

**DESIGN OF STEEL SILOS AND THEIR SUPPORT  
STRUCTURE**

**BY**

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## ABSTRACT

This is a design project of grain silos in structural steel supported on a structural steel frame. The project is being proposed for the Grain Marketing Board (G. M. B.) born out of the realisation of the importance of steel as a construction material. The capacity of the plant is 8000tonnes and a total of 10 silos have been designed for this capacity. Due to the tremendous weight of these containers, an adequate support structure is required and the one designed in this project is a steel frame built out of plate girders and built-up stanchions.

The design of silos, as comprehensively detailed in this report, is influenced by many parameters, which are complex and intertwined that mathematical models to optimise them are not easy. However, quite a number of authorities have attempted to solve the problem scientifically. In this project the *Janssen approach* has been adopted in the calculation of design pressures. Particular attention has also been paid to the physical characteristics of grain, which greatly influence behaviour of silos.

A typical silo has been designed from first principles and the support structure to B5950 : Part 1. Detailed design calculations and structural drawings are appended at the back of the report and reference to them will be made as the design progresses.