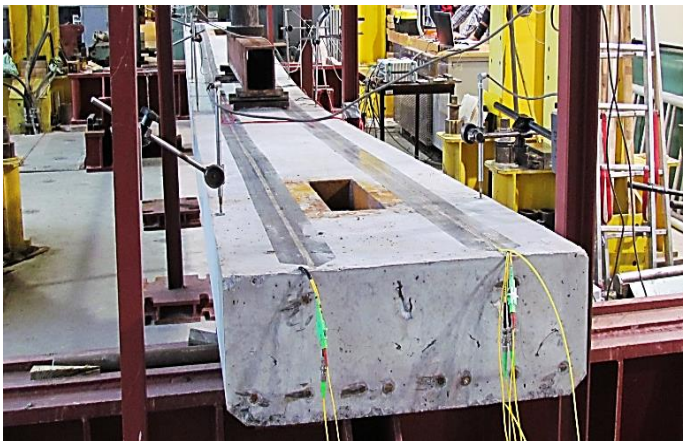
Experimental prestressed concrete truck scale platforms

nerve-sensors.com

EpsilonRebar: Case Study

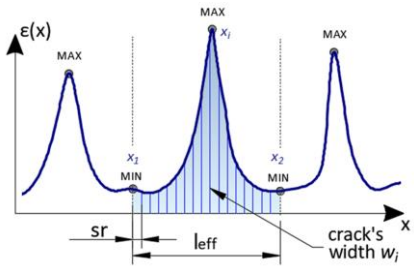
Three 8 m long prestressed concrete truck scale platforms were quipped with EpsilonRebars embedded along the main tendons both in the lower and the upper part. DFOS strain sensors were installed on both surfaces after concrete hardening. The structural performance of the slabs was investigated during all critical stages, including thermal-shrinkage strains of early-age concrete, prestressing & activation of dead weight and finally, during mechanical bending tests.



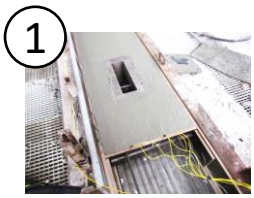
Benefits of application

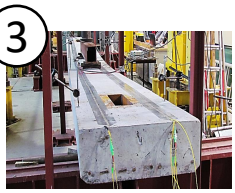
- Structural performance **control during all critical construction stages**
- Analysis of **effectiveness of the prestressing** process, including deflection analysis
- Detection of **all the cracks** formed during mechanical tests within the **tension zone**
- Prediction of **the weakest place in compression zone,** where slabs were destroyed

Example results



A monitoring system with Nerve-Sensors allowed for deep analysis of slabs' performance. The first stage was concrete hardening (1), while the second (2) prestressing with dead weight activation. Finally, mechanical bending tests (3) were done. A detailed investigation of crack morphology and its development was done over time.



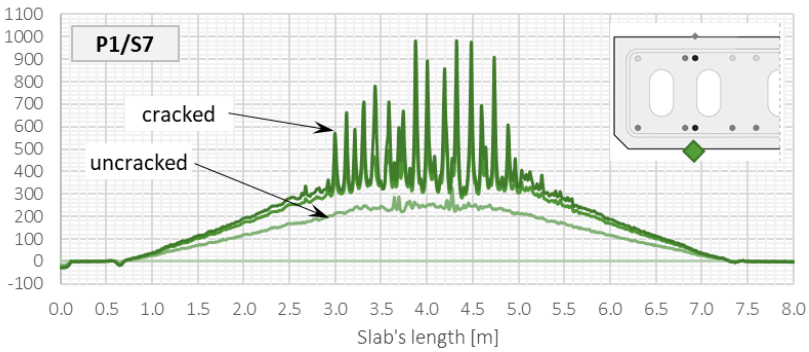


38 400 measurement points

192 m of sensing path

12 x ER, **12 x** strain sensor

short-term



project **partner**:

FABUD WKB S.A.