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Welcome [top]

Happy New Year {{user("firstname")}},

Wow, we are starting our fourth year and volume of this newsletter, I can't believe I have been publishing this long!

This past year has seen many changes for the newsletter, we instituted a new method of subscribing and unsubscribing that puts you in control, and a new html newsletter format. I have removed thousands of email addresses that were unresponsive and have received tremendous response from our surveys, all due to you, our loyal readers!

Thanks and have a Great New Year!

For those of you who can't read html email, you have two options, you can click the following link to view this newsletter on the web:

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Until next month,

Gary Orlove,
Editor and Publisher



To Air is Human, To Insulate Divine [top]



*By Gary L. Orlove, P.E.
ASNT NDT / PdM Level III*

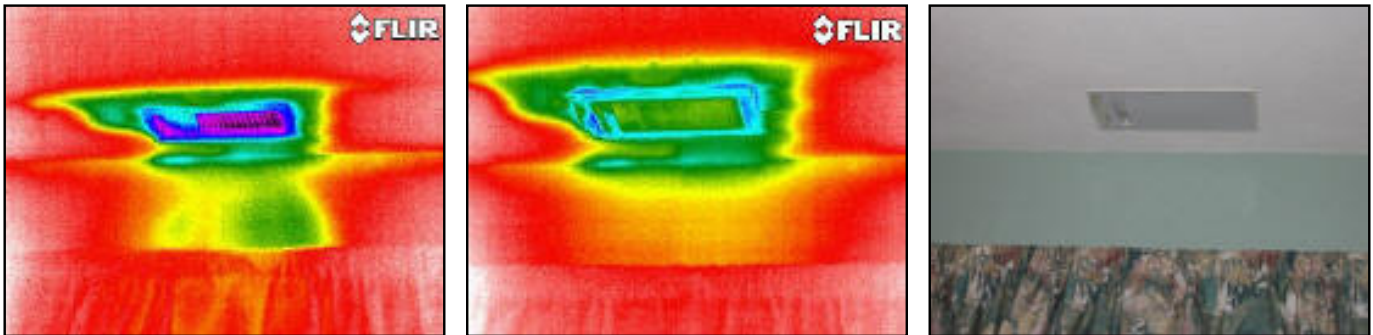
Its winter again, and boy, don't we know it New England. We have more snow on the ground than any time in recent memory this early in the season. So I thought we might take an infrared look at the effectiveness of low cost ways you can help save thermal energy in your abode.

The contributors to heat loss in a home are: conduction losses to the exterior, radiant losses from the exterior, convection from the exterior, and air infiltration/exfiltration. Of these, I am going to show you a few examples of the efficacy of reducing conductive and air movement heat losses by simple, yet surprisingly effective, methods.

Let's take a look at air leaks. Usually infiltration happens on the lower floors of a building and exfiltration occurs at the top floors due to the stack effect (in a heated building, the indoor air is buoyant and applies pressure to the envelope. The pressure increases with the height of the envelope). Air infiltration not only makes a building

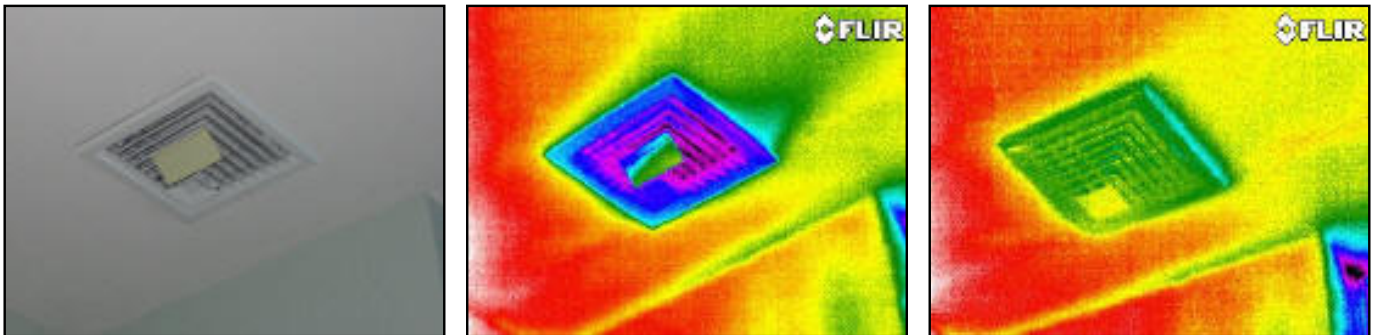
consume more energy, but it makes it "drafty and cold", especially if you are sitting next to the source of the leakage!

