Capability Statement
IFM Durable Infrastructure Materials

About us

The Durable Infrastructure Materials group at Deakin University's Institute for Frontier Materials (IFM) is an integrated team with multi-disciplinary expertise in engineering, geoscience and chemistry.

The team provides cohesive and comprehensive research capability for Australia's dynamic infrastructure. Our research aims to prolong infrastructure life as well as to improve design of infrastructure for reduced maintenance underpinned by smart, predictive technology.

Core Competencies

Our expertise in durable infrastructure materials technology focuses on two areas:

(i) improving the efficient use of concrete by using lower embodied energy and emissions requirements,

(ii) enhancing durability to extend the service life and functionality of built infrastructure.

Sustainable concrete design using waste and alternative materials

Our green concrete designs use waste and reused materials to impart functionality and performance to traditional concrete mix.

- New concrete mixes for 'green', low carbon dioxide concrete
- Concretes produced from cement containing non-traditional additives

Improved service life and functionality

- We impart exceptional functionality to infrastructure materials for improved longevity. Self sensing, self repairing and energy producing concretes lead to longer service life and greatly extend the functionality of concrete.
- Our new self-sensing concretes and sensor systems will provide non-destructive in-situ monitoring of concrete and concrete based infrastructure for structural health.
- With expertise in bentonite technology, clay mineralogy, soil physics and soil chemistry, our team has key research capability in environmental barrier design for landfill liner technology.

Differentiators

Drawing from years of leadership in major engineering companies and academia, we have delivered on a broad scope of projects that cover national heritage structures, to construction materials policy and specifications issues and local waste and recycling re-use and design.

We are a diverse, multi-disciplined team including structural engineers, clay mineralogists and physical chemists and embrace our enduring partnerships with collaborators at engineering consultancies and national research laboratories.

Companies can access the IFM research facilities to deliver projects that foster the development of technologies, strategies, processes and materials to ensure the optimal durability of existing and new Australian infrastructure.

Research Leaders

Professor Frank Collins

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IFM INSTITUTE FOR FRONTIER MATERIALS

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