

For organising International Trade Fairs several Halls of Industries were constructed at Pragati Maidan, New Delhi, in the last fifties. The main structure of the Halls of Industry are basically space frame structure with rhomboidal members connected to precast joints are situated in seven levels in all.

The number of members connected to a particular joint varies from 5 to 9. The maximum number of members in one plane is six. To give architectural effect some of the triangular panels formed by the members have gunited plates of 50mm thickness, and these plates provide the separating medium between the inside of the hall and the outside.

With the passage of time, inadequate cover of concrete in the rhomboidal members and the gunited plates. The result was varying degree of distress in them starting from formation of cracks leading to spalling and disintegration of the plates and members. The state of distress required large scale rehabilitation of the structures.

Rehabilitator of Hall of Industry No.3 was done with Tapecrete P-151 which is an acrylic polymer modifier for cementitious mixes (PMC MIXES). Tapecrete P-151 was used extensively for making mixes of the following repair medium.

1. Free flowing concrete.
2. Mortar for repair of spalled concrete
3. Slurry & mortar for repair of cracks
4. Anti-carbonation and waterproof coating.

#### **Cross-Selection of Rhomboidal Members**

The free flowing concrete was required to cast in-situ for some of the rhomboidal members which had become discontinuous. The members were generally repaired after dismantling loose concrete, cleaning of the rust from main reinforcement and protecting the reinforcement both old and additional one with Tapecrete P-151 slurry coat. Proper shuttering had to be used for all levels depending on the location of the discontinuous members.

PMC mortar using Tapecrete P-151 was extensively used for repair of spalled rhomboidal members, the area of spalling exceeded 1800 m<sup>2</sup> for the Hall. Depending on the depth of Spalling two kinds of treatment were adopted for the rehabilitation work. In both the cases Tapecrete mortar was used on the exterior with 15 mm thick protecting layer.

For repair of cracks, chiselling a groove and filling it with Tapecrete p-151 mortar after a PMC slurry coat was adopted for cracks running into total length of about 3000m. The cracks were generally due to rust formation on the reinforcing steel.

All the rhomboidal members, joints and all the external surfaces of the external surfaces of the gunited plates were provided with an anti-carbonation and waterproofing coating by the application of Tapecrete P-151 and cement slurry coating.

The work in Hall No. 3 was completed to the full satisfaction of the C.P.W.D. Authorities, who have subsequently decided to rehabilitate other Halls.