

DESIGN OF AN ELECTRIC FURNACE  
FOR THE TEMPERING GLASS

by

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Project Report

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## SUMMARY

### DESIGN OF AN ELECTRIC FURNACE FOR THE TEMPERING OF GLASS

The electric furnace have been designed is used to heat up the sheets of glass up to the desired tempering temperature which is about 730 C . The design is based on the criteria have been taken according to the demand of tempered glass in Cyprus .

The design start with the selection of insulation which will give the base for the calculation of the power requirements . After the power requirements calculations , the selection of electric elements take place . They have been chosen to give an output power of 45 KW . Subsequently the heat transfer and the time of heating are calculated , based on the power offered and the heat losses . Two graphs are constructed according to the results of the calculations which are very important for the glass tempering procedure . The structure design is following where the stresses on the more critical points are calculated and the required dimensions of the component are estimated . A constructional drawing in A1 paper is presented according to the structure design solutions . Temperature control and electric circuit is the next topic where the temperature control system is described and the electric circuit is outlined with the assistance of a drawing . The cost analysis is the next , which is in the form of an invoice and present in detail the cost of each component used on the furnace .

The project report finish with the presentation of the furnace specification and a discussion about some critical points on the furnace operation .

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