

## **ANALYSIS AND DESIGN OF FOOT OVER BRIDGE USING HSS**

**MOHAN GUPTA AND SHEKHAR GUPTA**

### **Abstract**

With the rapid development in urban sector in our country, construction of roadway and railways network is very fast now a day as six lining, four lining of highways and Railway Track increment. This trend is likely to continue for next ten years thus due to increased traffic and development there is great need for construction of foot over bridge to safely cross the fast moving traffic. Foot over bridges offer a wide range of opportunities for imaginative and innovative architectural design. Design should be as attractive as possible. The structure should be in harmony with surrounding environment. The proportion of different elements of the bridge should be proportionate. The external finish and painting should be such as to enhance the elegance of the bridge.

A proper design of foot over bridge is very important since the clear span is 30 m & clear height above road level is 7.5m Poor design might contribute to disasters. Generally the feet over bridges are constructed with intermediate columns so that clear span is around 10-15 m. This constraint resulted a large span foot over bridge. As the span is more therefore the size of supporting members has to be very large too. At the same time, the large size of the members will contribute to heavy self-weight and hence create more moment to the support. In order to achieve equal high strength and light-weight, tubular steel members are the best alternatives. On the order hand, if the foot over bridge is supported solely by the steel beam of 30 m, heavy depth of beam have to be involved in order to get the structure to be in stability. In this case, trussed arch can be adopted in design to enhance structural efficiency of the foot over bridge. The adoption of HSS (Hollow Structural Sections) would minimize the material. There is overall saving on Life Cycle Cost basis. If we compare on Direct Cost basis steel is costlier than concrete. There is saving of quantity of steel on using HSS as compared to regular section, but the total cost will be almost same.