

# Hall of Sports

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With the purpose of utilising structures built for the Asian games for other purposes after the games are over, the Hall of Sports was originally planned as permanent exhibition space for various state governments to participate at international trade fairs and exhibitions periodically held at Pragati Maidan, Delhi. The hall, part of the states exhibition complex located near gate no 3, is being built in two phases. The first phase will have a plinth area of 7880m<sup>2</sup> with scope to add a further 5140m<sup>2</sup> later on. The hall is eminently suitable for indoor sports, and table tennis and boxing events will be held there, Fig 1. Further the hall is close to the National stadium and the Indraprastha indoor stadium where other Asiad events are to be held, making it very convenient for spectators to move from one event to another.

The Hall consists of a main central hall, octagonal in shape, of size 44.2m square supported on eight circular hollow columns. Four other big halls,

23.8m square each lie on alternate sides of the octagon, also rest on four hollow circular columns of 3.4m diameter and shell thickness of 280mm. Four smaller halls lie on the remaining alternate side of the main octagon, also rest on four columns, two of which are hollow circular, and two are U-shaped. The roof of the central hall is at the 23.0-m level. The four big halls are three-storeyed with roof levels at 5.25m, 10.5m and 17.3m, respectively, while the small halls are two-storeyed. At the third floor level a tie beam to complete the octagonal shape of the girder is provided, Fig 2.

The central hall provided in the centre of the structure is a large span structure, constructed in reinforced concrete without prestressing. Its roof has been made from four intersecting inclined and horizontal portals such that the size of roof is 23.8m × 23.8m. In the inclined portion, horizontal fins resting on inclined ribs parallel to inclined portion of the portal have been provided. Glass bricks have been fitted for natural lighting of the central hall.

To support the four big halls, four circular hollow columns with shell thickness, 280mm, have been provided, Fig 3. The roof and floors of these halls have been designed as a grid floor, resting over hollow box girders of size 3.4m × 1.0m, Fig 4. The size of grid is 2.26m square. The hollow box girder is further stiffened by diaphragms at 2.26-m intervals. The decision to provide hollow box girders was taken with a view to reduce the dead-load of the beam and because of high torsional rigidity of box girders.

Initially, when the project was taken up, the consultants thought of providing a space element in the roof. But due to shortage of time it was decided to provide a grid flooring. Prestressing of beams was not thought to be suitable, due to the tight time schedule under which the building was required to be completed.

The length and width of the building is 95 × 95m. In spite of such dimensions no expansion joint has been provided; being a symmetrical structure, it was