the HOT SPOT
IACT
INTERNATIONAL ASSOCIATION OF CERTIFIED THERMOGRAPHERS
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BOARD OF DIRECTORS

WHATS NEW?

By Scott Wood

Updates and Changes

IACT, established in 2007 originally as the National Association of Certified Thermographers (NACT), changed its name early in 2008 to reflect its growing international presence. Currently we have members in seven different countries. In 2012 our membership passed the 100 mark and looks to advance quickly this year with new international members from the Statham Lodge, May meeting. (See STATHAM LODGE MEETING, PAGE 2).

The IACT board has a few new changes including; our new Board Chair, Bob Berry, new board Secretary, Chris Troutt, Board Chair-Elect, William C. Amalu, Treasurer, Scott Wood, and Board Member Scott Miles. These changes reflect the ongoing adjustments to an organization as it grows and have left openings for interested members. For those interested in participating at the board level, please contact any of the board members.

An exciting change is our new IACT web site at www.iactthermography.org. In late 2011, the IACT board authorized the hiring of a web designer for a complete html code rewrite and a new look. Both William Amalu and Scott Wood have spent many hours reworking the web information to provide our members and the public a better look and more information. The membership only pages now includes more information including; thermal images, descriptions, references and other application specific for our three current disciplines. Now an easier site to update, we appreciate your feedback and look forward to posting your information. Please send your suggestions to info@iactthermography.org.

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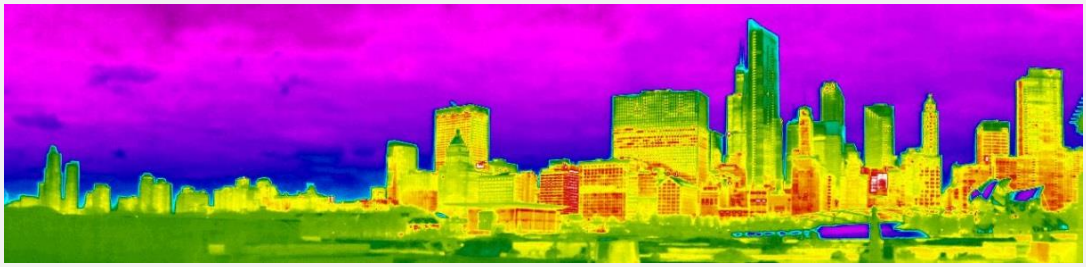

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For members not in favor of pay by check, a PayPal link has been added to our web for membership payment. A $5USD charge has been added to help defer the costs of using the PayPal services. With this added feature we will be able to provide international currency transfers converting the amounts into US dollars. If you have any questions, please contact our treasurer at info@iactthermography.org .

As a not-for-profit organization, IACT is continually looking to its membership for support. If you have suggestions, information or would like to volunteer, please contact any of the IACT board members. As a founding member of IACT, I and the board are excited as we advance forward with your ideas and new directions.

STATHAM LODGE MEETING

By Bob Berry

IACT introduction meeting for European Thermographers

A meeting of IACT interested thermographers was held at the Statham Lodge in Lymm Cheshire United Kingdom on May 2, 2013. There was significant interest in membership, with over 20 people in attendance.

All those in attendance thought that the IACT was a positive influence in the thermography industry, and that it was the right time for IACT to develop in the UK. It is hoped that the body of membership that attended will form the impetus for the development of a UK branch of IACT. The meeting took the form of an open forum, where members were encouraged to express their views as to how they would like IACT to develop within the UK. The board of IACT is committed to growing membership numbers, and we look at our next phase of growth and development. As part of this we are looking at putting together a number of benefits specific to the UK market.

IACT would like to thank all those that attended for participating so energetically and enthusiastically, and we look forward to working with such a vibrant community of thermographers.

Figure 1. Enjoying a coffee break during a long meeting of potential new members.

