



The building diagnostic tool preferred by professional home inspectors

Purchasing a house is a major financial investment for anyone. Since a house is fundamental to security of life, it is immensely important to invest in the right property. As the leading expert of home inspection in Japan, first-class architect Mr. Hiroshi Ichimura, uses FLIR's infrared thermography for building diagnosis. Mr. Ichimura has established his "Home and Estate Consulting Center" to provide inspection and diagnostic services in line with customer's requirements. Some customers want houses built from plans so involvement will be from contract to finished construction whereas others want diagnostics on completed new-build houses.

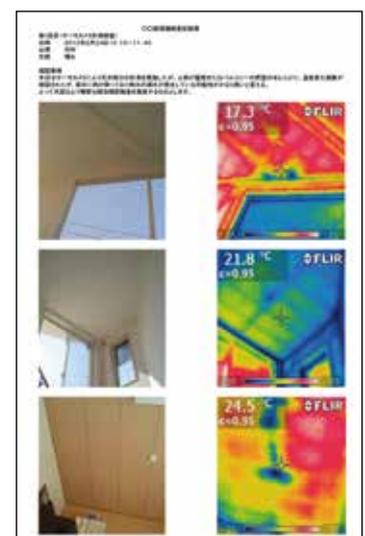
FLIR System's infrared thermography can detect building problems which are invisible to the naked eye. Thermal imaging cameras can visualize building problems such as missing insulation, air leaks, condensation, mold and leaks in floor heating so as to indicate the exact location of the problem.

Based on his experience as a first-class architect who has engaged in the design of about 1800 buildings over 20 years, Mr. Ichimura has so far diagnosed over 200 buildings through his service as a home inspector; a role which was almost unheard of in Japan prior to 2001 when his company was officially accredited as a third party inspection body. Customers can be divided into two types; those who plan to build a new house and require inspections from contract to

completion and those who have already moved into a house (such as a built-for-sale house) and require a house inspection to disclose potential defects.

"Infrared thermography is very useful for inspections during construction and also post-construction diagnosis of built-for-sale houses, where it is especially useful in detecting missing insulation and water leaks," Mr. Ichimura commented.

Mr. Ichimura continues "Although insulation strategies may vary depending on construction methods, the appropriate and careful selection and placement of insulation can have a huge impact on heat-insulation efficiency. Using infrared thermography enables you to ensure visually that



An example of diagnostic report of water leak inspection by Mr. Ichimura. Using infrared thermography helps to identify the exact location of leaks such as on the ceiling speedily so as to improve inspection efficiency.



the choice and installation of insulation is correct. During construction stages, you can check the presence of space between insulation materials and if required request remedial work, to prevent new homes being defectively built.

“For water leaks, severe leaks can be visible as a stain on the building materials but normal moisture ingress is very difficult to identify and locate. Conventionally, moisture inspection was laborious and time-consuming. First, a house inspector would guess where a leak might occur based on the structure of the house. Then, a water leak would be simulated and the site of the suspected leak tested by touching it. The biggest problem with using the conventional method was that in order to judge the extent of the leak further damage had to be caused to the building. Using infrared thermography, however, it is possible to determine the exact location and degree of the leak without causing damage and allowing efficient inspections,” said Mr. Ichimura.

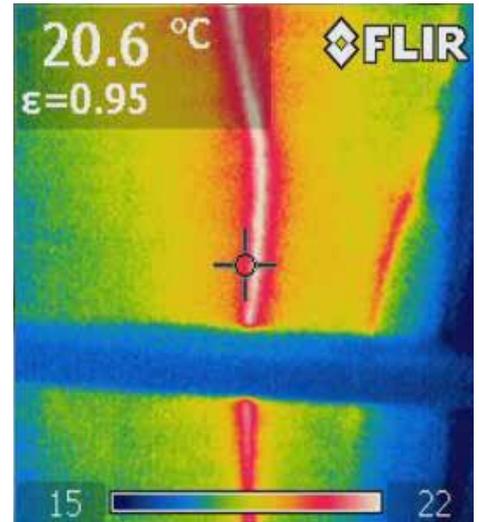
“Water leaks not only tend to damage the wall surface due to moisture with consequent interior mold, mildew, and condensation, but can damage the structural integrity of building materials, which is a serious problem.”

Mr. Ichimura uses the FLIR b60 thermal imaging camera for these applications. The FLIR b60 for building diagnosis is a handheld infrared camera. It produces crisp thermal images of 180 x 180 pixels and has a 2.3 Megapixel digital camera on board. It also includes the extra features you need for building diagnosis such as dewpoint and insulation alarms which highlight areas with risk of surface condensation where mold growth could occur.

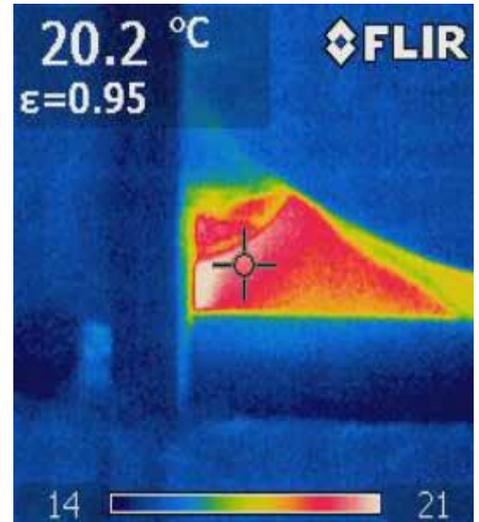
“Infrared thermography enables the visualization of problem areas seen on thermal images. With reference digital photos which show the problem location, it allows us to provide instructions to improve construction operations and to carry out



Example of shoddy construction: There are spaces between insulation materials, resulting in an unwanted air current.



Example of shoddy construction: the insulation left overturned after electrical work



remedial work after the completion of the building. With the infrared images clearly evidencing the problem, the construction agency is forced to admit a defect in the construction.

Mr. Ichimura said there are several points to take into consideration when performing building diagnosis with infrared thermography, “Infrared

thermography has become more affordable than before and useful as a building diagnostic tool for visualizing problem areas. It should be noted that it is essential to understand the structure of each building and simulate the situation where the problem is likely to occur in order to test accurately and increase inspection efficiency.



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The FLIR Ebx-models are specifically designed for building diagnostics and include features such as built-in insulation and dew point alarms needed to make well informed building decisions.

Contact us for further information on thermal imaging cameras and this application.

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