

Architectural and Environmental Friendly Designs for Urban Bridges

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ABSTRACT

In the past building was the important thing- not its impact on the surroundings. Now we must think in a different fashion while constructing in cities. The form, size and shape of the structure are of great significance. We have to build without slowing or shutting anything down. As a matter of fact, the structural conception and the selection of construction technology must primarily be driven from these aspects. New challenges have been thrown up by the increase of terrorist and vandal activities, which at least can be partly overcome by robust construction.

The new generation of bridges in Urban Delhi are changing the city's skyline. Prestressed concrete is the dominant construction material used. New structural forms and technologically advanced techniques are being adopted. These bridges and flyovers demonstrate the possibilities of creating environmentally sensitive durable and aesthetic structures, which are appropriate to local conditions from the point of view of constructability as well as cultural settings.

Urbanisation has spawned a combination of short bridges and long elevated structures, fulfilling their utilitarian function of permitting traffic to cross over obstacles like roads, rail tracks, streams etc. and providing signal free highways across the city. However, to disregard the repercussions of implanting a large and permanent structure within the existing environs can have detrimental effects on the very environment it is trying to improve. Thus, the emphasis on the form, shape, texture of these structures assume paramount importance. Concrete is obviously the first choice of material for such structure, due to its incomparable quality of mouldability.

The main issues concerning urban infrastructure projects involved the following main considerations:

1. ENVIRONMENTAL IMPACT & AESTHETICS



Fig.1: Aerial View AIIMS-Safdarjung Crossing

2. ROBUSTNESS TO ENCOUNTER ACTIONS OF TERRORISTS AND VANDALS



Fig.3: Kalkaji Flyover-Integral Construction High Durability, Low Maintenance, Increased Safety

3. UNDERGROUND UTILITIES



Fig.4: Example of Underground Utilities

4. FAST TRACK CONSTRUCTION



Fig.2: MRTS Viaduct & Underpass at Pitampura, Delhi

5. OTHER IMPORTANT ISSUES

- Safety during construction
- Land acquisition
- Disputes

The paper illustrates the main issues of urban bridges by example of several award-winning structures.