



## Thermal imaging helps Globus Baumarkt identify insulation problems



The B365 is smart, compact and powerful; a perfect tool for building inspection.

Thermal imaging is a powerful tool for determining the energy efficiency of buildings. The German home improvement retailer Globus Baumarkt has recognized that fact and has obtained one FLIR B365 and 24 FLIR B335 thermal imaging cameras for energy audits. The thermal imaging camera will quickly indicate in which areas of the property the problems are located and with the supplied software the corresponding temperature measurements can quite easily be compiled into a report.

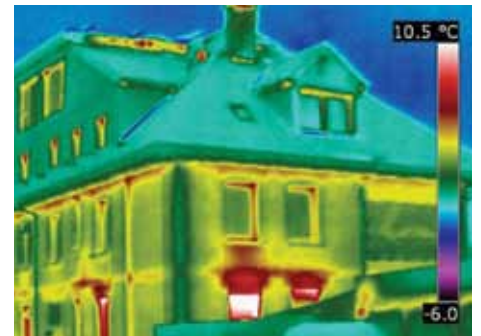
Globus Baumarkt is a company with a rich history. The chain of home improvement stores can trace its origin as far back as 1828; in that year Franz Bruch founded the company in St. Wendel, near the German border with Luxembourg. Nowadays Globus Baumarkt is one of the biggest home improvement retailers in Europe with 40 hypermarkets and 78 do-it-yourself stores in Germany, the Czech Republic, Russia and Luxembourg, but it is still in family hands.

According to the store manager Christof Warnick of Globus Baumarkt in Hofheim, near Frankfurt, there has been a sharp increase in attention for building insulation in the recent years, especially in Germany. "With the constant threat of global warming and the soaring energy prices everyone is interested in saving both your own money and the environment by investing

in insulation. Let me give an example to illustrate this: in the past year we have sold 500.000 meters of tube insulation here at this store alone. The people's awareness of the need for good insulation has really increased the last years. And in my opinion, thermal imaging cameras are an invaluable tool to determine whether a building's insulation is working properly."



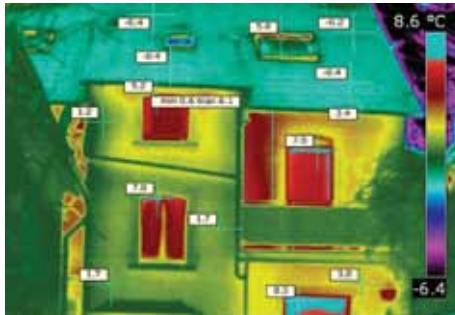
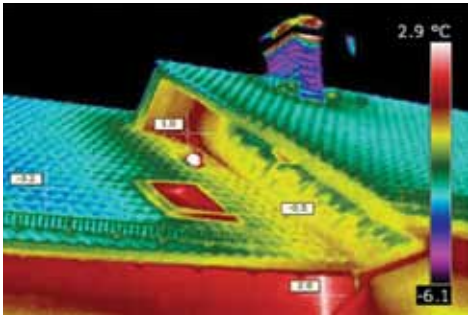
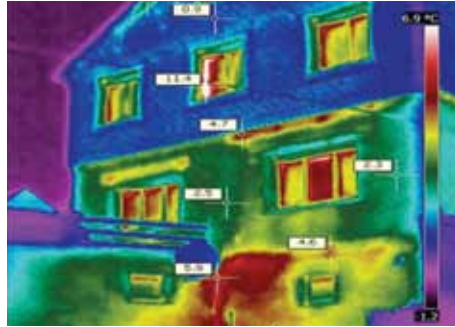
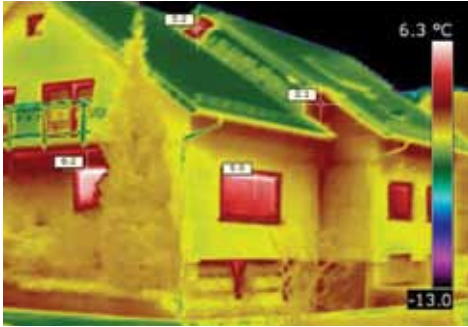
Globus Baumarkt actively promotes their thermographic services.



