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# Steel-Reinforced Concrete Structures for a TV-Tower

Constructions mixtes pour une nouvelle tour de télévision

Verbundkonstruktion für einen Fernsehturm

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In year 1989 have been in Praha finished the main structures of 216 m high television tower. The structure is articulated, asymmetric, the cabins for various purposes are in the height divided (Fig.1). The cylindrical shafts are mutually connected by means of cross beams and horizontal diafragms mostly situated in the cabins to form a spatial rigid frame system (Fig.2). The dominant shaft has a diameter of 6,40 m and in a height of about

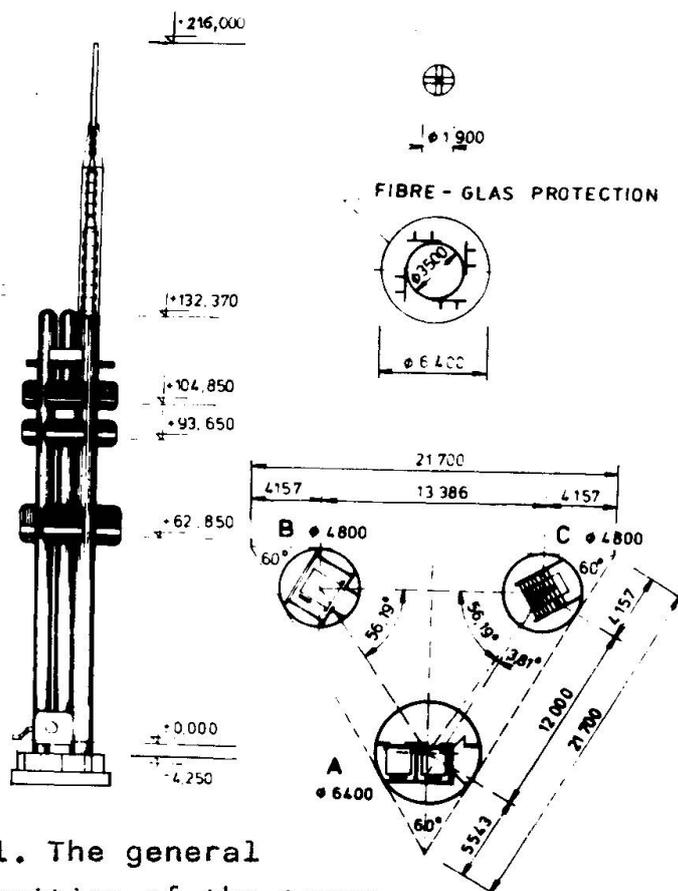


Fig.1. The general disposition of the tower

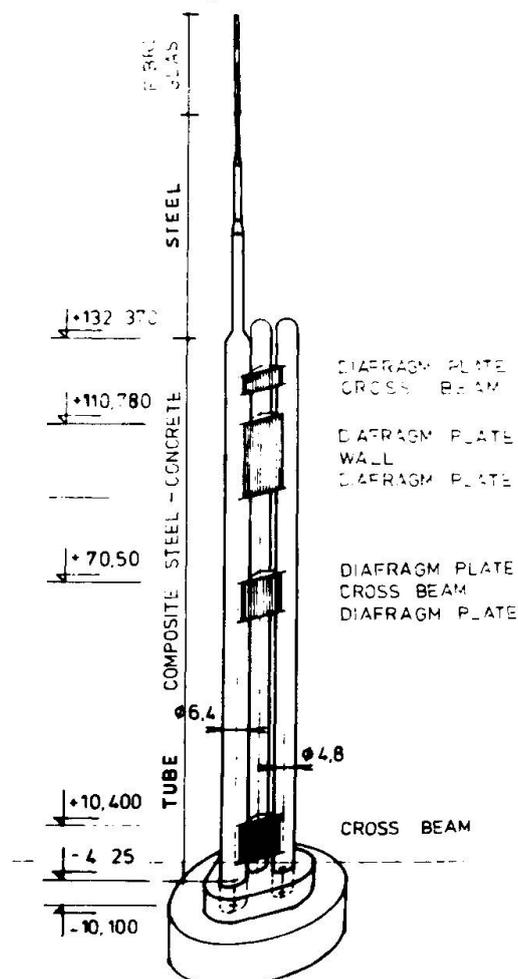


Fig.2. Rigid spatial frame of the tower

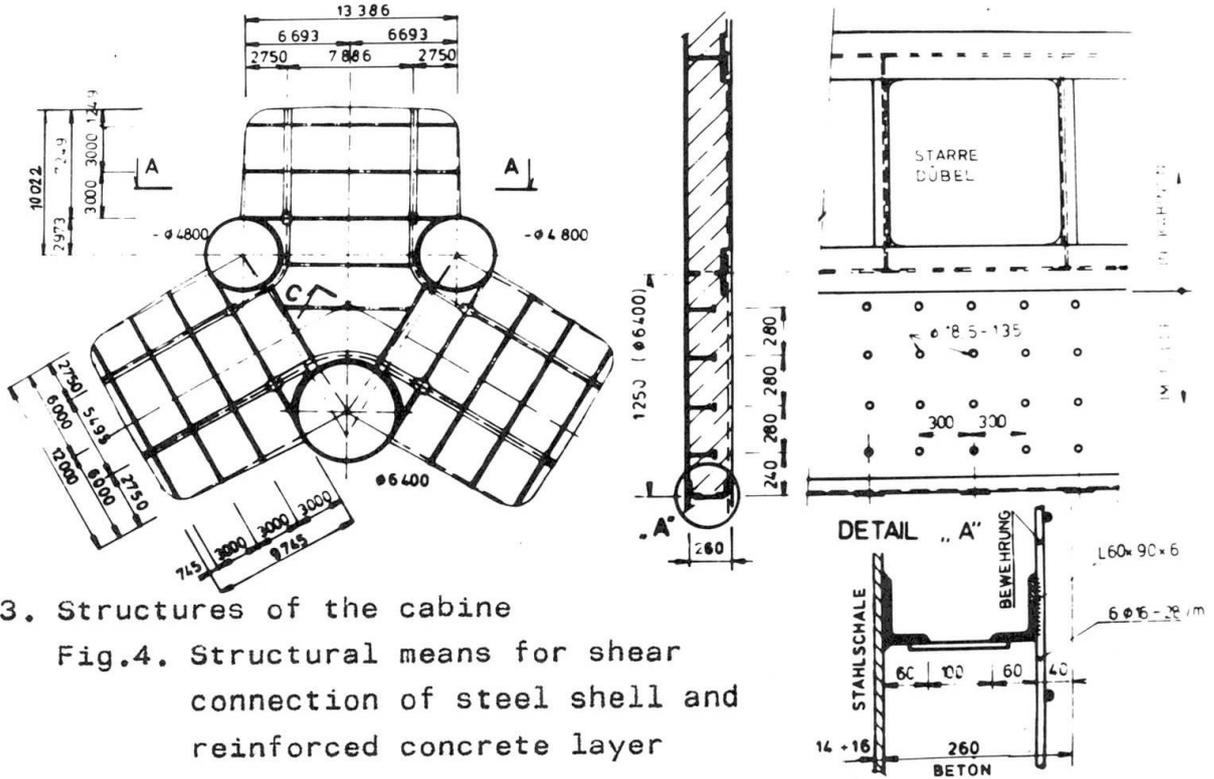


Fig.3. Structures of the cabin

Fig.4. Structural means for shear connection of steel shell and reinforced concrete layer

