

Concrete Carpark Inspection with 3D Reality Capture

Overview

- [FPrimeC](#) was hired by the Town of Oakville to perform an intelligent digital inspection and non-destructive evaluation of concrete at a parking lot in Ontario.
- Screening Eagle [INSPECT](#) software was used to facilitate data collection in the field and report the findings.
- The team were able to assess the condition of the existing concrete structure using intelligent digital inspection to reduce their inspection and reporting time.

FPrimeC Solutions is a knowledge-based company specialized in Non-Destructive Testing and Structural Health Monitoring of Structural Systems, providing advanced imaging and scanning for structural concrete.

Challenge

The town of Oakville needed to evaluate the condition of an aging parking lot. FPrimeC were hired to conduct thorough non-destructive testing and digital concrete inspection on the structure.

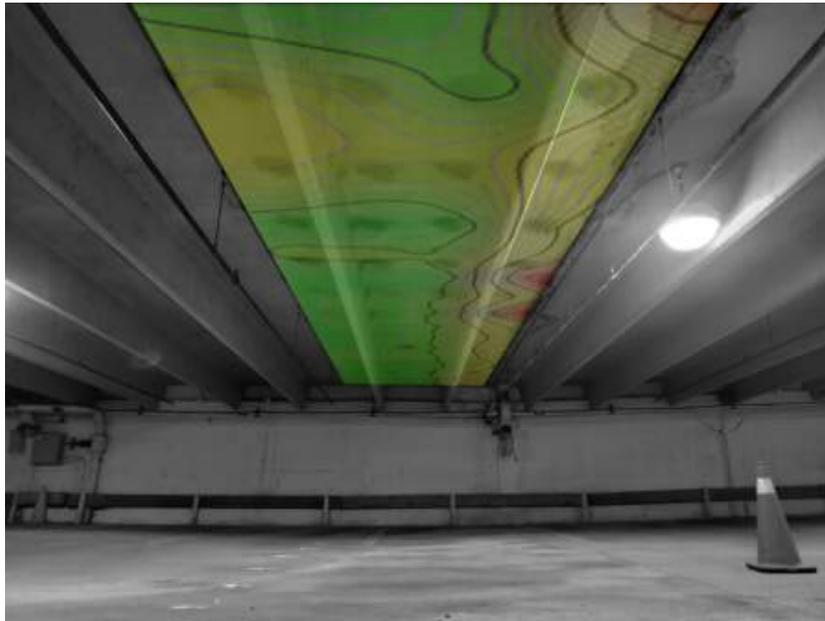
The car park had four levels in total, including the basement and roof levels, made up of precast concrete walls, columns, and beams. The main flooring system consisted of prestressed concrete double tee beams which were connected with steel connectors.

Several joints showed signs of deteriorated seals where moisture penetration had resulted in localized corrosion of steel bars and shear connectors. The corrosion was mainly across the edges of the double tee beams.

Solution

Due to the large size and complexity of the parking structure, FPrimeC used INSPECT, the comprehensive, cloud-connected software platform that facilitates the most productive inspection workflow.

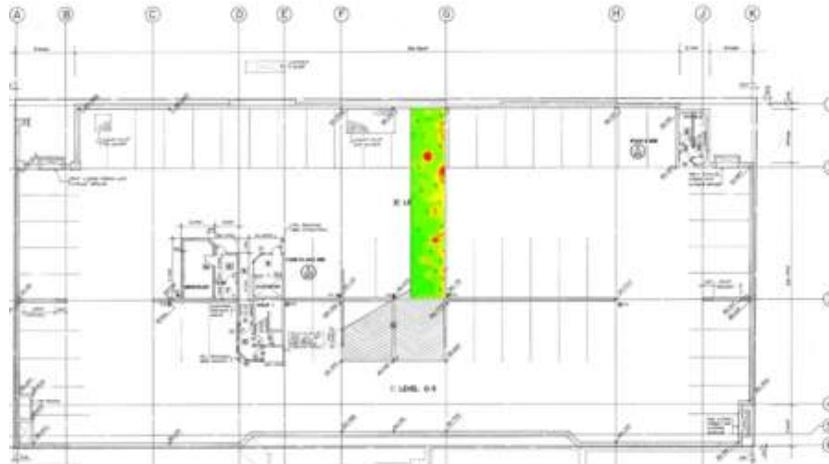
INSPECT allowed the team to efficiently collect deep data in the field with fast and customizable reporting.



Concrete Inspection Results

Screening Eagle INSPECT software empowered FPrimeC engineers with location-based data capture, pinning all visual concrete inspection results to their precise location on the structural drawing plans. This significantly reduced the entire inspection and reporting timeline.

The intelligent software also enabled FPrimeC to easily integrate the results of non-destructive testing and intrusive tests into the existing drawings.



As part of the visual inspection of the concrete car park, 360° Video Capture was used for rapid, accurate and cost-effective inspection of key structural components.

360° Capture reduces the inspection timeline and provides an invaluable visual log for engineers to review back at the office. The video capture can be further enhanced when combined with the 3D Reality Capture feature of INSPECT software.

In this project, the Insta360 camera was used for 360° Capture of the structure as the inspection was conducted. The wireless feature and a telescopic arm help to eliminate the need for an elevated work platform and provides real-time visualizations of defective areas that would otherwise be hard to reach.

Non-destructive Testing and Evaluation (NDT/NDE) was used to evaluate the current condition of concrete double tee beams, with all findings conveniently accessible from one place in [INSPECT](#).

Learn more about concrete inspections with intelligent software in our [Tech Hub](#).



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