MEDICAL THERMOLOGY

By William C. Amalu, DC, DABCT

Case study illustrating the use of MIR in breast cancer screening

This patient presented for imaging with a past history of right breast cancer. A complete mastectomy of the right breast had been performed with a DIEP reconstruction. As can be seen on the image, the medial portion of the reconstruction shows a hypervascular pattern of large caliber hyperthermic arborizing vessels. This sign is highly suggestive of neoangiogenesis and warrants immediate follow-up.

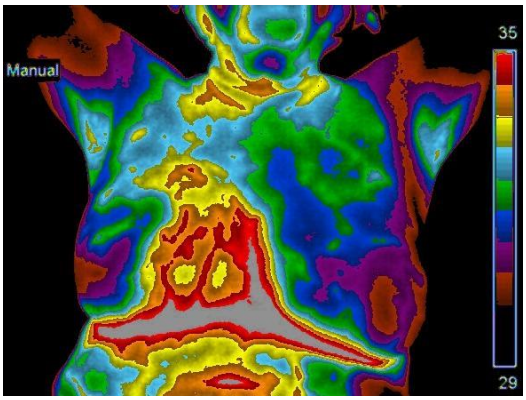

Figure 2. Frontal view.

The patient was referred out for MRI. The results from the MRI noted neoplastic metastasis to the underlying bone and lung.

The role of MIR in this case was critical. MIR was the first warning that a serious condition was present. As is routine after a mastectomy with reconstruction, screening for this patient had consisted of clinical examination and mammography for the left breast only. What if MIR had been included earlier as part of this patient's yearly screening? Would she have been warned far enough in advance to prevent this level of metastasis?

We cannot recommend highly enough that every woman add MIR to their regular breast health care.

OPENING COVERS FOR AN ELECTRICAL INSPECTION

By Bob Berry

Tips and suggestions for electrical inspections

It is surprising how many thermographers try to do electrical inspections without opening or removing panel covers.

Infrared thermography allows for the detection of many different electrical related problems. However for most common materials, we can only see the radiation being emitted from the surface. Painted steel doors, Perspex, Lexan and most other materials used in this industry are thermally opaque. This means that if electrical components are located behind these materials then they must be removed to give a clear line of sight to the components. It is surprising how many people perform thermography on electrical panels with the doors closed.

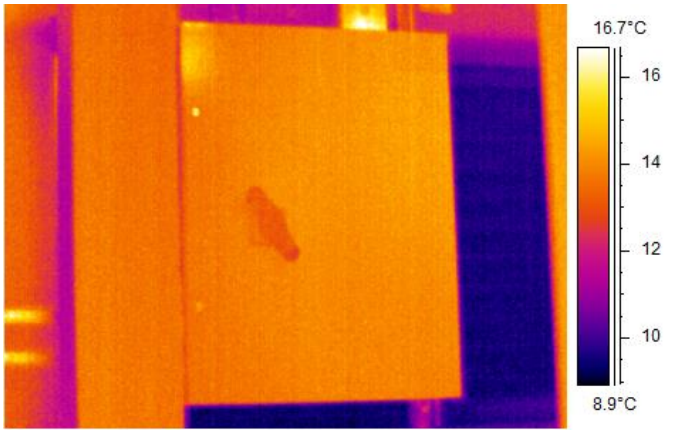

Figure 3. Infrared image of the outside of a panel shows no sign of heating.

While this does allow them to work quickly and cheaply, it is not a proper survey and does not mean that there are no problems behind the panels. If a problem is severe enough it will cause some heating on the outside of the panel, but surveying like this can lead to missing problems that should be picked up and repaired early. This type of survey also gives end users the impression that they have had a complete survey, and that all problems have been found, and this is clearly not the case.

Where panels cannot be removed infrared windows can be installed, but care must be taken to ensure that the equipment certification and warranty is not invalidated. While the electrical panels and the windows may have certification this often does not cover the fitting of the windows. Check with the panel manufacturer to ensure that they can be retrofitted without affecting the warranty. Fitting polished metal into the panel for use as infrared mirrors is also a big help and increases the ability to survey items. Where Perspex flash guards are used they can be re-engineered to allow easier access, either by fitting a hinge, or changing the dimensions of the flash guards.

