

TO DESIGN AN ELEVATED STEEL WATER TANK FOR A SPECIFIC LOCATION

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ABSTRACT

This project is intended primarily to serve as a subject for the undergraduate Civil Engineering students to complete their diploma in civil engineering program. The objective of this project is to expose the project student to the process of the engineering design management and practices through the appropriate use of the skills and knowledge learned throughout the process.

An elevated steel water tank is a water storage tank, which stores the water for supply to the residential or factory. Sometime the water storage tank may supply the water for emergency use such as the water pipe from the tank has been broken and stop supply water to that area. Not only this, steel water tank also applies to some places where the water pressure comes from the dam which does not enough to deliver the water to some area, the water tank can help to deliver the water to those areas.

This project consists of 14 parts, which are the elements of an elevated steel water tank. Since which is an important structure for residential, each part of the calculation has been shown clearly. In this project, the design of the steel water tank is based on several BS codes, which is the BS 1564 used for tank design and steel support structure is based on BS 5950 Part 1 and the steel section table. For the footing design, it will be based on the concrete code BS8110 Part 1. Although the project expected outcome in this project is only design an elevated steel water tank with the suitable size and dimension of steel columns and steel beams, but we still need to consider the other things. For example, the inlet and outlet pipe. The inlet and outlet pipe in this project has been calculated and its dimension is 250mm. The size of the beams, which directly support the water tank, is 356x127UB39, and the second beams are 533x210UB82. For the columns, it has been separated into two sizes, which is 152x152UC30 around the tank and 203x203UC52 at center of the tank. For the concrete footing, the two sizes have been obtained, which are 1.6m x 1.6m x 0.4m and 2.2m x 2.2m x 0.49m.