

“Diversif – IR”

Expand your Infrared Vision...and your business!

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ABSTRACT

Never limit yourself to one application. It is a good idea to specialize; yet to diversify your business is a better idea. Infrared thermography is a proven technology in identifying some common and popular applications. However, there are many more applications that are virtually untapped in your operational area. This paper discusses some of the many applications for infrared thermography and the market potential for each.

INTRODUCTION

Do you use IR thermography? Have you diversified your business with IR thermography or considered it in the past? My hope is that by reading this paper you will consider expanding your business to include IR thermography or expanding the number of applications you are offering within your existing IR thermography business. In 2007, I wrote a paper titled “From Houses to Horses”, explaining how as a Home Inspector I entered into something that I knew very little about...horses¹. It further describes how expanding my home inspection business several years earlier to include the technology of IR thermography further expanded my business opportunities. Now, think of this paper as the follow-up to that one.

IR thermography has long proven to be a beneficial technology for the identification of common electrical and mechanical problems as well as your tool to take a closer look at building roofs and walls. By definition, *popular, proven* and *common* IR thermography applications currently being used will see increasing competition due to the lack of sales skills needed in order to sell the service. Competition is inevitable and in turn the question arises, how can you keep ahead of your competitors?



Figure 1. 2007 paper titled “From Houses to Horses”

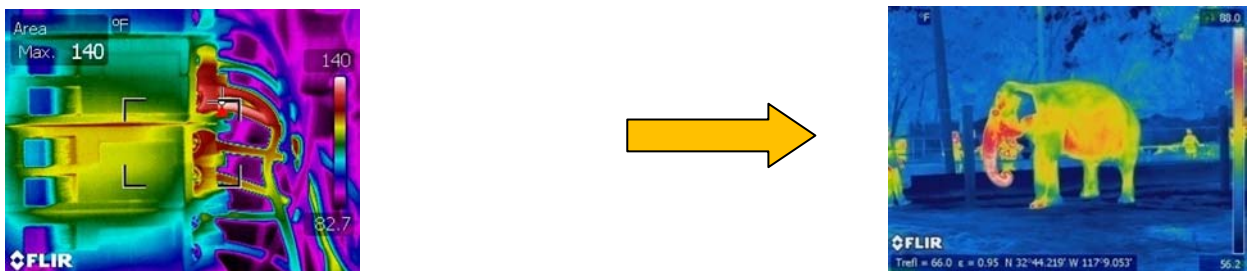


Figure 2. We have since expanded our business from “Electrical to Elephants”

DIVERSIFY!

How have you diversified your business? From the internet dictionary at Merriam-webster.com, a simple search for the definition of the word “diversify” brings the following definition:

Main Entry: di-ver-si-fy

Pronunciation: \dā-'vər-sə-,fī, dī-\

Function: verb

Inflected Form(s): di-ver-si-fied; di-ver-si-fy-ing

Date: 15th century

Transitive verb 1 : to make [diverse](#) : give variety to <diversify a course of study> 2 : to balance (as an investment portfolio) defensively by dividing funds among securities of different industries or of different classes 3 : to increase the variety of the products of <diversify a business> intransitive verb 1 : to produce variety 2 : to engage in varied operations

As we read the definition of this word, we are given a simple description of '*giving variety to*'. It is often wisely suggested to diversify your investments such as your financial portfolio but what about the suggestion to diversify your business? Many business owners find success in only one specialty area; this would be like a hamburger restaurant selling only one type of hamburger or better yet, an IR business that offers only electrical scans. Why would a thermographer choose one specialty, electrical scans to build their business? That thermographer is obviously more susceptible to failure not only from the variety offered by their competitors (internal and external) but also from budget cuts by corporate managers who in hard times typically cut maintenance costs from the budget.

Diversification is something you must seriously consider for your business. Take your greatest tool – your brain, use it in conjunction with your greatest technological tool – your IR camera, results, access to many areas as well as taking your seasonal business to a year round operation. Hence, '*giving variety to*'.