Take a look at the thermograms below. Here we see an unused air conditioning vent spewing out cold air on the first floor (stack effect). You can't see the air with an IR camera, but you can see the cooling effect the air has on the walls and ceiling. For this retrofit I used a piece of magnetic plastic sheet. You can see in the after thermogram the reduction in airflow and the effect of adding a bit of insulation to the open areas of the vent. The delta T reduction between the vent and the ceiling was about 30%. Not bad, but I thought I could do better!



Before, after, and visual thermograms of an air vent with magnetic sheeting

For my next experiment, I tried using 4 mil thick plastic sheeting taped to a vent. I used a "Post It" note to provide an indication of the steady state temperature condition at the vent. Here are the results.



Visual, before, and after thermograms of a vent that I retrofitted with 4 mil thick plastic.

The reduction in infiltration using the taped plastic is dramatic. The delta T between the vent and the ceiling was reduced a whopping 70% and the convection pattern on the ceiling is virtually gone!

The last thing I want to mention is the use of thin plastic sheeting to cover "cold" windows. Here we have an aluminum framed window with severe weather stripping problems resulting in a very uncomfortable air infiltration problem. Covering it with the clear plastic significantly reduced the air leakage (you can see the rise in temperature along the bottom of the window area) but also reduced the conduction through the entire structure. I didn't have a Post It on this one so we can't objectively measure the improvement (remember thin plastics are transparent to IR cameras). The window itself actually looks colder (that's because it is), because we have successfully blocked indoor heat from reaching it as easily as before.



Window before and after application of plastic film (also note air leakage through the socket at right)

Try some of these fixes for the winter blues yourself, and send in some thermograms of your own solutions. We'll use them in a future newsletter.

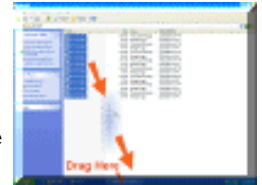
Tech Tips - Bypass Drag & Drop Limitations in ThermaCAM Reporter [top]



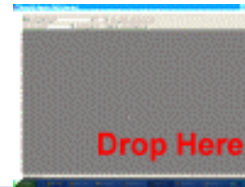
By Jason Gagnon
ITC Image Processing
Applications Support Supervisor

One of the most powerful features of ThermaCAM Reporter 2000 Professional is the ability to 'Drag and Drop' images onto a desktop shortcut to create a report. This is called the Quick Report and is the fastest and simplest way to generate a new report. As powerful as this feature is, it is limited in the number of images you can drag onto a desktop shortcut. It will usually support up to 10 or 20 images, but if you exceed this limit the program will generate an error message and it will not continue. You can work around this limitation if you first open ThermaCAM Reporter and click Cancel when the Wizard screen appears. You can drag images onto the gray background in ThermaCAM Reporter, just like you do with the desktop shortcut, and a new Quick Report will be created. The following step-by-step instructions explain how to do this:

1. Start ThermaCAM Reporter 2000 Professional and click Cancel when the Wizard screen appears.
2. Minimize ThermaCAM Reporter so it appears on the taskbar at the bottom of the screen.
3. Open My Computer from the desktop and browse to the drive and folder where your images are stored.
4. Select all the images you want to use for the new Quick Report and then click and drag the images until you are pointing to ThermaCAM Reporter 2000 on the taskbar. (see fig. 1, *click to see a full size image*) Immediately the program will open and show a blank gray background. Move the mouse over the gray background in ThermaCAM Reporter and release the mouse button to drop the images into the Quick Report. (see fig. 2) Reporter will immediately begin creating the report and after a short time the new report will be displayed.



