

Transforming Waste into Sustainable Flooring



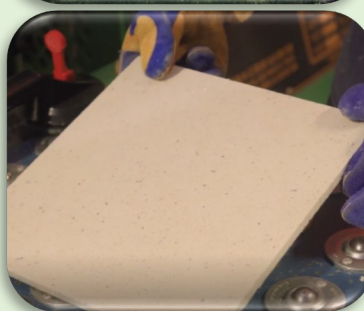
National Environmental Science Program

Sustainable green ceramic flooring

High waste volumes and low recycling rates for plastics and textiles offer opportunities for circular solutions—such as repurposing materials for community infrastructure upgrades such as “Green Ceramics” for flooring applications. Sustainable green ceramic tiles are developed by incorporating waste textiles, plastics, and glass as key feedstock materials. This offers substantial health, safety and lifestyle benefits to residents by reducing dust, allergens, and mould accumulation, minimises trip hazards; facilitates easier cleaning and maintenance and adds aesthetic value to the households. Many Wellington Aboriginal Housing still have carpets over four decades that no longer meet health, safety, and maintenance standards for overall well-being of Indigenous communities.

Community Challenge: Sustainable Flooring Needs in Wellington

- The Aboriginal community in Wellington faces long standing housing infrastructure challenges, particularly related to aging carpet flooring.
- Upgrading older carpets in community-controlled homes would improve health, safety, and maintenance standards, along with increasing the overall well-being of Indigenous communities.
- Intractable waste plastics generated from Wellington Aboriginal Housing, also requires effective waste management strategies specifically tailored to the needs and priorities of Indigenous households.



Project Description: The project was aimed to provide a durable, hygienic, and low maintenance flooring solution that enhances both the safety and overall quality of the living environment for residents. Existing carpet in the kitchen was replaced by installing Green Ceramics tiles in one of the chosen Wellington Aboriginal Housing. Each batch of tiles underwent rigorous testing in accordance with ASTM standards, including flexural strength, compressive strength, water absorption, density, and stain resistance and the results were compared with conventional tiles, to ensure reliable performance and suitability of the tiles for building applications, particularly in flooring and wall installations. In Wellington Aboriginal Housing, floors are generally timber made which is considered an unsuitable substrate for direct ceramic adhesion. Therefore, a rigorous testing regime was also carried out to evaluate the adhesives' long-term performance and durability under challenging environmental and mechanical conditions.

Community Benefits:

- Economical (employment, new market).
- Environmental (recycling, sustainable solutions, pollution)
- Partnerships & collaboration (relationship between stakeholders)
- Capability development (growth potential, cost competitive products)

Outcomes will:

- Contribute to the delivery of the "National Waste Policy 2018" and the "National Waste Policy Action Plan."
- Inform future policy discussions in addressing fit-for-purpose waste management for Aboriginal communities and reducing the impact waste.

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To view the full report, visit the project page for Impact Priority 2

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