Analysis of Different Span of Skew Slab Bridge by STAAD PRO V8I Software using Finite Element Method

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ABSTRACT

There is a colossal development in number of skew bridges or flyovers; particularly in metropolitan and creating urban areas. Because of straightforwardness in construction and requirements of space accessibility in urban communities; expressway trades or grade separators, the skewed slab bridges are adopted rather than regular rectangular slab bridge. Literature survey revealed that study of Skew Bridge at different angle.

INTRODUCTION

Bridge is an important structure required for the transportation network. Now a day with the fast innovation in technology the conventional bridges have been replaced by the cost effective structured system. For analysis and design of these bridges the most efficient methods are available. Different methods which can be used for analysis and design are AASHTO, Finite element method, Grillage and Finite strip method.

OBJECTIVES

To Analysis & Design of different span of skew slab bridge for an 15∘ angle

METHODOLOGY

In this research work, we have used STAAD PRO software which is based on the application of Finite Element Method. This software is a widely used in the field of structural design and analysis. Now a day this software is very much friendly for the analysis of different type of structures and to calculate the result at every node & element wise.
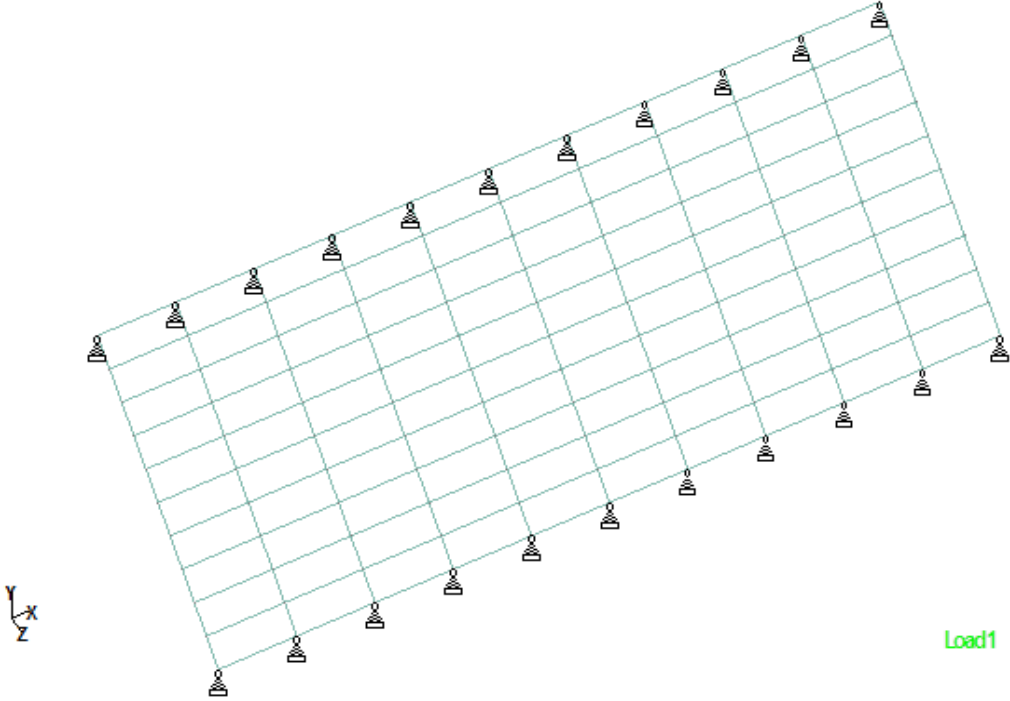
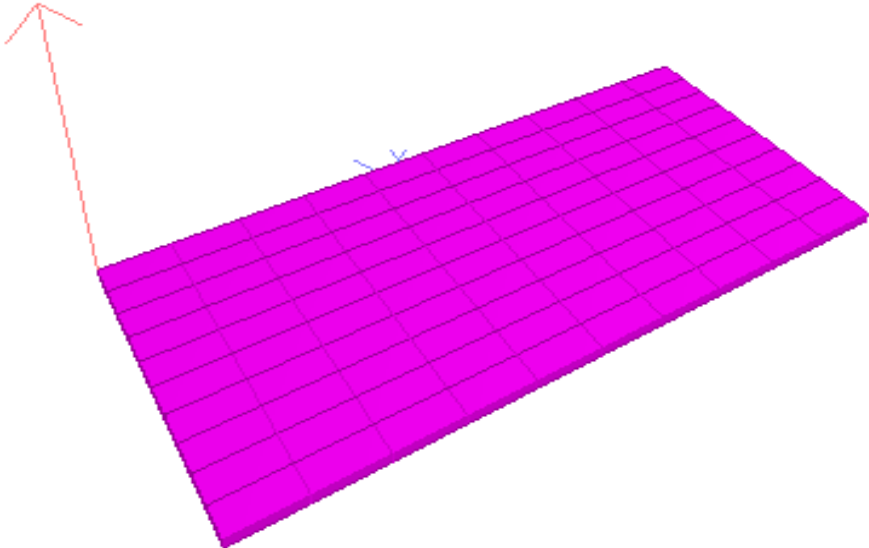**Fig 4.1 Plan view of slab with 15m span length at 15° skew angle**

