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New Generation of Footbridges for Delhi, India

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With the growing urbanisation and traffic in Delhi there is need for many footbridges across wide roads for the safety of the pedestrians. As a result, there is a tendency to use the median verge of the carriageway to provide a support to reduce spans and costs. The substrata in Delhi consists of soft soil and the city is located in moderately high seismic zone and basic wind speed of 47m/sec.

The proposed Footbridge concept was evolved for sustainability (REDUCE, REUSE, RECYCLE). In India, footbridges often form small part of bigger tenders and hence would be constructed at different times by contractors of varying capability especially as far as steel fabrication and erection is concerned. The concept had to be simple and economical and capable of being dismantled and re-erected at a different location should this become necessary. Use of HSFG bolts to assemble the transportable length of structure and clamping the structure to the foundation by use of prestressed bolts were some of the techniques that were adopted.

The final concept was a structural steel arch with the walkway suspended by HTS stainless steel bars. Aesthetic studies indicated that the best results would come from minimum possible depth of the deck, which excluded the possibility of a bow-string concept. So far 5 such bridges are already in service and another 5 are in advanced stage of fabrication. Studies were carried out for aerodynamic and pedestrian excitation.

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