Figure 3. What level do you want to get off?

MY DIVERSIFY

“My Diversify” came as an idea in 1999 when an associate, working for my home inspection company, informed me he was working a night shift performing electrical IR surveys to supplement his income. I was curious and wanted to know more about this “infrared”, which previously I had only seen in the movies. Through my initial searches I discovered that with the addition of IR thermography I could be more of a specialist in fields such as moisture investigations, building energy loss and roof leaks, which in turn would expand my current business. These were the three fields for the first IR thermography business plan that I wrote. Although it took a few years for the plan to materialize and when it did that was when my business expansion took place. As I look back today, I can truly appreciate the timing, as this was when the real estate

market was about to nose-dive which would have caused a reduction to my home inspection income. While performing infrared scans during my first years, I received more and more interest in areas of IR thermography that I had not yet considered.



Figure 4. Test your IR excitement; would this be a great city for a thermal imaging company to be based?

THE "IR WOW FACTOR"

Knowing that "a picture is worth a 1000 words" and "the proof is in the pudding", I knew that if I showed everyone what IR thermography could do, it was a guaranteed winner. I took my IR camera with me on almost every home inspection to build a diverse IR picture library. Because no home is perfect, I knew it would only be a matter of time to collect a series of presentable pictures. I talked to almost every real estate agent I worked with explaining I had a technologically-advanced tool for the identification of common building problems. By showing them the "IR WOW FACTOR"² they could see the thousand words and the proof was in the pudding once they opened up the wall. This is in fact an amazing technology!

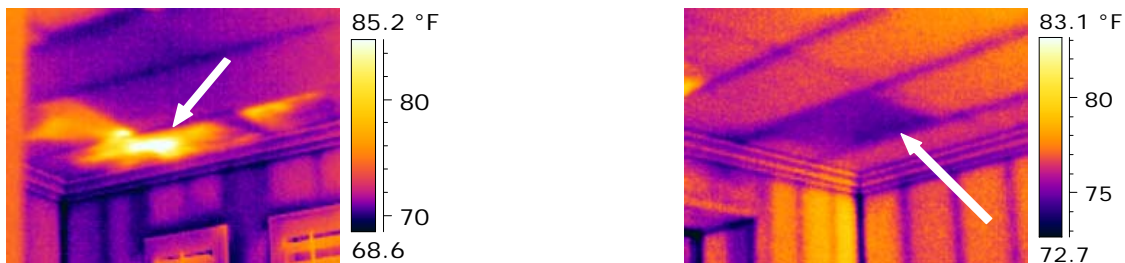


Figure 5. One of my first paid inspections with IR thermography. This was an inspection of a brand new home where the builder forgot to install the heat outlet in this room (left image). It was a sealed attic, so there was no attic access. With the use of IR thermography, it was not too difficult to locate where the unattached duct was. The image on the right was one of my first insulation scans, showing missing insulation.

It is with pictures like the one shown above that further could explain the benefits of IR thermography to potential clients. We knew we had the WOW factor going for us with an IR camera.

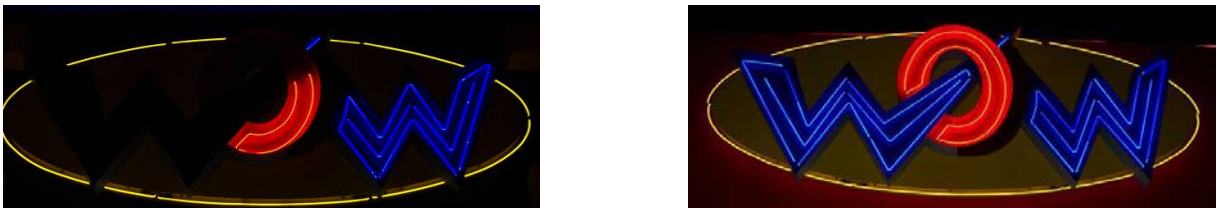


Figure 6. Which one best describes your business, the OW or the WOW?