133 m it passes over into antenna carrier, which has a cylindrical form and is laminated. The two further shafts have a diameter of 4,8 m and reach a height cca 135 m. The shafts are used for various separated purposes (staircase, elevators, instalations). The cabins are used for public function (restaurant, observation) and as micro-waves service rooms and plattform. The cabin have in the layout one Y-form (Fig.3). For the shaft was a special steel sheet-reinforced concrete composite structures used. The external steel cylindrical shell from the sheet of 10 to 14 mm thickness stiffened by means of rings and ribs directed in the inner of the shaft, is in the final stage composite by concrete layer of 260 mm thickness. The stiffener and studs act as the shear connectors. Shear forces are induced namely by volumen and temperature changes. The shafts have been erected from cylindrical parts compound from four segment elements. The antenna carrier have been completed in the inner of cylindrical shaft and as whole hoisted in the final position.

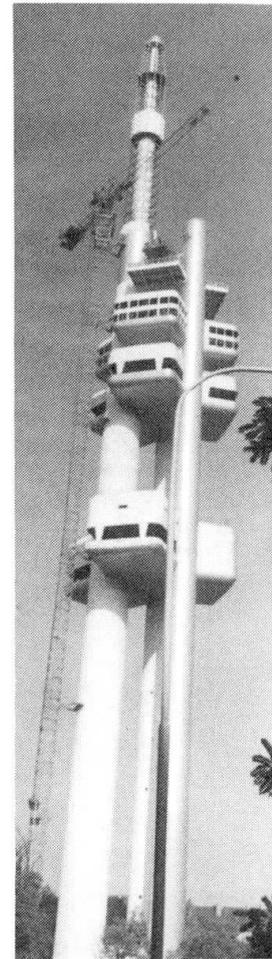


Fig.5. Total view