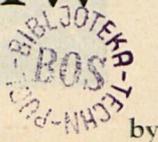


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TUBULAR STEEL WELDED CONSTRUCTION IN WARSAW (POLAND)



by

STEPHAN BRYLA, C.E., D.Eng.

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Telephone Cent. 6420

Tubular Steel Welded Construction in Warsaw (Poland)

By STEPHAN BRYLA, C.E., D.Eng.*

The new building of the Postal Savings Bank in Warsaw (Poland) represents an exclusively welded steel-frame structure. Some details of this building, such as components formed of and welded up from tubes, are of particular interest.

The use of the oxy-acetylene torch allowed round steel tubes, with their high mechanical properties, to be used, as their inherent disadvantage—viz., end fixing—is easily overcome when the welding torch is at hand.

The banking room, covered by a glass roof, occupies the centre of the building. The glass roof is supported by parabolic truss-girders, in order to allow access to the piping and conduits placed in the airshaft. As the angle of incidence of the upper chord was uneven and very small in the centre, it was necessary to place the central purlins above the upper chord, the technique of welding permitting this to be executed with little difficulty. The span of each girder is 14.42m. (47 ft. 2½ in.), the distance between the girders 3.40m. (11 ft. 6 in.), whilst the total length of the glass-covered space is 22m. (72 ft. 6 in.).

In these built-up girders, both the upper and lower chords consist of tee-irons, the upper an 80 x 80 x 8 mm. tee-iron, the lower a 70 x 70 x 7 mm. tee-iron. The diagonals consist of 2 in. diameter steel tubes, chosen because their section would throw a minimum of shadow on the painted glass work to be fixed to the lower chord. These tubes were slotted with the oxy-acetylene flame, to fit over the web of the tee-irons.

Owing to the inclination of the diagonal tubes in almost every joint, one side of the slot was too short to allow of sufficient length of fillet being used. To remedy this and ensure a sound connection extensions of the web, consisting of mild steel plates, were welded on, as shown in details in Fig. 1.

This slotting of the tubes has enabled the tube ends to butt against the flange of the tee-irons, to which they have been welded, making each tube airtight, and protecting it from corrosion by water or moist air.

The supporting joists and general details of the girder are shown in Fig. 1.

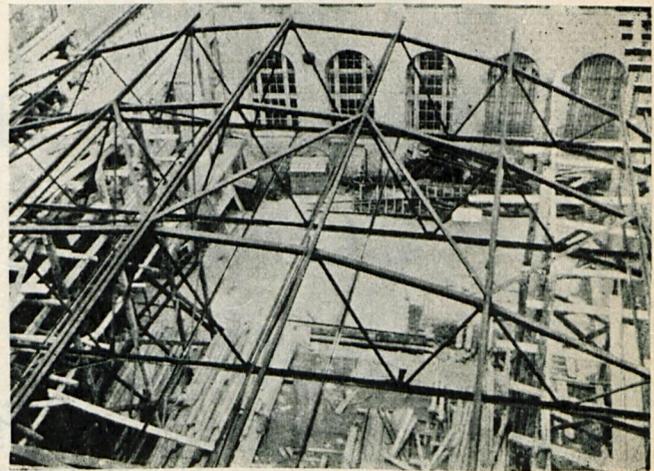


Fig. 2

The trusses are supported on cantilever ceiling beams, and are joined together by horizontal and vertical struts, forming a chord.

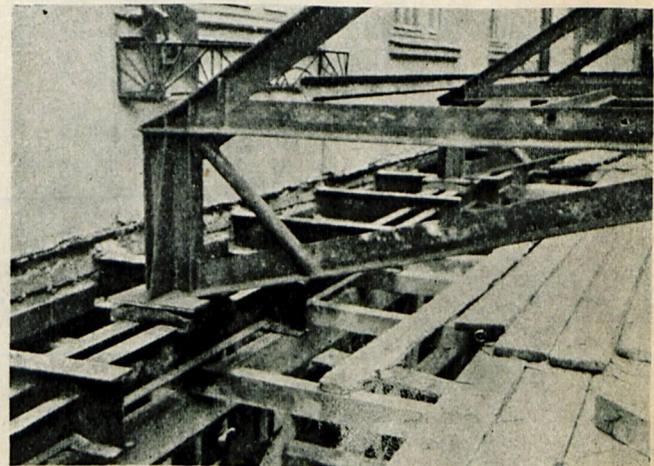


Fig. 3

The Cupola.

The cupola erected on the Postal Savings Bank building represents a tube framework, a type of construction chosen out of many, as being the most economical, in that the economy in weight alone was nearly 50 per cent.

The simplicity of the preparatory work was a further advantage, as all the rafters were made

*Professor of the Technical College in Lwow, Poland.