THE CAMERA

Determining the extent that you will diversify your IR thermography business, is to dream of all you want your business to be, and choosing a camera that will not put limitations on what you can do. An entry level camera (typically priced under \$8k) might be sufficient for simple moisture or energy surveys in residential structures; however this would not be the proper choice if for instance you want to perform large commercial electrical surveys or medical applications. You must realize that an IR camera is an investment in your future and needs to be carefully considered as a business investment. **My advice - buy the best you can and make sure it hurts to pay for it.** You will likely work harder and be motivated to get more business when the payment hurts a bit, especially when your spouse reminds you just how much you spent. I know this to be the case as my first camera was not the cheapest and it didn't prevent me from being able to perform my first large commercial infrared survey either.

THE BUSINESS

As mentioned earlier, the focus was on certain applications for our newly-acquired IR camera, but over the years we have received many interesting calls which have helped diversify our business. We took every call knowing that each could offer an opportunity. Each IR thermography report tells a different story, even ones without any IR images in them -like showing up for a moisture leak evaluation, with no current moisture present. In these cases, you have to utilize the most important tool you brought (your brain) to identify the root source of the problem. Here are some interesting stories where our second most important tool (the IR camera) was utilized.



Figure 7. One of our first moisture scans. Roof leak caused by improper installed roof drain.

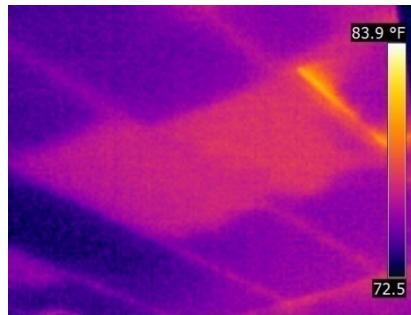


Figure 8. One of our first insulation scans showing missing insulation at cat-walk in attic.

The calls came in, even from a lady who had lost her cat in the under-floor duct work. She had heard that we had this great heat-sensing camera. Her cat (3-legged) had fallen into an open floor register and basically was crawling through her duct system. She could hear the meow but couldn't find the cat. We didn't get to do that job because we were out of town, but an interesting application nonetheless.

ROOF SURVEYS

It is common for a home inspector to perform commercial property inspections. I look at each of these commercial inspections as an opportunity for IR work as each of them has a roof and an electrical system. Example: While performing the commercial building inspection for a potential buyer, I informed him of my infrared service and how we could identify any trapped moisture in the roof. He knew this particular roof leaked, he just didn't know the location of the trapped water. The client took our offer and hired us to perform an infrared scan of the roof.

Extra money – easy sale!

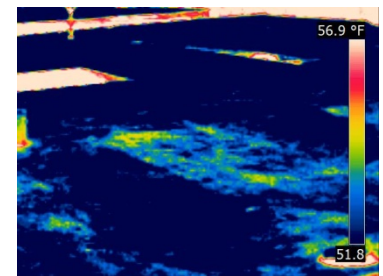


Figure 9. Roof scan showing moisture under a built-up flat roof.

