

## REINFORCED CONCRETE IN CHURCHES.

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The essential requirements that one must meet in designing churches and similar buildings are that they should be absolute fireproof and have proper acoustic quali-



Fig. 1.

ties; these requirements are best met by reinforced concrete. In respect of this latter it is interesting to note that organs have actually been built of reinforced concrete in the United States.

Its ability to resist fire has been tested over and over again. Numerous fires in actual buildings have shown that concrete is practically impervious to fire. Also the various

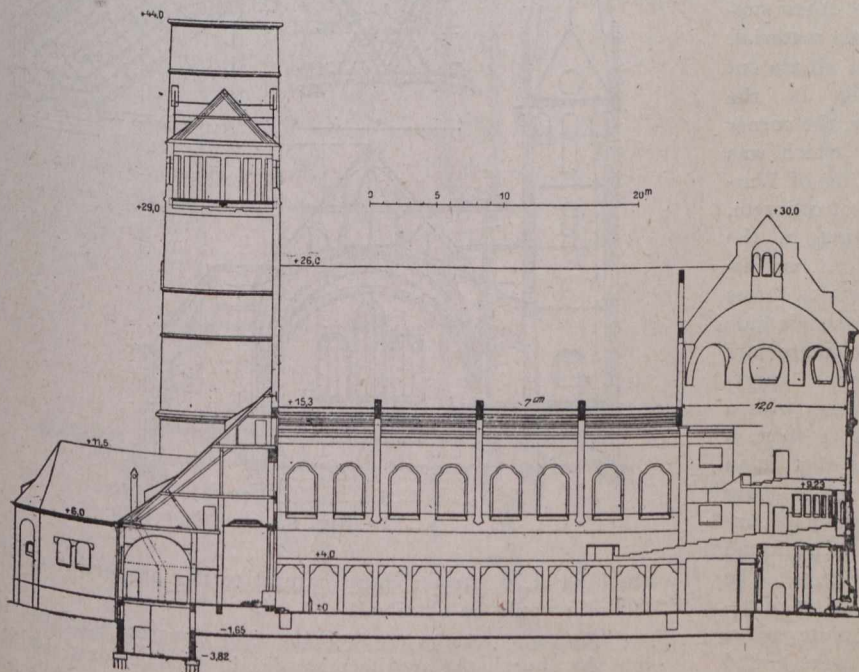


Fig. 2.

technical laboratories have proved how slowly heat penetrates concrete and the fitness of reinforced concrete structures to resist high temperatures. The worst that the ordinarily severe fire will do is to cause a crumbling of concrete on surfaces exposed to the heat, rarely to a depth of more than one inch. Both on this and on the other side of the ocean a great number of test buildings have been constructed entirely in reinforced concrete in order to determine the varying importance of the intensity and duration of the heat applied, its method of application, and the thickness of protective covering.

As seen from an engineer's point of view, reinforced concrete solves in the easiest and most economical way the difficult problems of construction that constantly occur in the class of buildings we are considering. Reinforced concrete renders it possible also for the architect to design with a free hand and only to take the artistic requirements into consideration. Where steel is used many complications arise through the use of complex construction and also much time is lost and cost entailed in carrying out such work, not to mention the expenses for the covering of such steel with a fireproof material.

The elementary forms which go to make the skeleton usually found in churches, are floors, columns, cantilevers, arches, roofs often with very long spans, consoles, and domes. As an expert in the proper use of adopting reinforced concrete to church building might be mentioned Professor Fisher, in Munich.

He has not only used this material in the construction of the skeleton of the new garrison church in Ulm, but given it equal prominence with natural masonry and brickwork, and it appears visible in the elevations; this is one of the first examples we have of this material being used in such a way in large European buildings of an ecclesiastical type. The aforementioned architect obtains without any great expense in this church a span

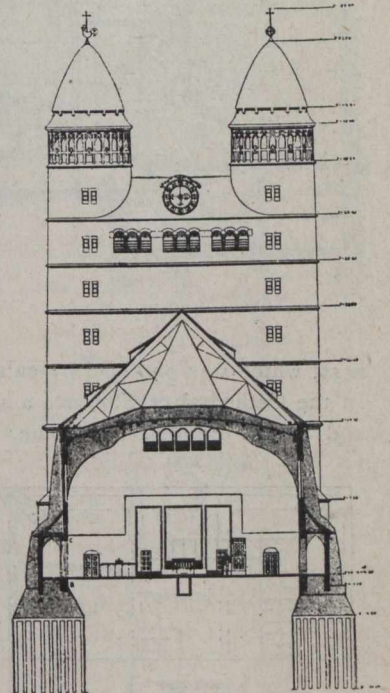


Fig. 3.

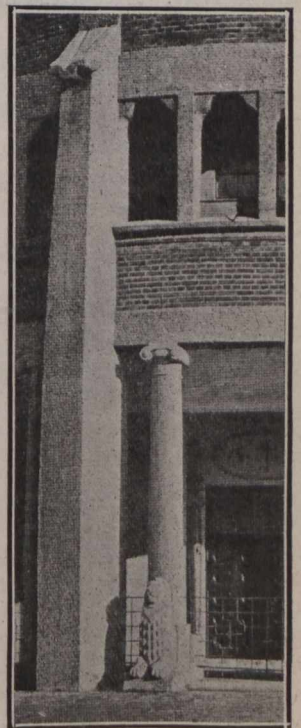


Fig. 4.