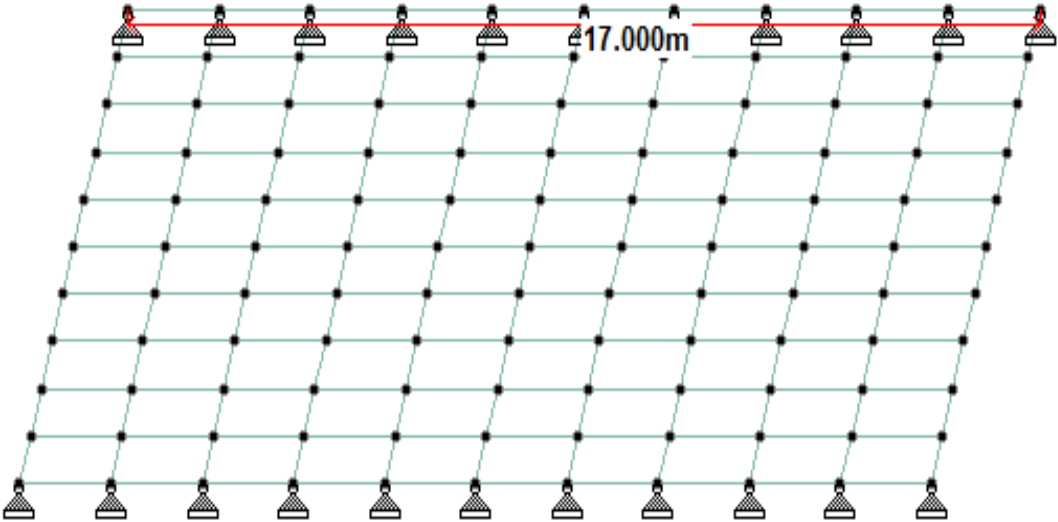**Fig 4.2 3D view of slab with 15m span length at 15° skew angle**

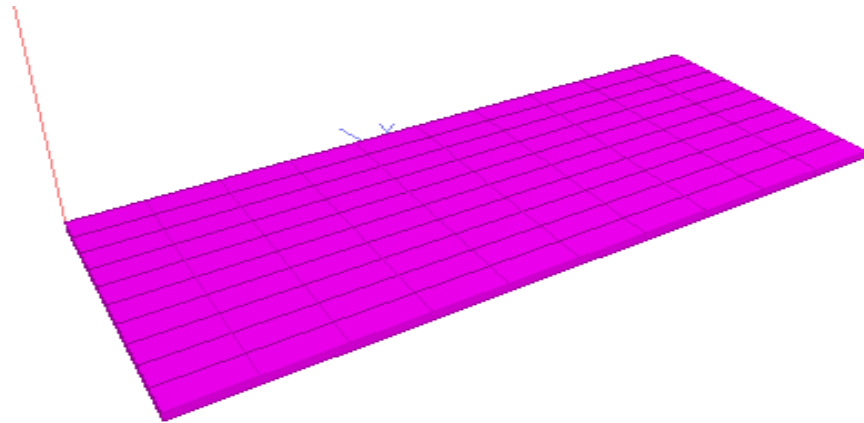
Fig 4.3 Plan view of slab with 17m span length at 15° skew angle

