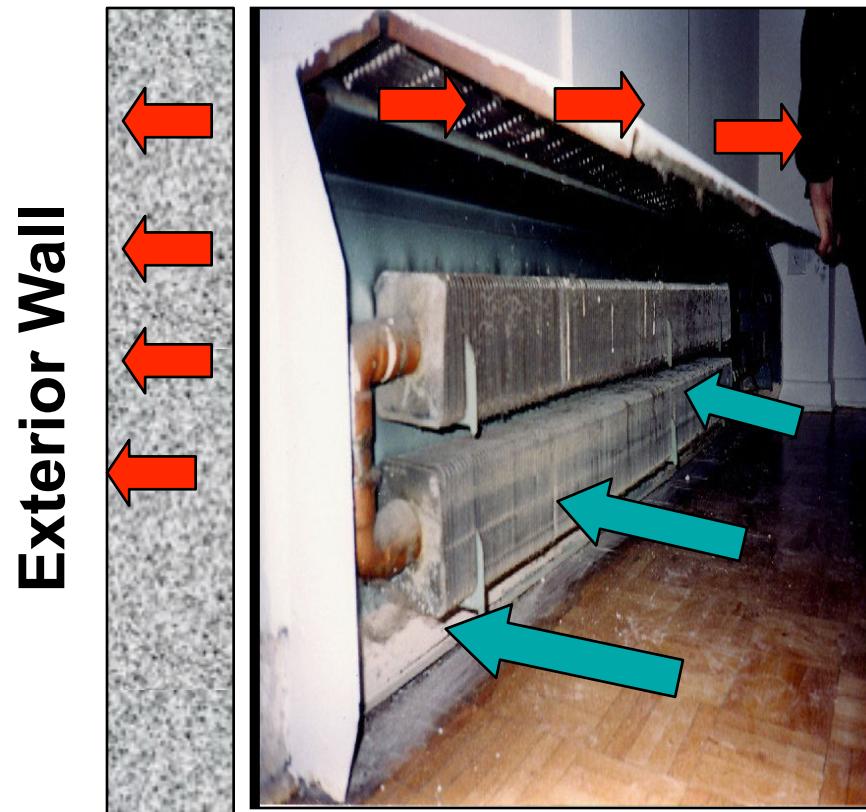


Radiators are designed to heat a space primarily through radiation. Their thick, heavy bodies provide a large thermal mass which stores the heat from your boiler water and gradually release it into the space.

