Norcross, Frank

From: Douglas Tolmer [douglas.tolmer@gmail.com]
Sent: Thursday, January 28, 2010 3:38 AM
To: Norcross, Frank
Subject: Weatherization of buildings

Attachments: TS USA.doc; ATT00001..txt


TS USA.doc (73 KB)


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Attn: Frank Norcross

Dear Frank

We are a new company that has developed and filed patents on a thermal insulation device used in homes that use wet central heating radiators to heat their homes. The device produces fuel savings by up to 30%. The Thermanator System can be applied to save fuel cost in air conditioned ducting given further research.

Best Regards
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THERMANATOR© SYSTEMS, L.L.C.

Thermal Insulation Energy Saver T-30R Devices - will revolutionize energy efficiency in Hydronic heating. T-30R devices modify the convective, conductive and radiative heat transfer between wall and radiator reducing carbon emissions and producing carbon allowances in the process.

Today the market is right for technologies that produce fossil free energy and equally important the market is right for products that reduce energy consumption and the emission of greenhouse gases in those areas where carbon based fuels will continue to be used for many years to come, products such as Thermanator© Systems patent pending T-30R device.

T-30R Benefits

- ✓ Produces carbon allowances
- ✓ Energy efficient
- ✓ Reduces GHG emissions
- ✓ Produces immediate results
- ✓ Increased room comfort
- ✓ Affordable
- ✓ Pays for itself within 12 months
- ✓ No maintenance, upkeep, or adjustment are required
- ✓ Easy to install
- ✓ Protects the wall from discoloration and deterioration
- ✓ Faster warm up time and eliminates cold spots

There is a real need for energy saving solutions that do not require major structural changes. The T-30R device produces measurable carbon allowances.

How does the Thermanator© T-30R retrofit invention work?

The T-30R is a device with double reflective surfaces and multiple trapped air spaces within a sealed unit. It takes advantage of the natural properties of air to better insulate and make more efficient your hydronic heating system.

- Reduces radiative heat transfer. Two reflective surfaces, protected by a white lamination to maintain emissivity, allow the radiant barriers to perform effectively.

- Reduces conductive heat transfer. T-30R acts as a moisture barrier between the external and or party wall. This allows it to take advantage of the inherent insulation properties of air without losing heat through moisture expansion leading to moisture migration through building materials.

- Reduces convective heat transfer. The profile of T-30R ensures that only the air in the room is heated maximising the efficiency of the radiator. This is achieved in two ways. Firstly a layer of stagnant air is created between T-30R and the radiator, insulating the heated air from the wall and exterior. Secondly the heated air is dispersed in the room in a figure eight pattern, heating the space within in the room to provide increased comfort faster.

- Reduces "night time set back". T-30R thermally insulates the radiator from the wall thereby minimizing the dynamic effects of heating and cooling of the building.

- Increases boiler efficiency. Thanks to the T-30R's ability to insulate the radiator from the wall and surrounding air the water in the central heating system will return to the boiler at a higher temperature. Less energy will be required to bring it back to the level needed to heat the air space.

What is Hydronic heating?

Hydronic heating uses hot water, heated in a boiler and then pumped through piping to panel radiators ("heat emitters"), to provide heating. Hydronic heating is not efficient. Heat is lost through the wall area directly behind the radiator and through the building envelope. To cover this loss more heat is required. The T-30R stops heat loss through the wall and the water returns hotter to the boiler requiring up to 30% less fuel to maintain a desired comfort level.

Retro Fit device T-30R

- The T-30R is designed to retro-fit existing radiators (sections are added or removed to make up various radiator lengths and heights).
- Manufacture is by thermoforming of the female profiles and male inserts; it is then assembled and packed ready for shipment.
- Installation is a simple and time efficient exercise.
- It is labelled, bar-coded and pre-taped with adhesive to allow for easy and immediate installation and carries fitting instructions.

How do you install the Thermanator© T-30R retrofit?

T-30R thermal insulation device is simple and time efficient to install:

- Sealed units are made to radiator height and are pre-taped.
- Just cut width to fit then peel off the protective cover and press to the wall.
- No need to remove the radiators.

A typical central heating system of 7 standard radiators will take 35 minutes to install T-30R devices.

How is the Thermanator© T-30R retrofit sold?

T-30R devices are sold by the square metre at EU80/m2. The T-30R comes in a variety of heights including; 300mm, 400mm, 500mm and 600mm, by cutting and combining the T-30R it can be made to fit all radiator sizes and shapes.

T-30R fitting conversion table for a variety of radiator heights

Radiator Height		T-30R height and combination
Inches	Milimetres (mm)	
12	300	1 x 300mm
16	400	1 x 400mm
20	500	1 x 500mm
24	600	1 x 600mm
28	700	1 x 400mm + 1 x 300mm
32	800	2 x 400mm
35	900	1 x 500mm + 1 x 400mm
39	1000	2 x 500mm
43	1100	1 x 600mm + 1 x 500mm
47	1200	2 x 600mm
51	1300	1 x 600mm + 1x 400mm + 1 x 300mm
55	1400	2 x 400mm + 1 x 600mm
63	1600	2 x 500mm + 1 x 600mm

Independent testing

Harwell – Computer Science & Systems Division, The Harwell Laboratory, Oxfordshire OX11 ORA, UK – modelled the flow and heat transfer of a radiator with and without T-30R profile.

The result confirmed that T-30R profile enhances the performance of the radiator by 26.8% = 100(301.1-220.45)/301.1= 26.8%

	Only Radiator	**Radiator and T-30R profile**
Convective Loss (W/m)		
To wall below	7.30	7.00
To wall behind	22.70	20.30
To wall above	107.00	90.60
Total convective	**137.00**	**117.90**
Radiative loss		
From rear of radiator	93.40	31.80
From front of radiator	70.70	70.70

Total radiative loss	**164.10**	**102.50**
Total loss (convective + radiative)	**301.10**	**220.40**

These calculations do not take into account the transient effect of night time setback in radiator temperature. Therefore we expect an actual energy saving of above 26.8%.

Energy saving conversion table

Type of energy	Savings in energy from consumption	Equivalent emission savings in tonnes of Carbon
Electric	2,325 kWh	1 Tonne
Gas	5,263 kWh	1 Tonne
Fuel	339 Litres	1 Tonne