By dragging and dropping onto the gray background in Reporter you can take full advantage of the power of the Quick Report and bypass the limitations associated with dragging onto the desktop shortcut.

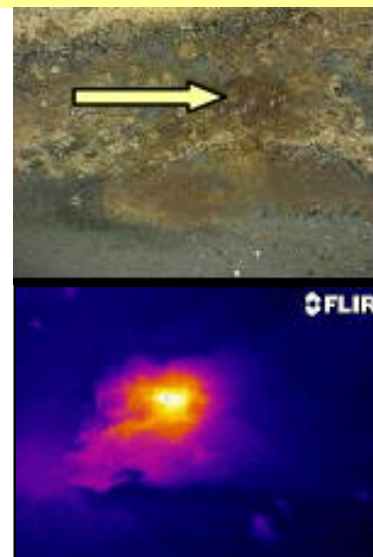


Last Month's Brainteaser [top]

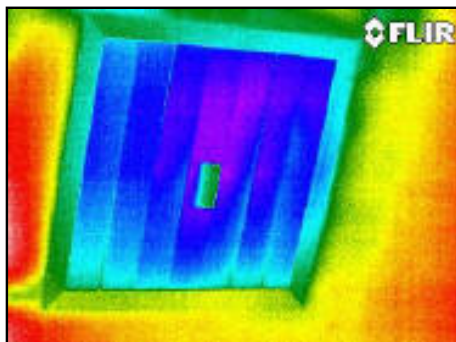
Last month's image stumped everybody, hey, we

have to throw in some hard ones every so often! The image shows the effect of hot water dripping onto a puddle of gasoline.

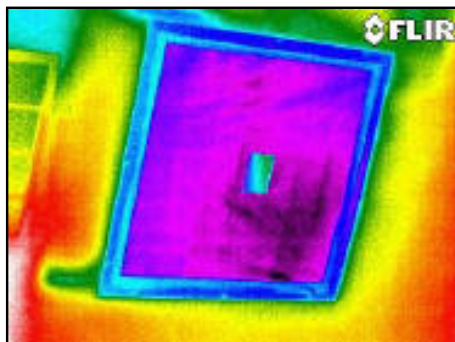
Unfortunately nobody gets the prize this month, but I want to thank Dan Ispas all the way from Energy Serv in Romania for this stumper!



Brainteaser of the Month [top]



Before Plastic Sheet



After Plastic Sheet



Visual

Here is this month's brainteaser. These images show the vent louvers for an attic whole house fan (which is off) on the top floor of a home in New England in the winter. The first image shows the thermal conditions before application of a 4 mil plastic sheet covering the louvers, the second image shows the effect after application. The artifact at the center of each image is a "Post It" note adhered to the surface to provide a uniform reference to view. The temperature scales of the two images are identical.

First reader to email me with the correct explanation for the temperature changes wins \$20 in Infrabucks. Please put "**Brainteaser**" as the subject of the message.

[Click here to email your guess](#)

Upcoming Classes [\[top\]](#)

Click the links below to see our course calendars.

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About the Infrared Training Center [\[top\]](#)

The Infrared Training Center offers training and certification in all aspects of infrared thermography use. Our world-class training facilities are located near Boston, Massachusetts, USA and Stockholm, Sweden and have the world's most extensive hands on laboratories for infrared applications. Please join us in exploring the fascinating world of the infrared!

Your comments and suggestions about this newsletter are welcomed and encouraged. If you have an interesting application or case study to share, we encourage you to submit it for publication. **Published articles earn credit towards recertification.**

Please e-mail [Gary Orlove](mailto:Gary.Orlove@itc.com) or send regular mail to the Americas office.

Visit our website:



ITC Americas, BOSTON

16 Esquire Road
N. Billerica, MA 01862, USA

Tel: +1-978-901-8405
Toll free: +1-866-TRAINIR
(866-872-4647)
Fax: +1.978.901-8832
E-mail: mailto:info_us@infraredtraining.com



ITC International, SWEDEN

Rinkebyvägen 19
SE-182 11 Danderyd, Sweden

Tel: +46 (0) 8 753 25 00
Fax: +46 (0) 8 753 26 01
E-mail: <mailto:itc@flir.se>



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