

## Comparative Study of Arch Bridges with Varying Rise to Span Ratio

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**Abstract :** This paper presents a comparative study of Arch bridges based on their varying rise to span ratio. The comparison is done between different steel Arch bridges which have variable span length and rise to span ratio keeping the same support condition. The aim of our present study is to select the optimum value of rise to span ratio of Arch bridge as the cost of the Arch bridge increases with the increasing of the rise. In order to fulfill the objective, several rise to span ratio have been considered for same span of Arch bridge and various structural parameters such as Bending moment, shear force etc have been calculated for different model. A comparative study has been done for several Arch bridges finally to select the optimum rise to span ratio of the Arch bridges. In the present study, Finite Element model for medium to long span, with different rise to span ratio have been modeled and are analyzed with the help of a Computational Software named MIDAS Civil to evaluate the results such as Bending moments, Shear force, displacements, Stresses, influence line diagrams, critical loads. In the present study, 60 models of Arch bridges for 80 to 120 m span with different rise to span ratio has been thoroughly investigated.

**Keywords :** arch bridge, analysis, comparative study, rise to span ratio

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