Infrared thermography is an excellent tool for safe electrical inspections, but we must work within the limitations of our equipment.

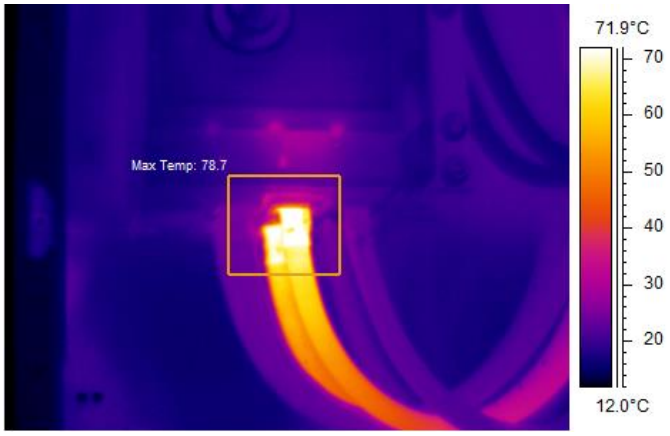

Figure 4. When opened a hot connection is found, this was not evident when the panel was viewed from the outside.

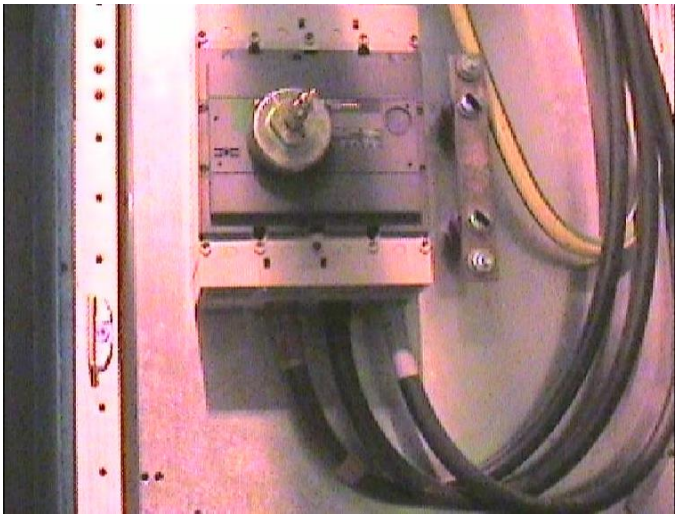

Figure 5. Digital photo showing the inside of the panel after opening.

BUILDING THERMOGRAPHY

By Scott Wood

Deciphering thermal patterning of entrapped water and thermal bridging

One of the most difficult of all applications for infrared thermography is its use in evaluating buildings, though it is usually referred to as a great method of locating wet building material.

The typical patterning of wet building materials is cool and roundy, due to evaporative cooling of the wet area. Some Thermographers use a color palette that shows the cool patterns as blue, allowing quick scanning and mapping of known wet areas.

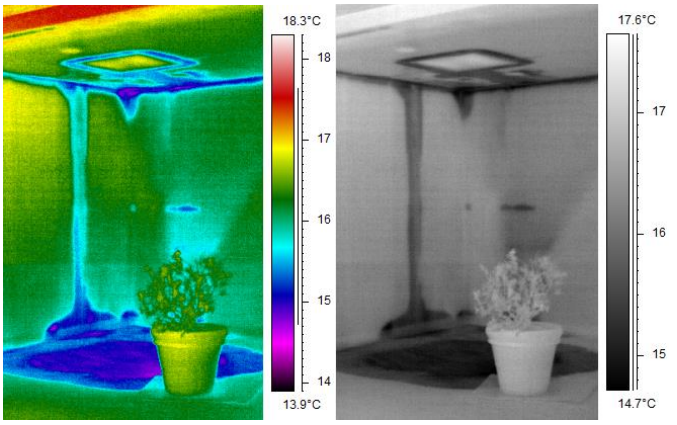

Figure 6. Color palette showing cooler, blue moisture patterns and gray palette showing cooler, darker moisture patterns.