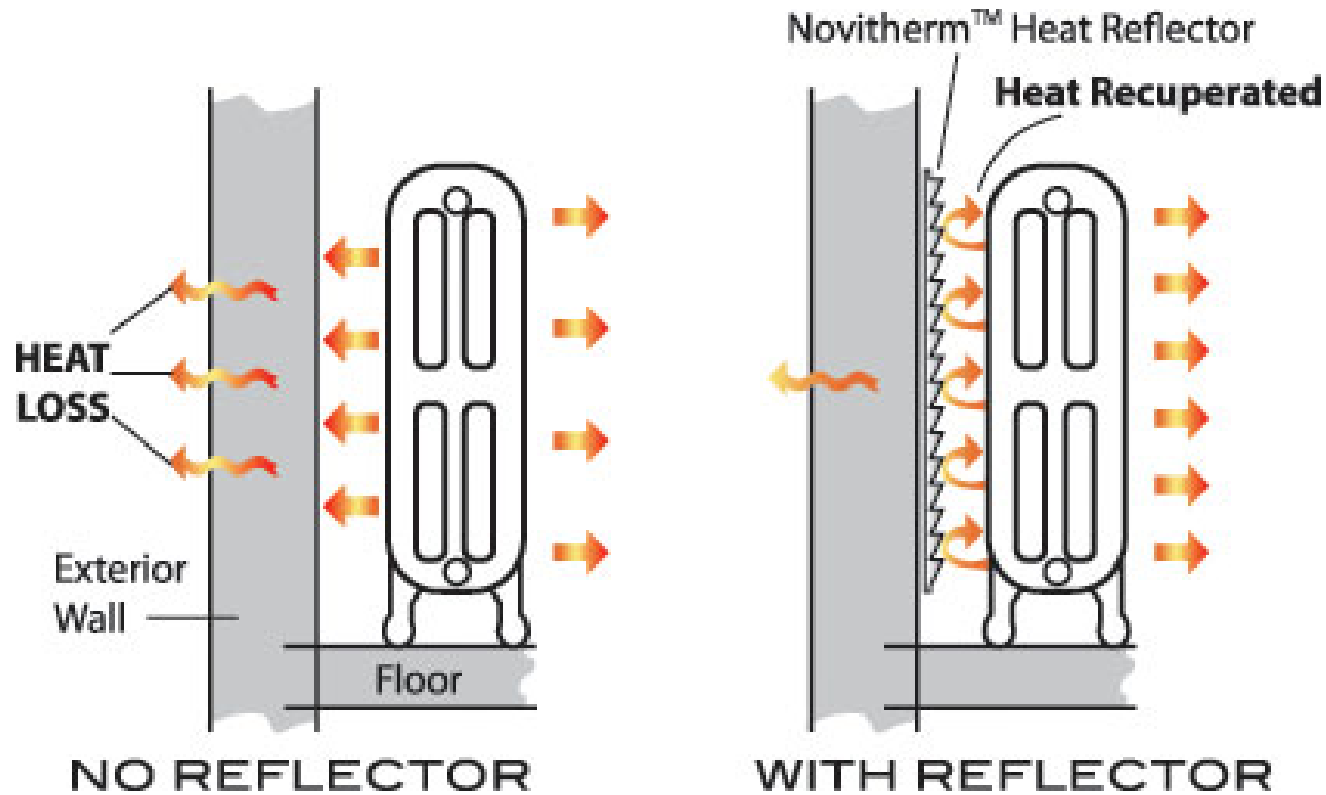


The infrared heat that is emitted travels in a straight line in all directions and heats up all objects in its path.

Convectors are designed to heat the cooler air from the floor as it passes through the finned tubes and then distribute the heated air throughout the space via convection, but there is still a significant infrared heat component.