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tion represents a segment of a great circle of the sphere—i.e., a circle of diameter equal to the diameter of the sphere, and the plane of which passes through the centre of the sphere. Thus it can be seen that the "tilt" of each segment between two rafters will vary, being steep for those near the top and decreasing as lower levels are reached.

The connections have been executed by means of the oxy-acetylene flame, the details of these constructions being shown on Figs. 4, 5 and 6.

After completion of the frame-work, the cupola was covered with concrete slabs, 4 cm. thick, supported on a metal lath and covered with sheet copper.

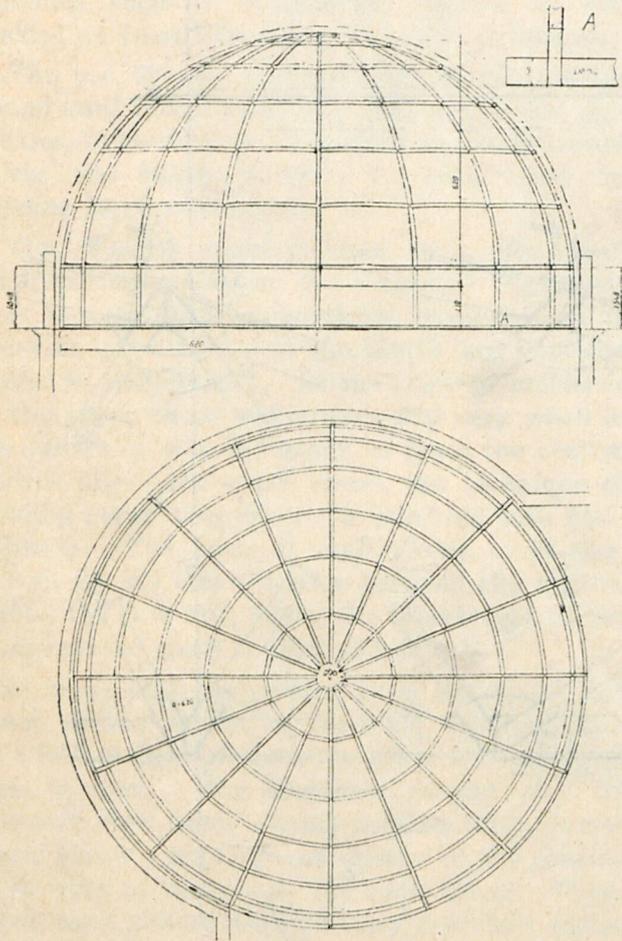


Fig. 4

The whole construction was carried out in 2 in. diameter steel tube, with the exception of the base ring only, which was made from tee-iron. The curving of every tube to the same radius considerably facilitated the work, allowing, as it did, the fabrication of all members on the building premises.

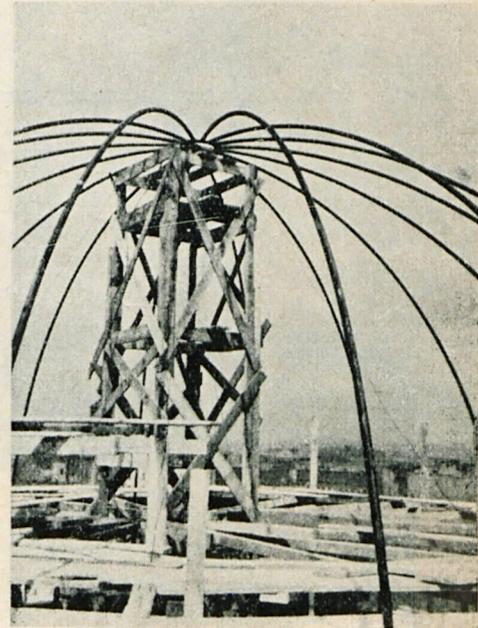


Fig. 5

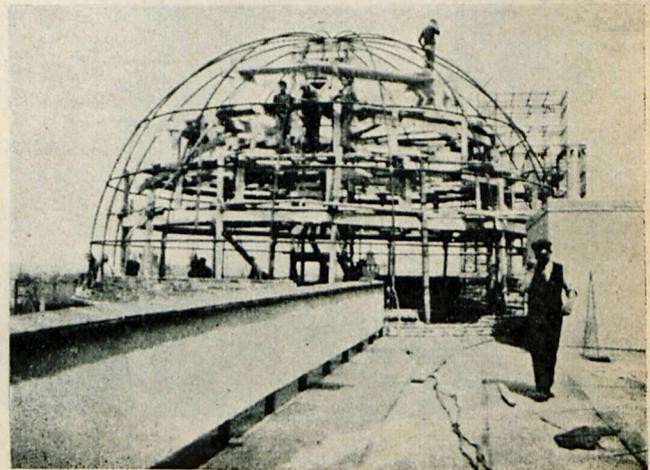


Fig. 6