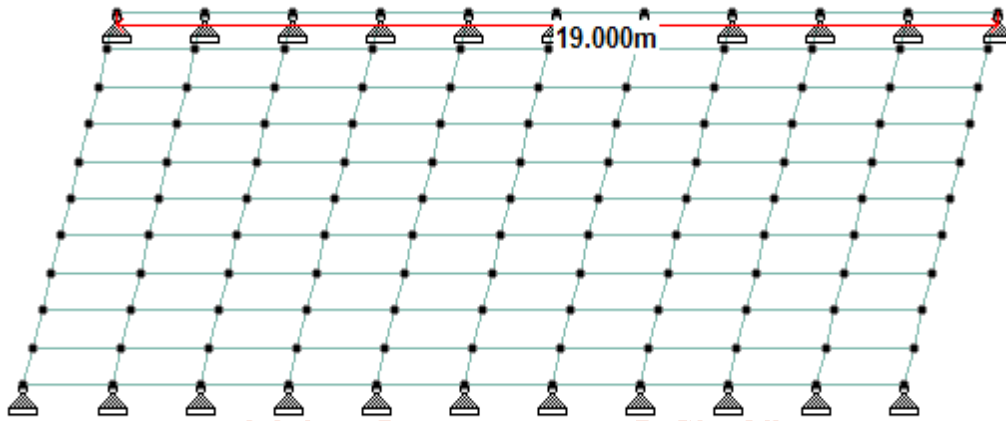**Fig 4.4 3D view of slab with 17m span length at 15◦ skew angle**

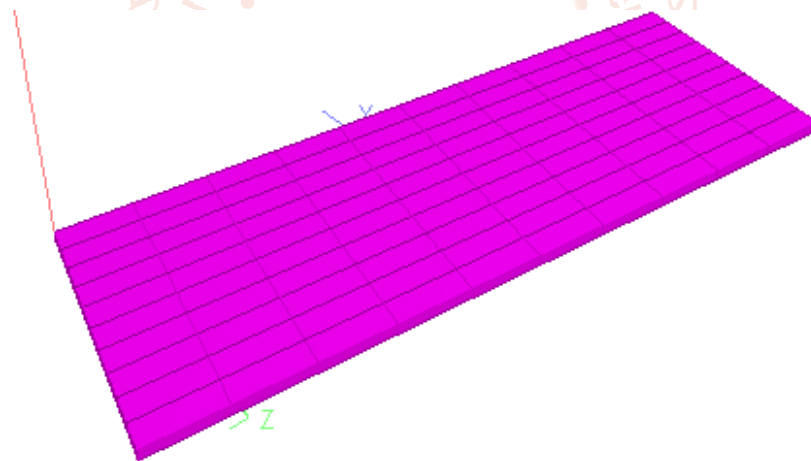**Fig 4.5 Plan view of slab with 19m span length at 15◦ skew angle**

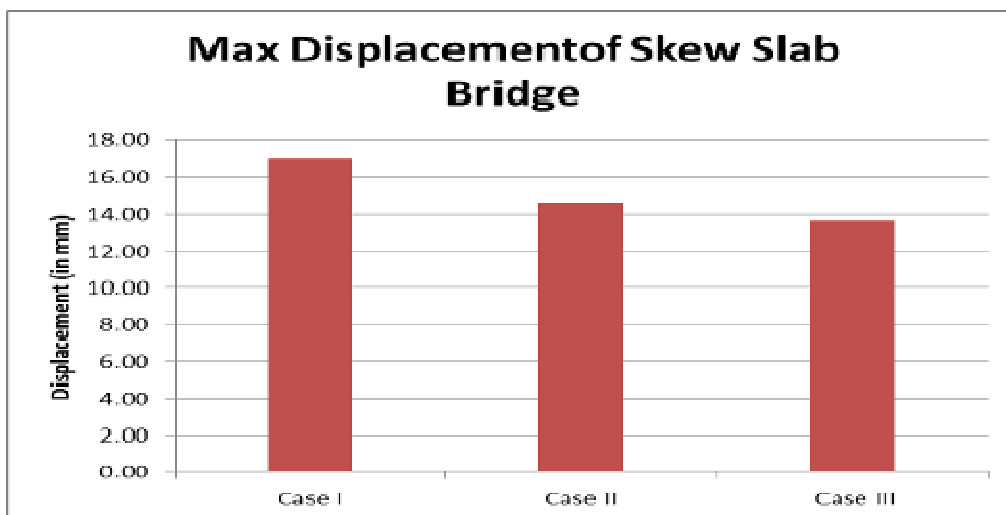**Fig 4.6 3D view of slab with 19m span length at 15◦ skew angle**

