

Using Infrared Thermography, Photogrammetry and a Remotely Piloted Aircraft System to Create 3D Thermal Models

Authors : C. C. Kruger, P. Van Tonder

Abstract : Concrete deteriorates over time and the deterioration can be escalated due to multiple factors. When deteriorations are beneath the concrete's surface, they could be unknown, even more so when they are located at high elevations. Establishing the severity of such defects could prove difficult and therefore the need to find efficient, safe and economical methods to find these defects becomes ever more important. Current methods using thermography to find defects require equipment such as scaffolding to reach these higher elevations. This could become time- consuming and costly. The risks involved with personnel scaffold or abseil to such heights are high. Accordingly, by combining the technologies of a thermal camera and a Remotely Piloted Aerial System it could be used to find better diagnostic methods. The data could then be constructed into a 3D thermal model to easy representation of the results

Keywords : concrete, infrared thermography, 3D thermal models, diagnostic

Conference Title : ICCET 2022 : International Conference on Concrete Engineering and Technology

Conference Location : San Francisco, United States

Conference Dates : September 27-28, 2022