Hot spots in this thermal image indicate warmth leaking from the building, probably due to faulty insulation.



# APPLICATION STORY



With the FLIR B335 and the FLIR B365 you can accurately measure the temperatures in several locations with only one thermal image.

## 'FLIR: a first class product'

Globus' thermal adventure started a year ago. Christof Warnick and his colleague Thomas Klein were looking into new ways to help the customers of Globus Baumarkt to save on their energy bills, and came up with thermal imaging. "We chose a thermal imaging camera from FLIR because FLIR cameras are a first class product. It's what specialists like architects and engineers use. For us the brand name FLIR stands for quality. We've also tried a Chinese camera, because we have a good connection with that supplier, but the camera they sent over was huge – it weighed about 12 kilos – and it took over 20 seconds to start. That's not practical at all!"

The difference with FLIR was remarkable, according to Warnick. "When we had a look at what FLIR had to offer we were pleasantly surprised. The FLIR B365 is very lightweight and easy to use. Starting up takes just a few seconds

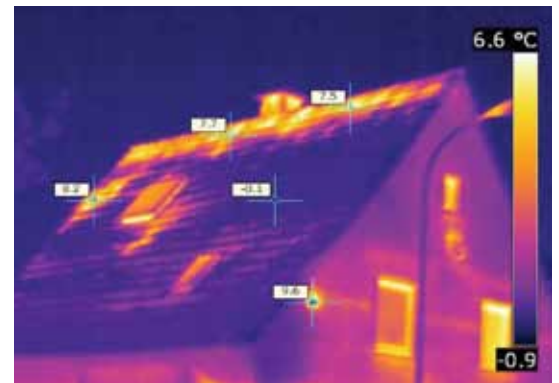
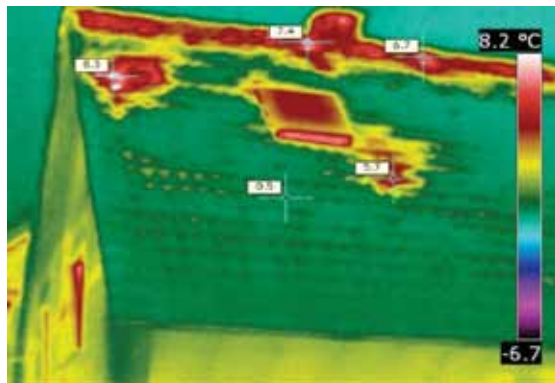
and the image quality is very good. Another advantage of the FLIR camera was the optional 90° lens. That allows you to scan an entire building from a relatively short distance. None of the other thermal imaging producers had such a lens on offer. So FLIR was the only option."

## 'The best service and training'

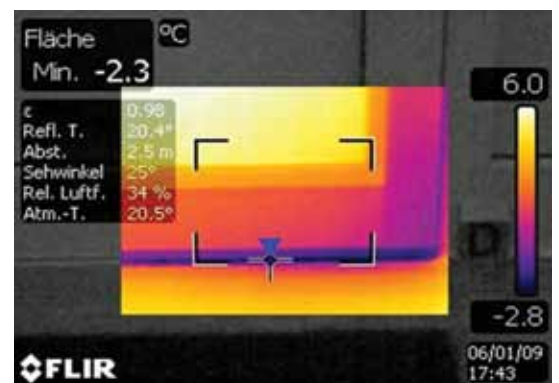
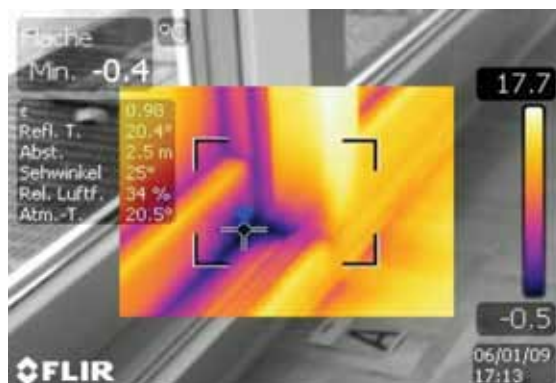
But it's not just the quality of the camera that made Globus Baumarkt choose for FLIR. "FLIR has the best service of all the thermal camera suppliers in Germany. And the fact that FLIR also provides very good training was just as important. If you don't know how to use the camera you cannot expect to achieve the result you want."

