EDITH COWAN UNIVERSITY

PROJECT DETAILS

Project Title:

Performance of Post-Installed and Cast-In Anchors in Advanced Concretes.

Project Summary:

This project investigates the performance of post-installed and cast-in anchors in advanced concrete, examining how fibre type, content, and orientation influence anchorage behaviour. It characterises failure mechanisms under varied loading and environmental conditions and develops validated numerical models to simulate anchor performance within these high-performance matrices. A life-cycle assessment (LCA) will compare the environmental impacts of different anchor–material combinations. The project will generate experimental data, calibrated models, and sustainability-informed guidelines to support safer and more efficient anchorage design in advanced concretes.

Preferred Applicant Skillset:

The candidate should have strong experimental capability in testing anchors embedded in advanced concretes including pull-out, shear, group anchor, and durability testing under chloride exposure, thermal cycles, and freeze–thaw conditions. Skills in fracture/damage characterisation and fibre-related behaviour (volume, type, orientation) are essential. Proficiency in finite-element modelling and calibration against laboratory data is required to simulate anchor response and crack evolution. Strong analytical, technical-writing, and data-interpretation skills are necessary. Experience with LCA or sustainability frameworks is desirable for linking structural behaviour with environmental outcomes.

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