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in lightweight aggregate concrete having a combination of 2.4×2.4 m, 2.4×1.2 m and 1.2×1.2 m modules in each bay. The use of lightweight concrete was needed firstly to reduce the foundation load, and secondly to reduce the stiffness of the slab compared to that of columns such that the whole system is feasible within the dimensions and parameters pre-determined by the architect.

10 mm Lytag (sintered pulverised fuel ash) was used and the lightweight concrete was pumped using a Thomsen HP 800 series pump with 100 mm diameter pipe.

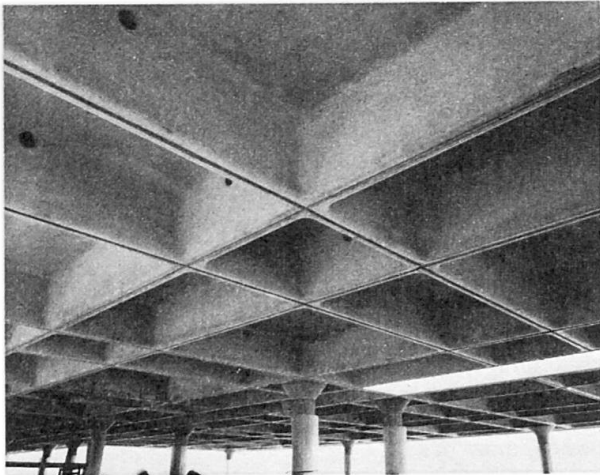


Fig. 2 Lightweight concrete waffle slab of the main building

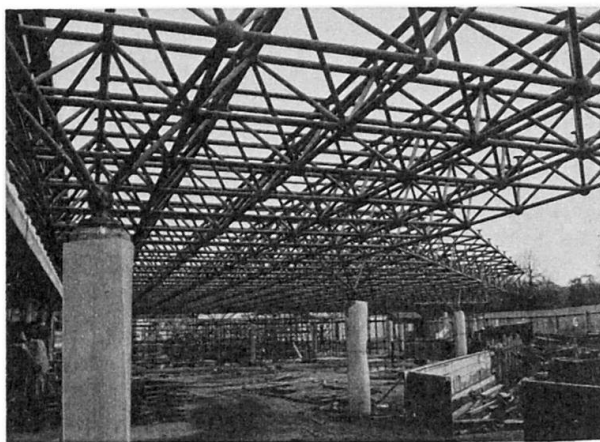


Fig. 3 Space frame in the Forum area

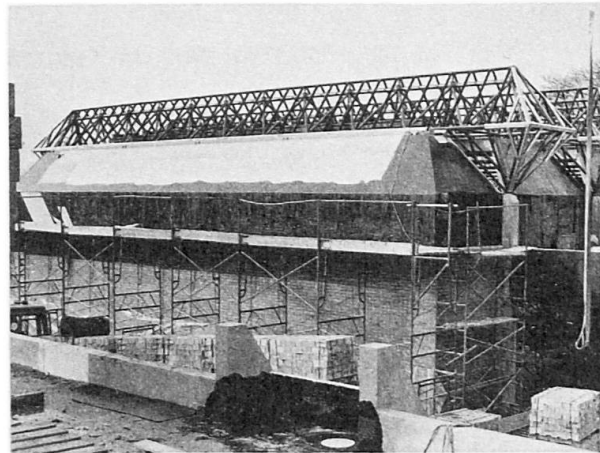


Fig. 4 Steel girder in the gymnasium block

The columns, as well as the waffle slab have no applied finish. Therefore to obtain a high class ex-mould finish a GRP mould was used in both cases and a low water/cement ratio was specified. The latter was also necessary from considerations of reducing subsequent crazing as far as possible. The workability was increased in the case of "column concrete" by using "Melment" super-plasticizer, while for lightweight concrete "CBP Conplast 242" was used.

The specified characteristic cube strength both for dense and lightweight concrete was 30 N/mm^2 at 28 days.

The Sports Hall

In the Sports Hall complex, which is a single storey, the gymnasium and the swimming-pool have triangular-steel trusses on RC columns while the store room, changing rooms and boiler room have Lytag lightweight concrete beam and slab construction.

Services are run through undercrofts.

Although only one or two storey structures, the buildings of the German School are supported on piled foundations because of very poor ground conditions. Altogether 317 bored piles each 500 mm nominal diameter (40-75 t capacity) were used. The sub-soil water table was very near the ground level which necessitated full asphalt tanking to the basement, undercrofts and in fact to all structures below the ground level.

(B. K. Bardhan-Roy)