HIGHER TECHNICAL INSTITUTE
Nicosia - Cyprus

CIVIL ENGINEERING DEPARTMENT

Academic Year 1989/90

Diploma Project Number: C/548

Title: Design of a Water Tower

Objectives:-

1. To estimate the water Pressures and wind Loading.

2. To carry out the structural design of the super-structure.

3. To design the foundations.

4. To prepare all the structural drawings.

Terms and conditions:-

1. Capacity of Water Tower 500m³.

2. Height of tower 25m.

3. Design to be in accordance to BS8110 or BS449 and BS5337.

4. Soil bearing Capacity 200 KN/M².

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External Assessor : George N. Ioannou

DA/ML

• The object of this project is the design of an elevated water tank.

• The water tower will be constructed outside of a city to act as a water reservoir in a water supply system. The size of the tank depends on the capacity of the water to be stored and its height on the pressure head.

The choice of the shape was done, taking into account aesthetic considerations in combination with other factors such economics and the surrounding environment. The most important factor was the aesthetic since such structures are tall. The final choice of the shape was done, taking into account the combination cost i.e. cost of the concrete, reinforcement and formwork.

In this project the water tower was made of reinforced concrete. The design comprises a cylindrical water tank supported centrally by a circular shaft of external diameter of 2.2m of wall thickness 200mm and eight square columns of 0.65m side.

The tank in order to provide the necessary pressure head, its floor slab height must be 25m above datum and its capacity in order to satisfy the community's needs must be 500m^3. The tank has an external diameter of 11.9m and the height between floor slab and roof is 5.2m. The wall thickness is 200mm.

Access helical stairs, pipes and water pumps are accommodated in the central shaft.

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