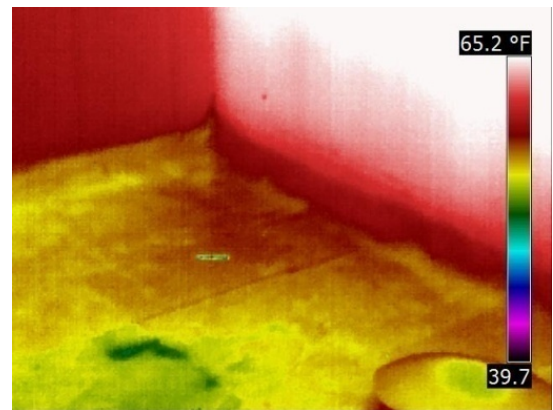
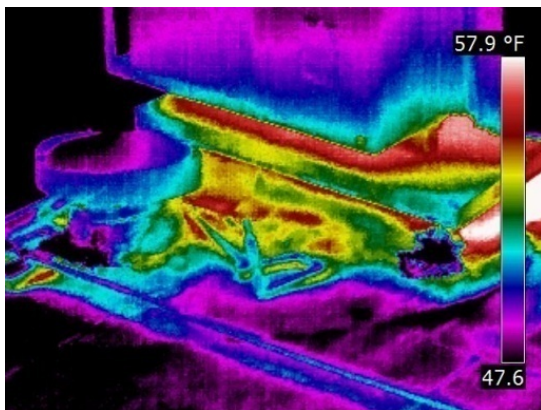
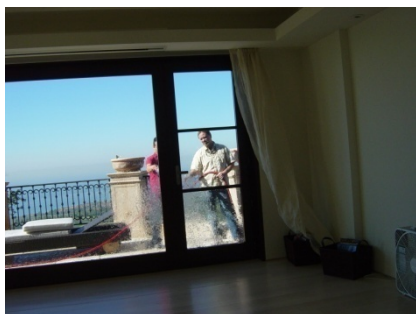


Figure 10. Leakage at flashings confirmed with a moisture meter.

WATER TESTING / LEAK DETECTION

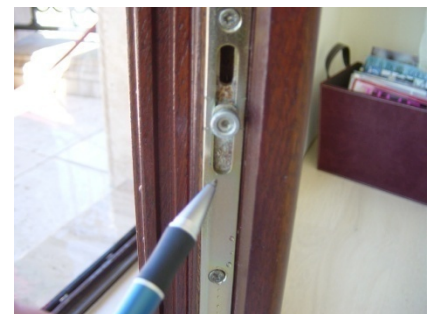
Sometimes leaks come from unsuspected places. My company was hired by a local large custom home builder who had heard about our services from a colleague that had seen my service at another job (obviously the best marketing you can get). This was a large (8,000 sq. ft.) coastal-facing home where during each storm water would come into the home causing an ongoing water leak in the master bedroom. The builder had installed weather-stripping and caulk to every joint in an effort to stop the leak. By using my best tool in conjunction with my second-best tool, we were able to source the water intrusion to the door handle which was missing a rubber washer - a one dollar fix.



Water testing of the door.



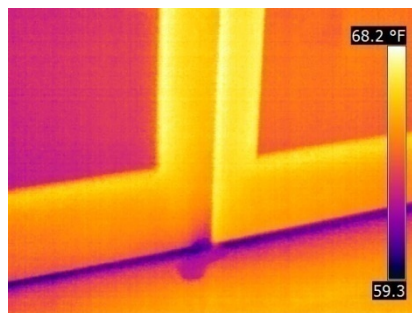
Cause of leak...the door handle.



Multi-locking system showing rust.



Door handle was taped off after and re-water tested...no leak!



IR Showing water coming in at door during initial test.



IR showing moisture trail, notice water at base of door corner.

Figure 11. Top row shows leak testing photos. Bottom row shows taping suspected leak (left). Center and right IR images show indication of leak.

PARANORMAL INVESTIGATIONS

Not all jobs are what you specialize in. Infrared cameras have long been considered a premier tool for the use of paranormal investigations. Yes, we were retained to go on a forensic ghost hunt.

