

## Biogenic Building Skin for Tropical Context: A Sustainable Approach for Living Walls in Sri Lanka; A Review

Senalankadhikara G.A.G<sup>\*</sup>, Udawatthe C.D<sup>2</sup>, Kaluthanthri P.C<sup>3</sup>

Faculty of Management Studies and Commerce, University of Sri Jayewardenepura <sup>1</sup>  
Department of Estate Management and Valuation, University of Sri Jayewardenepura,<sup>2,3</sup>

*amandra.gayathri@gmail.com, udawatthe@sjp.ac.lk, prathap@sjp.ac.lk*

### ABSTRACT

In the contemporary landscape of escalating global challenges, characterized by the swift pace of urbanization and escalating environmental concerns, the demand for sustainable building solutions has risen to the forefront as an imperative. This review paper undertakes a thorough examination of two cutting-edge technologies – pervious concrete for green walls and bio-colonization layered concrete panels – in response to this critical necessity, specifically within the distinctive environmental context of Sri Lanka. An extended review conducted on two novel technologies such as, Pervious concrete, known for its permeability, allows for effective water drainage and absorption, reducing the risk of flooding in urban areas. The review delves into the adaptability of this technology within Sri Lanka's unique environmental context, considering factors such as local climate, soil conditions, and vegetation. Field studies form the cornerstone of this investigation, providing invaluable insights into the feasibility and potential challenges associated with implementing pervious concrete for green walls in Sri Lanka. The second technological innovation explored in this review is bio-colonization layered concrete panels. These panels leverage the natural growth of microorganisms, such as moss and algae, to create a living, breathable surface. The paper assesses the adaptability of this technology to the Sri Lankan environment, considering factors like humidity, temperature, and indigenous flora. Field studies contribute nuanced perspectives on the feasibility and challenges associated with the integration of bio-colonization layered concrete panels in sustainable building practices. As the global community strives for sustainable urban development, understanding the intricacies of these innovative technologies becomes paramount. The review not only highlights the potential benefits of pervious concrete and bio-colonization layered concrete panels but also sheds light on the challenges that may hinder their widespread adoption. By grounding the investigation in field studies, the paper aims to provide practical insights that can inform decision-making processes and contribute to the development of context-specific, sustainable building solutions in Sri Lanka and beyond.

**Keywords: Bio-colonization layered concrete panels, Building Skin, Pervious concrete, Living walls, Tropical context**