Results

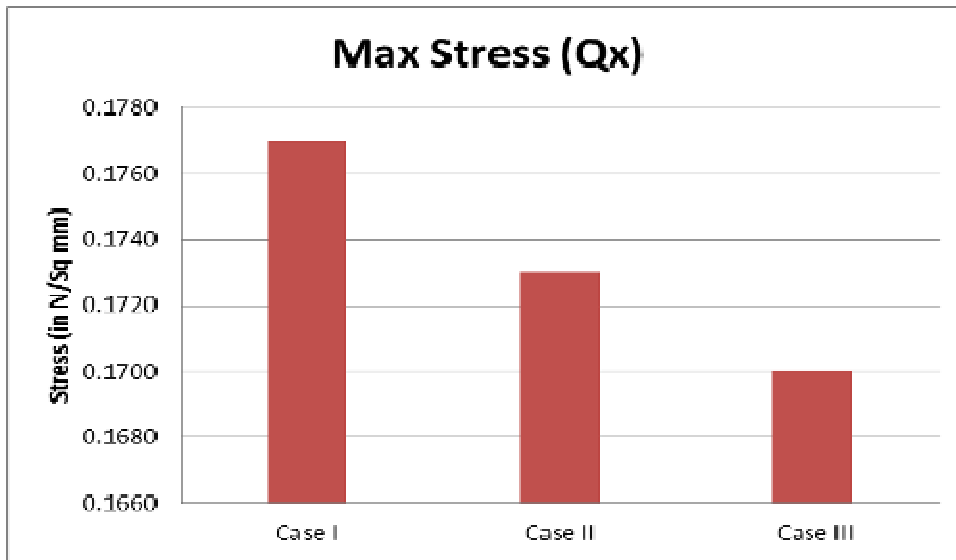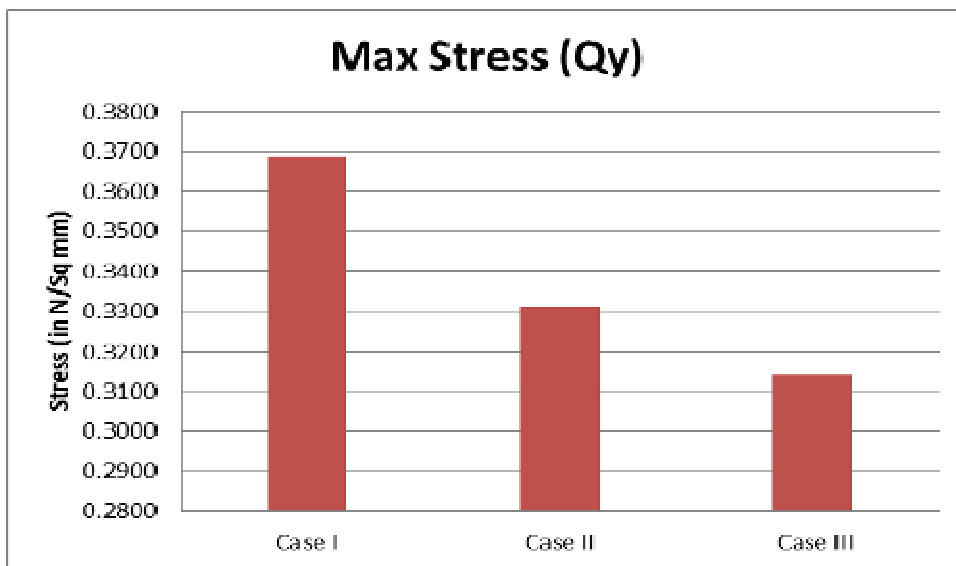**Figure 5.1 Maximum Displacement Graph**

