



WATER INGRESS IN A HONEYCOMB CORE

Problem:

During a winter refit period of a sailing yacht, which included some modifications to the hull, water was noted exiting out of the primary hull. The hull was reportedly build in pre-preg carbon epoxy composite (CFRP) over Kevlar honeycomb core in most areas. Only the hull bottom in the slamming area forward of the keel was cored with Divinycell foam core.

NDE Limitations:

Conventions electronic moisture meters (contact type) could not be employed due to use of carbon fibre as build material. Shearography and other Ultrasound flaw detection methods cannot be used for this type of assessment. In fact the vessel had been fully inspected by Ultrasonic Flaw detection and been declared in good order.

NDE Solutions:

A quantitative assessment was made and all area affected by water ingress were mapped using active Infrared Thermography. All affected areas were further inspected using Laser Shearography to identify possible planar discontinuities. Additional pull-off test were carried out to provide a vast array of information to the owners / structural engineers to make informed decision regarding the repair.



CASE STUDY