Inspecting building insulation, HVAC systems and refridgeration units with thermal imaging

Building inspectors have been using FLIR thermal imaging cameras for energy audits for decades, but the investment cost prevented many building and installation companies from buying one. In recent years increasingly affordable models have entered the market. One of the building professionals that leaped at the opportunity is Björn Blomgren of the Nybro, Sweden, based service company Hammarstedts."When I bought the camera I was afraid that I would not use it often enough to justify the investment, but it soon became clear that this was not a problem. As I went along I found more ways of using the FLIR thermal imaging camera. It really is a very versatile tool."

Björn Blomgren demonstrates the use of the FLIR i5 thermal imaging camera.

This versatile tool can be used for a wide variety of applications, including HVAC system and building insulation inspections.

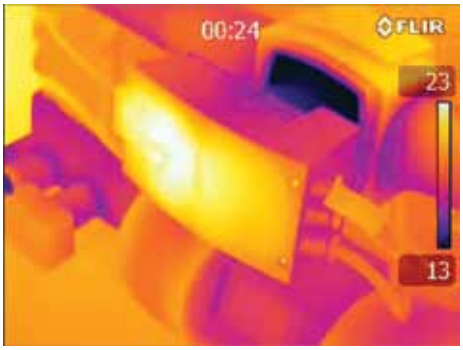
"I already had some experience with thermal imaging cameras because I worked as an industrial maintenance technician in the past, but the thermal imaging cameras I used back then were large, cumbersome and too expensive for a building professional", Blomgren remembers. "That's why I never bought a thermal imaging camera, even though I knew that it would be a great asset."

But a few years ago Blomgren heard about the FLIR i5 thermal imaging camera, an affordable entry model that fell within his budget. "There simply was no reason left for me not to purchase a thermal imaging camera. I am very glad that I did it, for it is a very useful and versatile tool."

With a resolution of 80x80 pixels and a thermal sensitivity of 0.10 °C the FLIR i5 provides professionals with a thermal imaging solution that is adequate for a large number of applications. Together with its similar counterparts the i3 and the i7 it is one of the smallest, lightest and most affordable thermal imaging camera on the market. Designed to be easy to use it requires but basic training to obtain thermal images that will immediately give you the thermal information you need.

Thermal imaging surveys help to sell houses

Blomgren uses his FLIR i5 thermal imaging camera mostly for building inspections. "In Sweden it is required by law to provide documentation of the energy consumption of a house before it is sold to the new owner. This does not necessarily include an energy audit, so in some cases this is just a list of figures that show the energy consumption by the previous owner. But I think it is a good selling point for the house if a proper energy audit is included as well. That is why I started offering that service. And apparently I'm not the only one who thought that such an energy audit would be a good selling point, for many house owners who want to sell their house have already hired



Thermal image and visual image of an electric water pump.

me and the amount of requests keeps rising."

According to Blomgren the energy audit service for house sellers is also good promotion. "If you deliver a good service with accurate and reliable results then both the seller and the buyer of the house will be inclined to contact you if there is a building related issue. But that is only if the service you deliver is good. If a house has defects I have not detected during the survey then that is not good for my reputation, so I always make sure that every survey is thorough and accurate."

Wide variety of applications

Building inspections are mostly done in the winter because a sufficient temperature difference is necessary between the inside and outside temperatures to be able to spot insulation failures. Blomgren therefore worried that the FLIR i5 camera would be idle half of the year. Looking back he is glad to see that this was not the case. "There's a wide variety of applications you can use this camera for. It can do much more than building inspections alone." The most obvious use of the camera for a company that specializes in building and Heating Ventilation Air Conditioning (HVAC) systems is for HVAC maintenance. "With every HVAC system we install we perform a thermographic survey before delivery, to confirm that everything is working properly. Being able to show the customer this report is a great advantage."