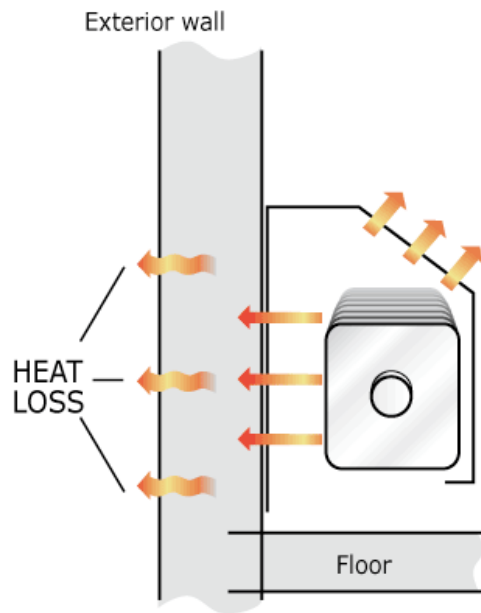


Heat Reflectors Work with Radiators

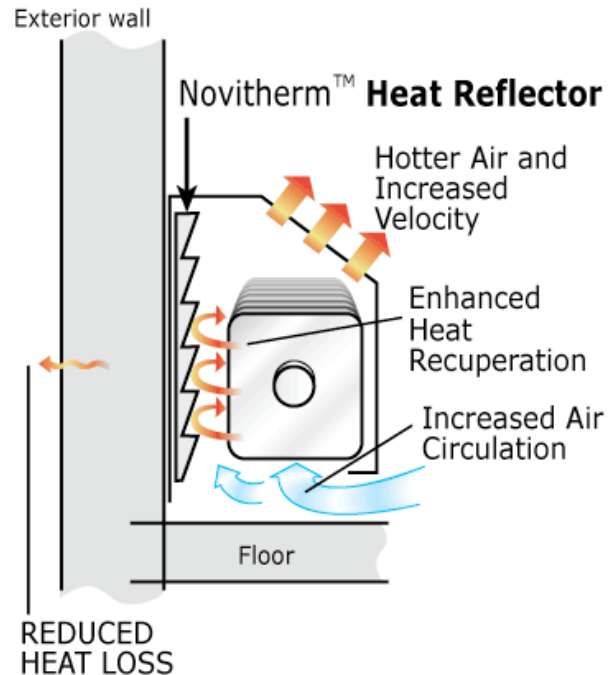


Heat Reflectors Work with Convectors

NO REFLECTOR



WITH REFLECTOR



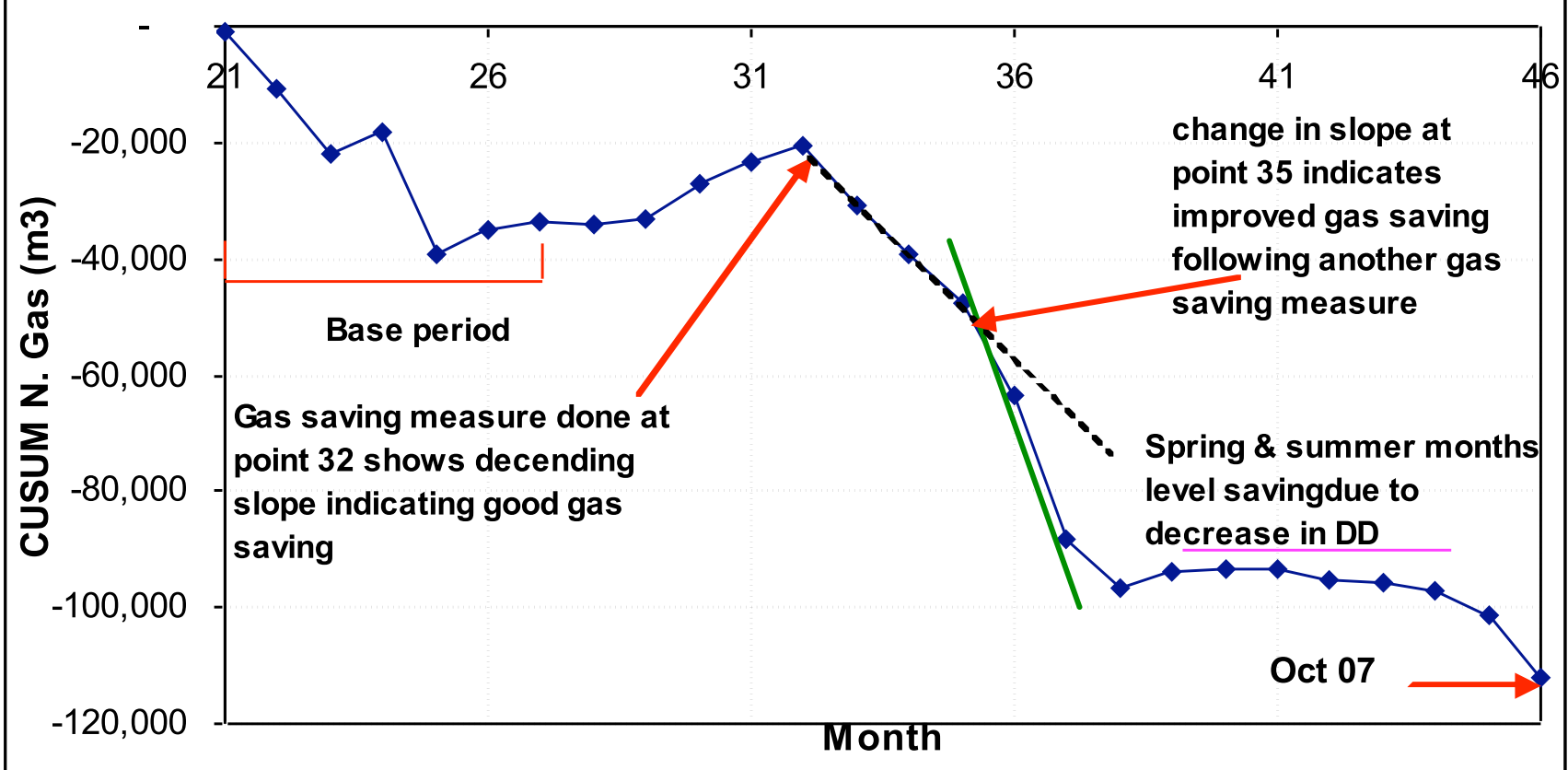
Calculation of Savings

$$\text{FUEL UNITS} / \text{HDD} = \text{HF}$$

$$\frac{\text{FUEL CONSUMPTION / HEATING DEGREE DAYS}}{\text{(FROM UTILITY) (FROM GOVERNMENT)}} = \text{HEATING FACTOR}$$

HEATING FACTOR BEFORE CONSERVATION
IS COMPARED TO
HEATING FACTOR AFTER CONSERVATION
FOR A SAVINGS %

Typical Gas consumption analysis using CUSUM Method
Sep 05 to Oct 07



FOLLOW UP INSPECTION & REPORTS:

- **System Temperature Profile** (Heating)
- **Combustion Analysis** (up to 4 Boilers)
- **Efficiency Analysis** (Heating)
- **CuSum Analysis** (Consumption report)
- **Final Reports** (Presentation, hard copy)

RESEARCH PROVES:

Tests performed at the University of Waterloo's Solar Energy Lab show that Novitherm™ Heat Reflectors have a thermal reflectivity of 93-95% of both long and short wave infrared heat.



3rd PARTY VERIFICATION ...

MULTI-RESIDENTIAL CLIENT

Sterling Karamar Ltd

- Four buildings at three sites, total of 627 apartments
- Heat Reflectors the only measure done, consumption monitoring was already in place -15 minute intervals
- 3rd party Engineer retained to verify savings - did regression analysis

average of the four buildings ...

Over **20% savings**



Enbridge Multi Choice
Incentive Program - Ontario



Energy Efficiency Fund
Incentive Program - Quebec

IN SUMMARY:

Novitherm Canada Inc. is the manufacturer of the Novitherm™ Heat Reflector used to reduce heat loss on exterior-facing walls.

Installed behind hot water radiators and fin-type convectors in older buildings, Novitherm™ Heat Reflectors are scientifically designed to reflect radiant heat, resulting in reduced heating requirements, improved occupant comfort levels, and reduced greenhouse gas.

This inexpensive and highly cost-effective measure offers high Total Resource Cost and low free-ridership rates for North American utilities and government agencies, to achieve considerable savings within residential, commercial and low-income DSM programs.

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