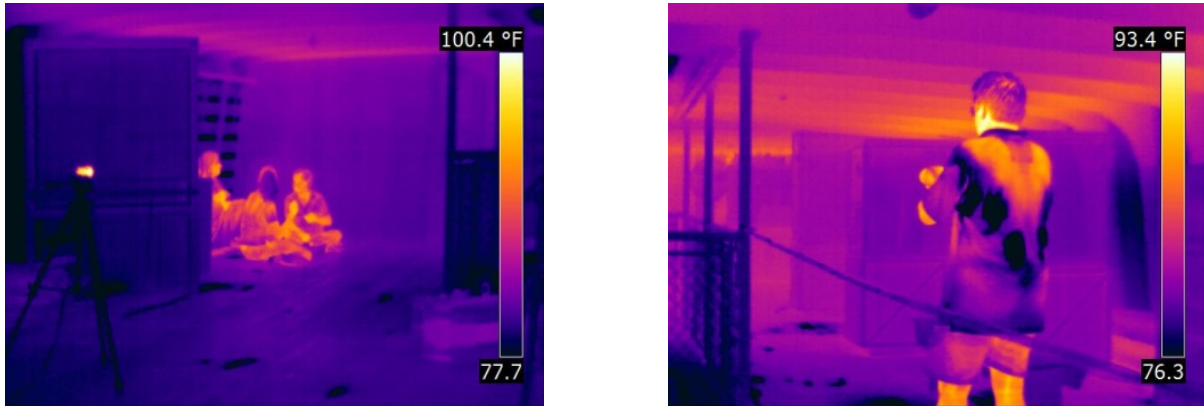


Figure 12. The forensic ghost hunt on the Star of India - one of the oldest working ships in the world.

This is not the only time we have had this type of call, somehow after the word got out that we did this sort of thing, we have been called upon 3 more times. Recently, a call asking us to travel deep into the desert with a gentleman who stated he would like us to “film” him in infrared, conjuring up spirits at a Native-American burial ground. We are often asked what we see on these types of surveys. Well, we leave that to the imagination.

MANUFACTURER PRODUCT EVALUATIONS

We have now performed several product evaluations for product manufactures and/or business owners. If temperature is important and they want to express the benefit of their product, infrared can be eye-candy in any marketing material.



Figure 13. Analysis of reflective paints for a large home builder deciding to do one material versus the other: Sun-facing side was painted with different materials.

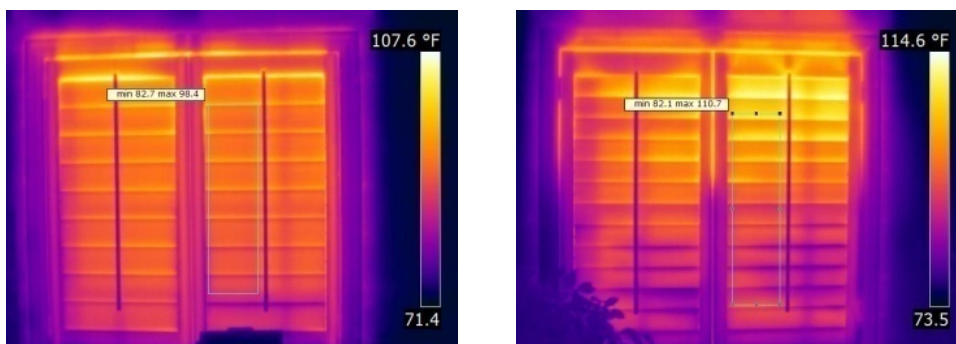


Figure 14. Comparing radiant transfer between different shutter materials for a window covering manufacturer.

DAIRY COW REVIEW

Have you ever imagined you might get a call to look at a cow with infrared? It turns out Mastitis is a very big problem in the dairy industry.

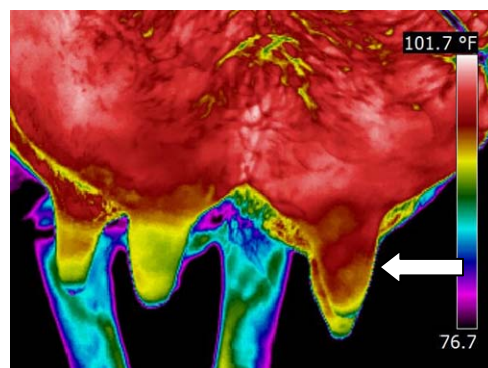


Figure 15. Do you think there is an infection in that udder? The right side of the udder was diagnosed with Mastitis.