Figure 5.2 Maximum Stress Qx Graph

Figure 5.3 Maximum Stress Qy Graph
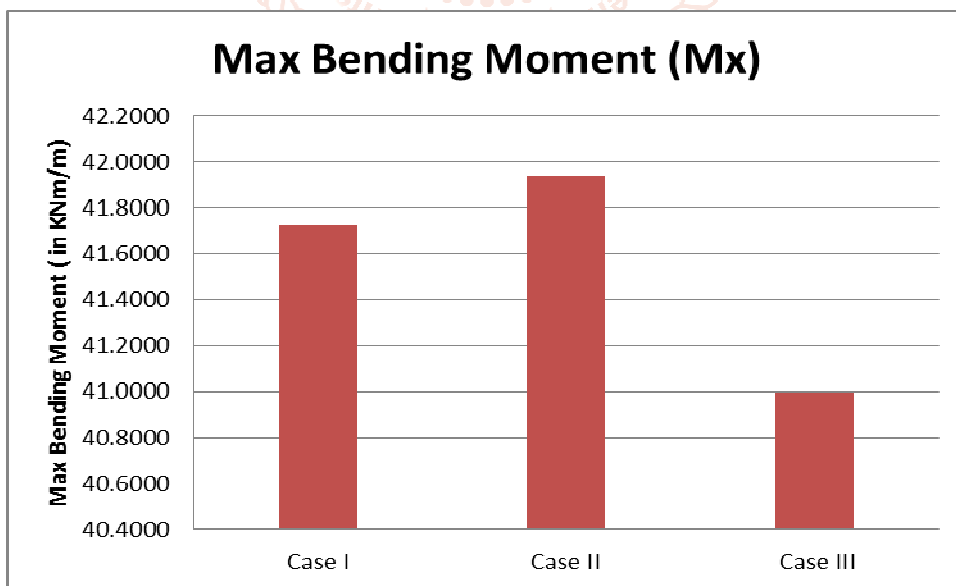

Figure 5.4 Maximum Bending Moment Mx Graph
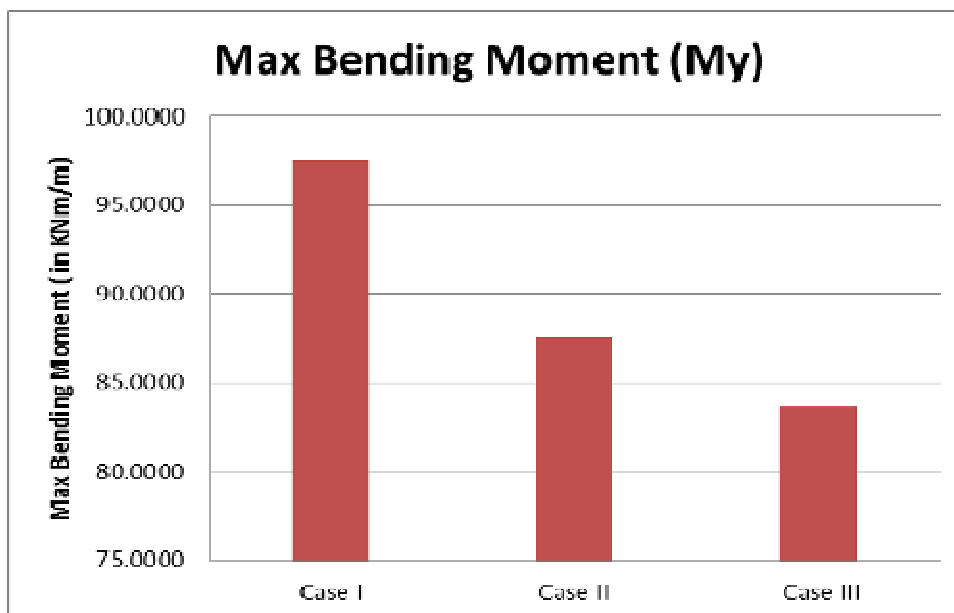
Max Bending Moment (My)

Figure 5.5 Maximum Bending Moment MY Graph

CONCLUSION

Skew bridges are required to cross the drains at any angle other than normal. Effect of longitudinal Bending moment by the variation of different span length, When span is increases than Maximum Bending Moment in X Direction (in KNm/m) of Skew Slab Bridge is decreases from 41.727 to 40.998 and Max Bending Moment in Y Direction (in KNm/m) .

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