

Thesis Title :

Integration of double skin green wall as a sustainable design approach in tropical context

Abstract :

Integration of green facades with buildings is rapidly popularizing around the world, due to the aesthetic and sustainable benefits they offer. Green façades offer the benefit of improving the urban environmental conditions by promoting air quality, reducing heat island effect and etc. thus promoting the wellbeing of occupants. The research focus on investigating the potential of integrating an innovative green panel modular system for building facades as the external skin of a double skin envelop. The use of green wall as a double skin is less researched in tropical contexts thus, the possibility of using green wall as an external double skin is still not fully identified. Aim of the proposed research is to develop a modular green panel to be used as a double skin as a sustainable design approach in buildings in the tropical context. The research focuses on developing a modular green panel system that can be integrated as the external skin of a double skin envelop giving attention to its performance characteristics, potential usage, size, fixing angle, maintenance and etc. Panel development is based on the findings of on-site studies of existing vertical greening systems in Sri Lankan context and research outcome of studies done worldwide. Further, the research investigates the environmental benefits achievable with the integration of developed modular panel walling system in built space, thermal regulation potential, the contribution on the building envelope performances for energy efficiency and the environmental and economic aspects utilizing simulation studies.