ELECTRICAL SURVEYS



Figure 16. Electrical review of a small hotel.

ELECTRONICS / CIRCUIT BOARDS

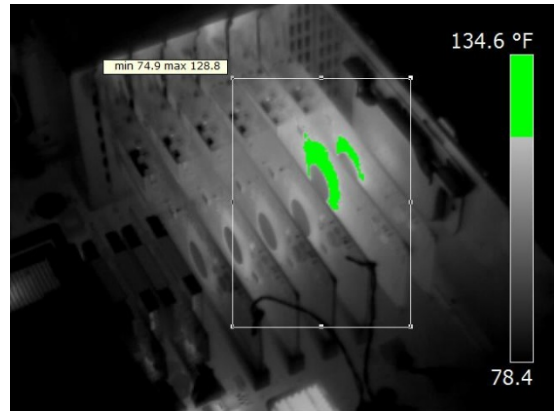
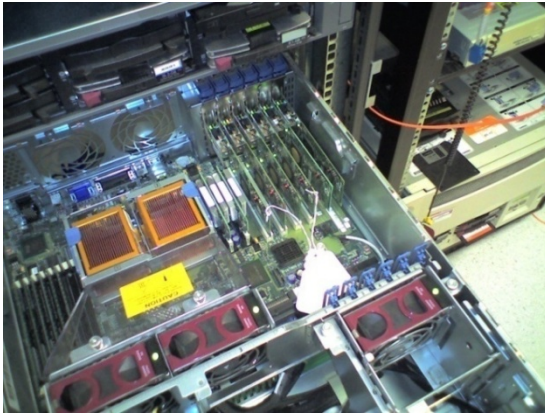


Figure 17. We were retained for a building analysis and while we were there, the electronics engineer asked us to look at some circuit boards which were problematic.

DATA CENTERS

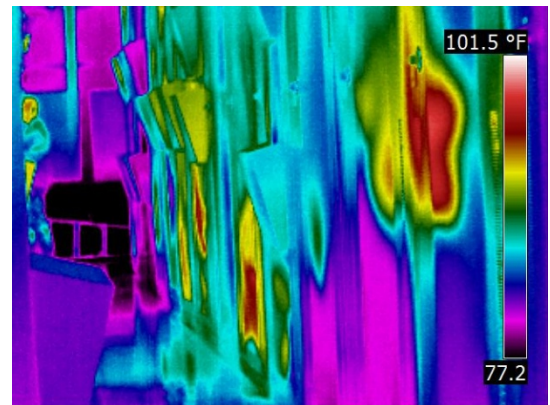


Figure 18. Data centers are critically climate-controlled, and finding the hot spot provides important information. By adjusting cooling system and moving components to new locations, overheating situations can be avoided.

ACUPUNCTURE

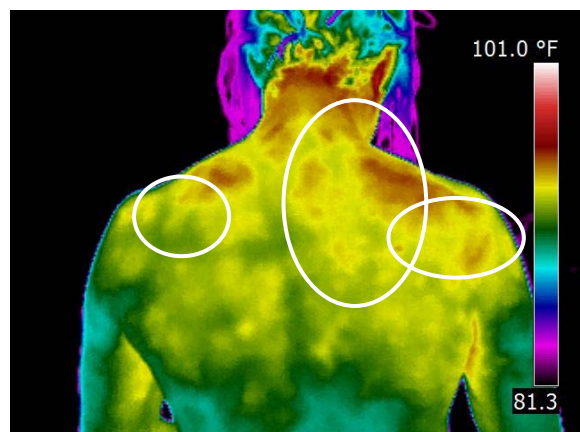
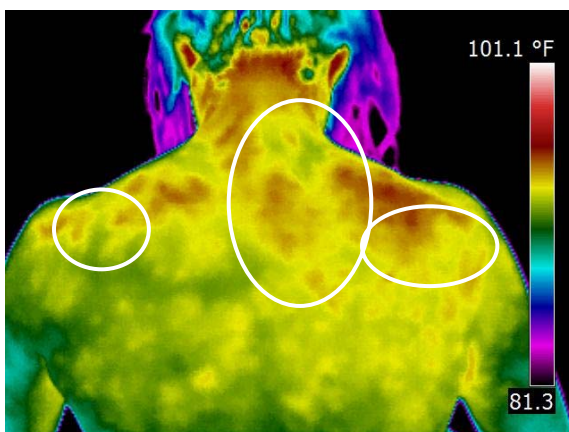


