

Design of Odd Shape Slab using Yield Line Theory

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Abstract: *This study investigates the mechanical properties of concrete through a series of experimental tests, including cube compressive strength, split tensile strength on cylinders, and slab deflection behavior under loading. Compressive strength tests were conducted on concrete cubes at 3, 7, and 28 days to evaluate the strength gain over time. The results indicated that the average compressive strength at 28 days exceeded the targeted and characteristic strengths, confirming the effectiveness of the mix design. Additionally, indirect split tensile strength tests were performed on cylindrical specimens at 7 and 28 days, revealing a consistent increase in tensile strength with curing age. Further, load-deflection behavior and crack patterns were analyzed on rectangular, square, circular, and triangular slabs to understand structural performance under load. Among the tested slabs, the triangular slab demonstrated the highest load-carrying capacity, while the circular slab exhibited the greatest deflection at failure. The results collectively affirm the strength development and structural adequacy of the concrete mix, providing valuable insights for applications in civil engineering structures*

Keywords: Concrete strength, Compressive test, Split tensile test, Load-deflection behavior, Structural performance

