

Refined Methodology in Design of Reinforced Concrete Shore Pile: A Design Aid

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Abstract

Shore piles with rock anchors are considered as distinct types of retaining walls. The idea behind the erection of shore piles is to protect structures surrounding the construction site from collapse due to the formation of a slip circle. A very limited guidelines and solutions are available in the existing literature for the design of shore piles. The earth pressure distribution differs along the depth of excavation from ground level depending upon the density of soil and occurrence of the water table below the ground surface. This paper represents a finite element analysis of shore piles with *Staad Pro. V8i*. Experimental investigation of earth pressure and surcharge load on shore piles from opposite sides of excavation with two platforms in the case of breaking loads with case study are discussed. A parametric study was conducted to enable a discussion of the effects of the distribution of active lateral earth pressure and surcharge and fixity generated due to rock anchors on maximum flexural moment generated on shore pile, which is analyzed as a rectangular beam. Updated practice is suggested to enrich the manual calculation with software aid in the bending moment of the wall.

Keywords

- Shore piles
- Rock anchors
- Finite element analysis
- Staad pro. V8i
- Earth pressure