

Structural Stability and Strength Analysis of Lightweight Cellular Concrete

Miss. Ruchita Rajendra Nibe¹ and Dr. P. K. Kolase²

Student, ME Structural Engineering, Pravara Rural Engineering College, Loni¹

Professor (HOD), Dept. of Civil Engineering, Pravara Rural Engineering College, Loni²

Abstract: Concrete is most important construction materials. Concrete is a material used in building construction, consisting of a hard, chemically inert particulate substance, known as an aggregate that is bonded together by cement and water. Lightweight concrete maintains its large voids and not forming laitance layers or cement films when placed on the wall. This research was based on the performance of aerated lightweight concrete. Lightweight Cellular Concrete (LCC), known for its low density and thermal insulation properties, is increasingly used in modern construction. However, concerns remain regarding its structural stability and mechanical strength, especially when modified with foam agents and recycled materials. The incorporation of waste crushed CLC (Cellular Lightweight Concrete) blocks as a partial replacement for fine aggregates presents a sustainable solution to construction waste, but its impact on the structural performance of LCC is not fully understood. This study aims to analyze the structural stability and strength characteristics of LCC modified with varying proportions of foam agent and crushed CLC waste, to determine optimal mix ratios that balance sustainability with performance

Keywords: CLC, Lightweight Cellular Concrete, waste, foam agents, Concrete, Compressive Strength