Figure 19. Before and after acupuncture, shows a decrease in heat.

ZOO / VETERINARY IMAGING



Figure 20. Retained by the local zoo to thermal image an elephant for injury. As seen in thermal image at far right, there was a definite different condition, comparing the right-front leg to the left-front leg.

COMMERCIAL BUILDING ENERGY REVIEWS

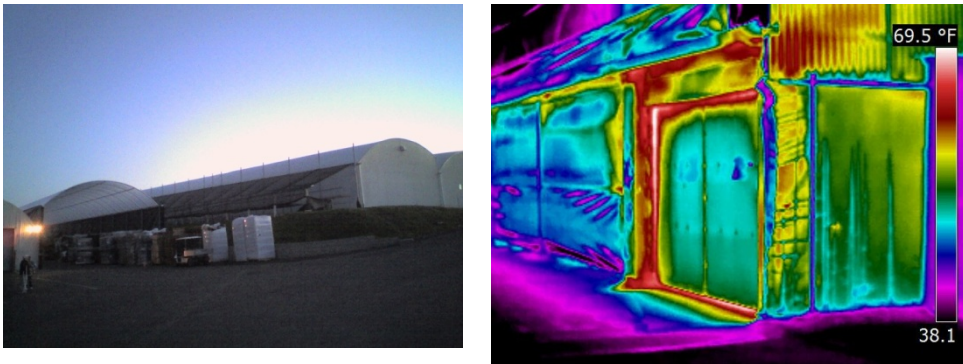


Figure 21. We were retained to review an 80,000 sq. ft. greenhouse for areas of heat loss.

LARGE SHIPS

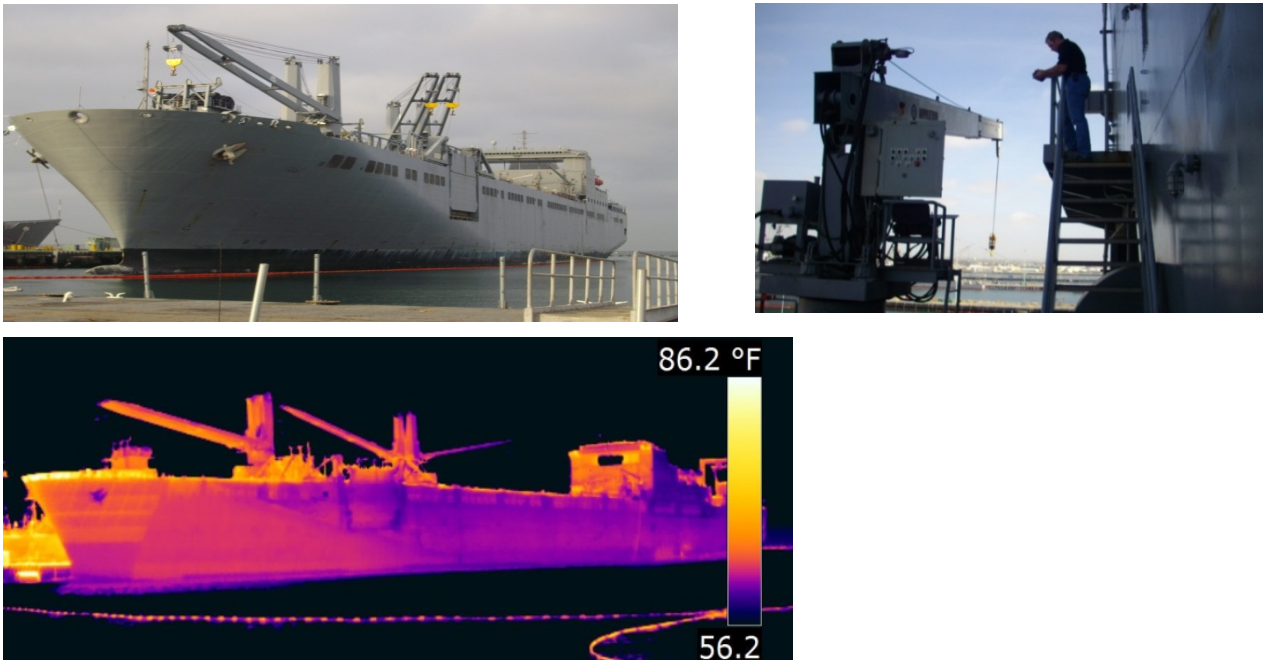
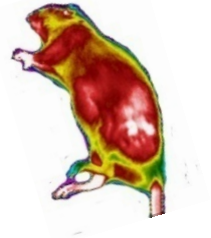