FLIR provides training in co-operation with the Infrared Training Center (ITC), the world's leading educational and training resource for thermal imaging professionals. The ITC offers high-quality interactive thermography training from the most qualified international thermography instructors. They give training courses in nearly 50 countries and in over 20 languages. Their internationally recognized certification program indicates the level of training as a Level 1, Level 2 or Level 3 thermographer.

All of the 57 thermal imaging camera operators Globus Baumarkt now employs have completed – or are busy completing – the thermography level 1 training course and according to Warnick that certificate sets Globus Baumarkt apart. "Some of our



Using a FLIR thermal imaging camera the Globus Baumarkt operators brought these insulation deficiencies to light.



The Picture-in-Picture feature of the Reporter software is very useful, especially in combination with Blower Door tests.



These are the first 15 thermography-operators of Globus Baumarkt and their trainer, during their thermography level one course.

competitors offer a thermal scan of your building for a very low price. But the only thing they do is take one thermal picture of the building from the street. That really is quite useless, for you need to look at a building from every side to perform a good analysis. When we perform an energy audit we make about 30-50 pictures of the building from both the inside and the outside. Now that's a sound basis for an energy efficiency analysis."

### Overwhelming success

At first Warnick and his colleagues bought just one camera, a FLIR B365. "We tested it on about 30 cases and received a lot of positive feedback. So we bought another 10 cameras, this time we went for the B335, and tested it on a larger scale: we used those cameras to provide the thermography service at 10 of our stores. Beforehand we had estimated that if we could get 50 energy audits in one week the test was a success. As it turned out we had 130 in that same period. This result was overwhelming. It by far exceeded our expectations. We have bought 14 more FLIR cameras, so we now have a total of 25 thermal imaging cameras in operation and we aim to provide this thermal imaging service at all our stores."

### Blower Door

It's not just faulty insulation that causes energy loss. Especially in older houses small cracks and crevices can cause a draft that can account for up to half of the energy consumed for heating the building. The air leakage pathway is often complex and, without thermal imaging, extremely

difficult to visualize. The best way to analyze the air leakage is to use a Blower Door in combination with a thermal imaging camera. A Blower Door test consists of a ventilator that's installed in a doorway that sucks air out of the building; this causes an air pressure inside the building that's lower than the air pressure outside.

## FLIR B-Series

Globus Baumarkt have both the FLIR B335 and the FLIR B365 thermal imaging cameras. The B-Series of portable thermal imaging cameras take ergonomics, weight and ease-of-use to a new level. Usability is key: FLIR has translated user feedback on comfort and clarity into a series of thermal imaging cameras that have comprehensive and innovative features, specially designed for building environments. The FLIR B335 and the FLIR B365 share the following features:



320x240 pixel resolution



Temperature range -20° C to 120° C



<50 mK sensitivity



Picture-in-picture



Humidity and insulation alarm



3.5" LCD touch screen



Integrated 3.1 Mpixel digital camera



Bluetooth connectivity with FLIR Meterlink™



From left to right: Roland Geipert, FLIR area sales manager; Christof Warnick, store manager Globus Baumarkt Hofheim; Thomas Klein, Globus Baumarkt thermal camera operator; and Bernd Duschek, of the FLIR products distributor TOPA.

Due to that difference in air pressure the outside air rushes into the building through each available opening. "With the thermal imaging camera we localize the spots where the air leakage is the worst. After we've analyzed the entire building we can then advise our client where to take action and try to fix the problem."

According to Warnick most of the time people can fix problems with their insulation themselves. "In about 70 % of the cases people can fix their faulty insulation with our products. In the other 30 % of the cases the people need to call in professionals, mostly

for moisture and mold related problems. But we also uncovered some problems with heating systems that are too complicated to tinker with yourself; sometimes you really need a specialist for such cases."

