



ABSTRACT

The University of Cape Town uses a unique roughcast plaster on many of its buildings' facades across its campuses, however, the plaster is currently severely failing in many locations. This plaster is commonly known as the UCT Plaster but is also known as the University Plaster or Lutyens Plaster. Of the buildings on which the plaster is applied, some date back to the 1920s which gives the UCT Plaster heritage significance. This significance adds complexity to the research project as a balance between the development of a new functioning plaster and heritage aspects of the UCT plaster must be met. Previous research determined the UCT plaster to be failing through cracking, delamination, spalling and surface deterioration. Where delamination had the highest frequency and severity. These failures have been associated with a defective plaster specification and substandard plastering workmanship. Therefore, a solution to UCT's failing plaster facades needs to be found as the current status quo of repairing the facades with a defective specification and substandard processes is having repeated failure. This is causing social, economic, and environmental impacts for UCT which is not sustainable. Social impacts from the health and safety risks resulting from falling plaster. Economic impacts from the increased maintenance budget. Environmental impacts from unnecessary construction waste. Past research has developed a plaster specification with excellent bond strength and colour adaptability, among other technical performance improvements. However, further optimisation, characterisation testing and a 1-year long field test of this specification is needed. The plastering specification and process can then be standardised for future use around campus. Therefore, the aim of this research project is to provide an Optimised UCT Plaster specification that will mitigate UCT's roughcast plaster-induced problems of cracking, delamination, spalling, and surface deterioration; and to standardise the specification to ensure replication of its intended performance on site.