Figure 22. Three-day thermal imaging job was performed on this 950ft. US Navy ship. Photo top left; IR image bottom left. Photo on top right shows thermal review of one of the ships many service cranes.

WILL YOUR BUSINESS DIVERSIFY OR DIE?

Ask yourself how you can diversify your business. There are services and ideas out there to help you. A simple review of the internet can open up some of these opportunities for you and your business. Attending a national conference such as InfraMation is an excellent way to find out how you can diversify your business. There are many organizations that can assist in your diversification and marketing efforts.

By now you should understand that without diversification in your business, you are leaving money on the table. Whether your specialty is houses or horses, 80,000 sq. ft. buildings or 8-inch lab rats - explore other applications. There are opportunities out there awaiting your IR thermography service. We hope that you will take the next step and open a new untapped market to the wonderful world of IR thermography.



REFERENCES

1. Hopkins, Peter "From Houses to Horses" ;Proc InfraMation; Vol. 2007-038; 2007
2. Hopkins, Peter and West, Malcolm; "The IR WOW Factor"; IR Thermography Marketing Clinic; InfraMation Conference; 2008
3. "NOT the low hanging fruit of Infrared Thermography": <http://www.stocktoninfrared.com/published.php>
4. Definition of "diversify": www.merriam-webster.com/dictionary/diversify

ACKNOWLEDGEMENTS

I would like to thank the mentors I have had since getting into the IR thermography business, including but not limited to Gary Orlove, Bernie Lyon, Bob Madding and the team at ITC, Tracy Turner, Jim Waldsmith and Greg Stockton. With my exposure to so much talent in so many different areas of infrared technology, it's no wonder that I chose to write a paper about diversification.

ABOUT THE AUTHOR

Peter Hopkins has operated a successful home inspection company since 1996 (www.inspectdoc.com) and has personally performed over 6,000 property inspections. His company expanded into IR thermography in 2005, with the opening of SoCal Infrared (www.socalinfrared.com) and has found success in many areas of diversification. Peter is the co-founder of United Infrared (www.UnitedInfrared.com), a national network of contract thermographers which includes application-specific training and business coaching in a multitude of applications related to infrared technology thus allowing the thermographer opportunities to further develop their business. Peter is an ICC Code Certified Building Inspector and Certified HERS Energy Rater. He has been trained in Equine Thermography and is licensed with the California Horse Racing Board as an Assistant to Veterinarians. Peter Hopkins lives in Southern California with his wife Anna and their two children.

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