### 'Every building can benefit'

Warnick and his colleagues also tested their own administration block with a Blower Door using the smoke technique, a method that Globus Baumarkt employs parallel to thermal imaging cameras. "Using the Blower Door we create over-pressure inside the building. We then switch on a smoke-generator, and the amount of smoke

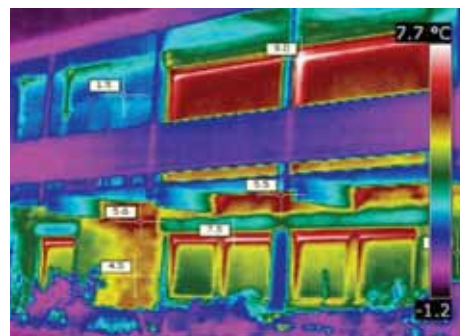
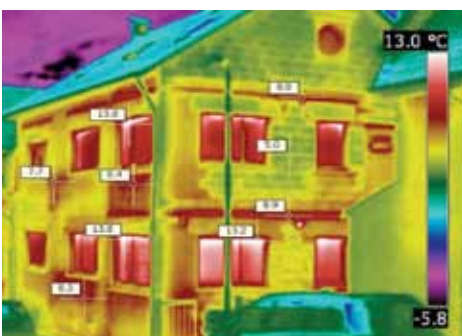
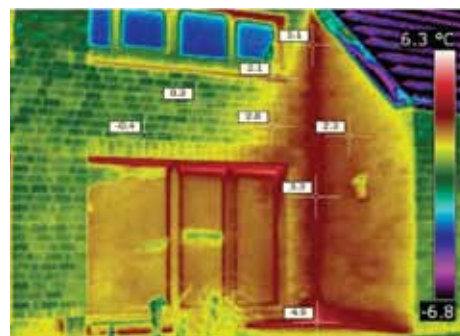
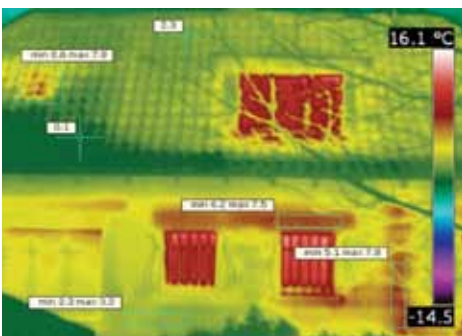
that leaves the building and the location where it escapes indicate where the main air leakage points are. But in this case so much smoke came out that some of our neighbors actually called the fire brigade; they thought the building was on fire. We immediately took extensive measures and I'm proud to say that the building is now quite airtight. It only goes to show that every building can benefit from such a test."

It's not just houses with faulty insulation that needs to be fixed. Sometimes it's the other way around. "We've also had a couple of houses that were too well insulated. You need a certain amount of ventilation to prevent moisture problems and such. Some of the new buildings are completely airtight and in those cases there's a big risk of mold development due to moisture and high temperatures."

### Mold prediction

Predicting mold development is another service Globus Baumarkt provides. "With the help of a FLIR thermal imaging camera we can even predict if and when mold will appear. We can combine air humidity and room temperature measurements with the information we collect with the thermal imaging camera. With special software we can predict how long it would take to develop mold if the situation isn't altered and where it will appear first."

In the beginning the thermal imaging camera operators used QuickReport to swiftly compile their reports, but recently some have tried Reporter as well. "QuickReport is very intuitive and easy to use, but Reporter has more options, so perhaps all the operators will make the switch to Reporter, we're not sure yet." FLIR Reporter software is compatible with both the latest Microsoft operating system and the latest version of Microsoft Word and has the exciting and powerful new triple fusion and Picture-in-picture features. "I think it really allows you to use the FLIR thermal imaging camera to its full potential."



In these cases the hotspots indicate that there's something wrong with the insulation at that location. Thermal imaging helps locate these problems so they can be fixed.

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

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