

Non-destructive testing using infrared thermography

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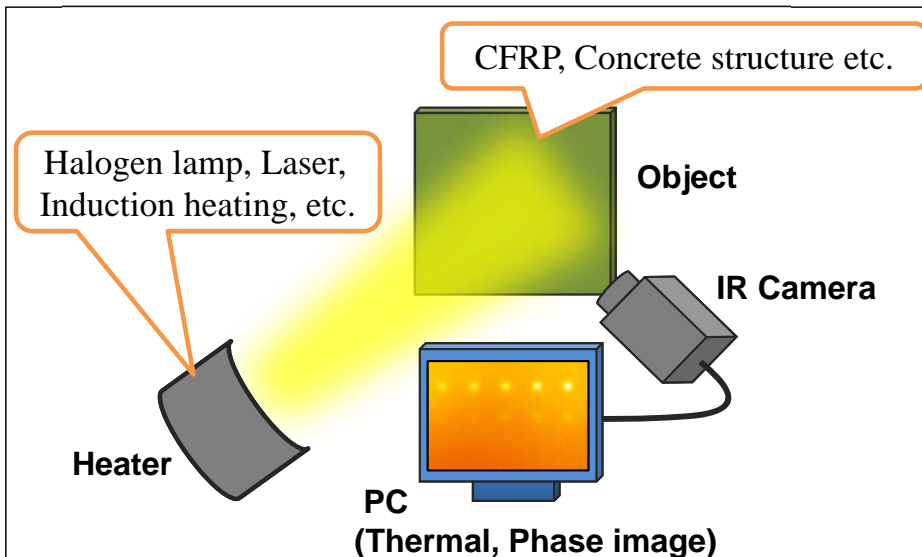


Fig. 1 Schematic illustration of infrared thermographic testing.

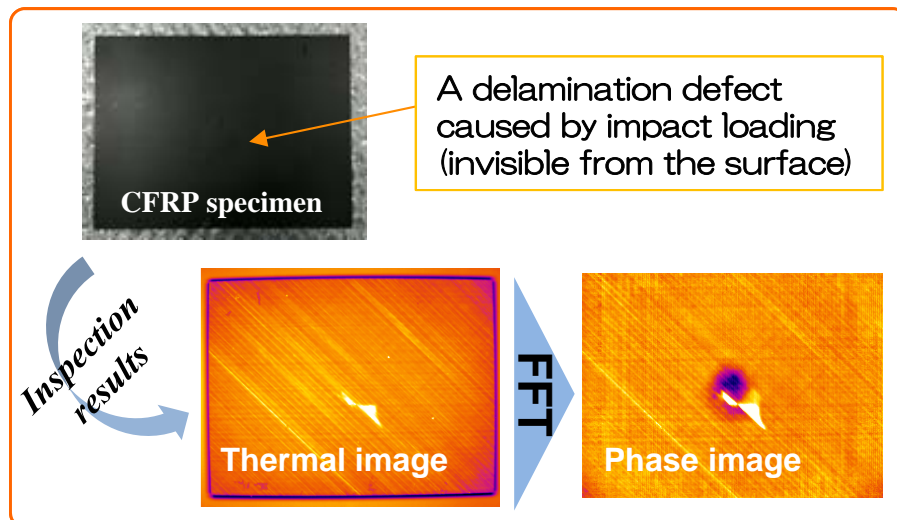


Fig. 2 Comparison of thermal and phase images obtained from experiment for a CFRP specimen with a delamination.

● About Infrared Thermographic Testing

Infrared thermographic non-destructive testing is an effective and convenient inspection method because it is a non-contact testing method and can inspect large area in shorter time. In this method, surface of a test object is heated and temperature distribution after heating is monitored by an infrared camera (Fig.1). When there are some inhomogeneity inside the object, heat flow from the surface is disturbed by them and such a disturbance causes irregular temperature distributions on the surface. By detecting these irregular temperature areas, inside defects can be identified.

● Research

We are studying:

- To improve defect detectability.
use **phase images** constructed by applying Fourier transform to thermal data (see Fig. 2).
- To develop more effective inspection system.
developing remote heating systems using high-power halogen lamps or scanning laser to inspect large structures (such as concrete bridges or large composite structures) located 10-20 m from observer.

Keywords: Non-destructive testing,
Infrared thermography

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