Validating complaints and finding faults

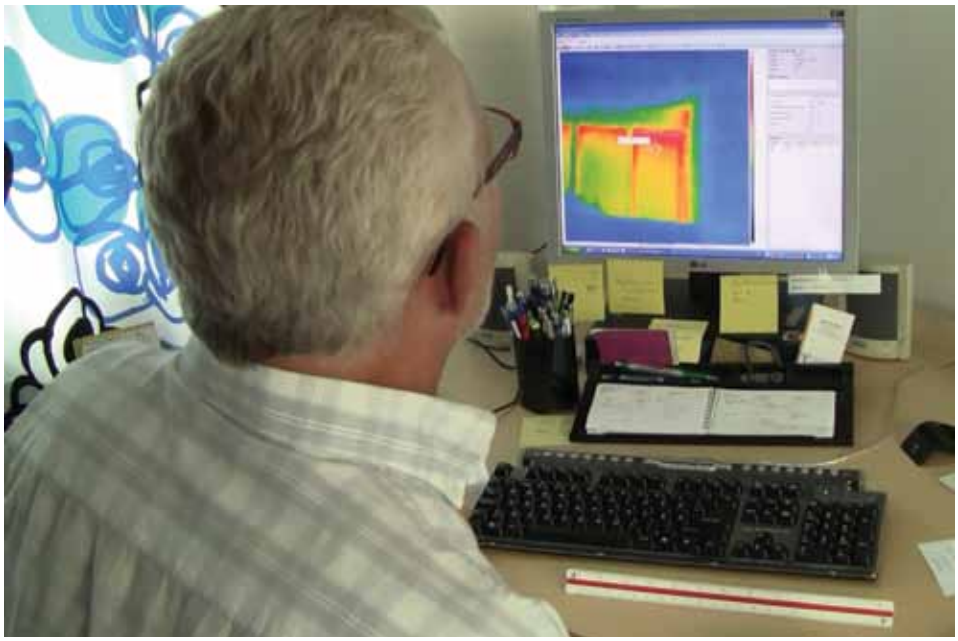
Sometimes Blomgren is also called in when there are complaints. "With the thermal imaging camera you can immediately see whether there is some truth to the complaint. A recent example of this use of the FLIR i5 thermal imaging camera was a university building nearby. "A new HVAC was installed by another company, but there were complaints about rooms being too warm or too cold, so the university called me for help. I performed a thermographic survey of the premises and I found that there were problems with air circulation causing certain areas to warm up while others remained cold. Based on my survey the problem could be solved."

Another very obvious example of the use of the thermal imaging camera is with underfloor heating. "If there is a leak in the underfloor heating it is very easy to find with the thermal imaging camera, without having to open up the entire floor, for instance. Not only does this save time and effort, but money as well." But it's not just leaks in underfloor heating that can be found with the FLIR i5 thermal imaging camera, according to Blomgren. "There have also been cases where plumbing had started to leak, causing water damage. With the thermal imaging camera I was able to find the leak faster and without opening up the walls. This allowed the plumber to more accurately coordinate the repairs."

Refrigeration units

Hammarstedts is the leading service company in the south-east part of Sweden delivering innovative solutions within heating, ventilation, energy- and process automation. Blomgren's colleagues also deliver complete solutions for the refrigeration and cold storage rooms in supermarkets. If they have problems with their installation Blomgren's colleagues often call in his help. "With the FLIR i5 thermal imaging camera you can quickly spot whether there is a problem with the insulation. This is something that you can do all year round, since there is usually a large temperature difference between the inside of the refrigeration unit and the temperature in the room outside the refrigeration unit."

All in all Blomgren is very happy with his FLIR i5 thermal imaging camera. "The i5 thermal imaging camera definitely has an adequate image quality for these applications. I use this camera so much in the field that I am considering to buy a new thermal imaging camera from FLIR Systems. Perhaps a FLIR E-series or a B-Series thermal imaging camera, I'm not sure yet. But it will definitely be a FLIR camera. That much is certain. No other supplier provides the same combination of user friendly design, thermal imaging performance and affordable price tags that is offered by FLIR Systems."



Blomgren uses FLIR QuickReport software to analyze thermal images and to generate reports for his clients.

For more information about thermal imaging cameras or about this application, please contact:

FLIR Commercial Systems B.V.
Charles Petitweg 21
4847 NW Breda - Netherlands
Phone : +31 (0) 765 79 41 94
Fax : +31 (0) 765 79 41 99
e-mail : flir@flir.com
www.flir.com

T820349 {EN_uk}_A