Though color palettes show easy to see cool-blue they are more confusing than the iron or gray palettes when looking at temperature changes over the span. As a professional thermographer I still have difficulty recognizing which colors are warmer or cooler, especially the mid span colors, greens and yellows.

In addition, the color palette does not usually provide as much sharp detail in the transactions between colors as the gray.

Moisture detection seems to be a great use for thermography until moisture is trapped and not cooled by evaporative cooling. Due to very high thermal capacities, water will heat and cool slower than building materials. This provides a warmer pattern for moisture as the building's exterior cools or a cool pattern as it warms. This phenomenon is used extensively for roof moisture evaluations but is also very important to understand the patterns of trapped moisture within the wall system.

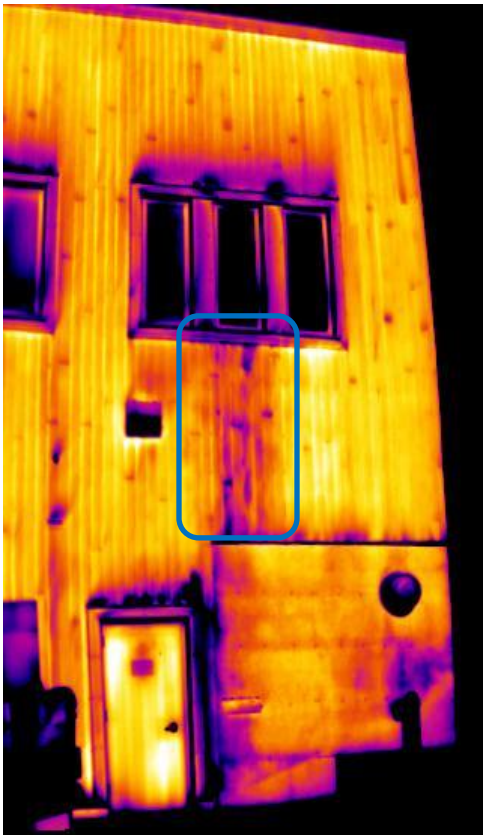

Figure 7. Moisture entering the wall system below a window, showing a cool pattern as the wall warms after sunrise.

When the same trapped moisture is observed in the evening a warm pattern appears. In addition to the warm water many other patterns are present. These are due to heat transfer through the wall assembly from a warm interior due to higher conducting materials or thermal bridging. In the evening wood studs and metal fasteners appear warmer, further complicating the observed patterns.

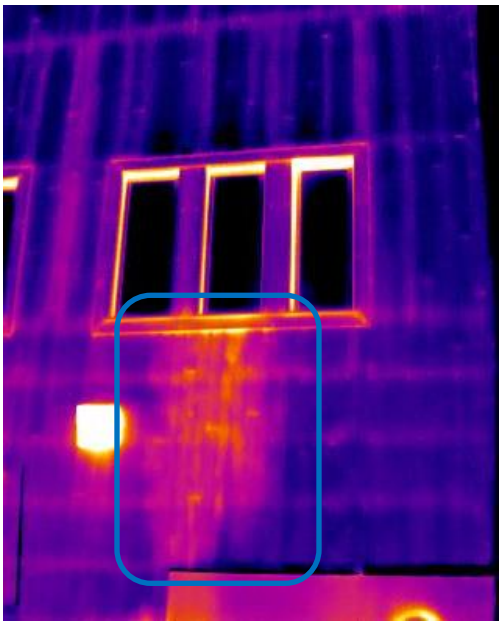

Figure 8. Moisture entering the wall system below a window, showing a warm pattern as the wall cools after sunset.