Department : Mechanical

Year : 2015-2016

Group No: 7

Guided By

PROF. V. P. RAJPUT

SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA

Project Title

DESIGN AND DEVELOPMENT OF EARTH AIR HEAT EXCHANGER FOR SMALL CAPACITY

Abstract:

Earth air heat exchanger or earth tube heat exchanger is a device used to produce heating effects in winter and cooling effects in summer using the ground or soil as a source or sink. The present study reviews the previously conducted studies in terms of performance assessment with effects of various parameters like material of construction, depth from earth surface, velocity of air, type of land and length of pipe etc. Reading of soil at different depths of 0.2m, 0.4m, 0.6m, 0.8m, 1m, 2m, 2.5m are noted using digital indicator. From this depth we have found that temperature of soil at 1m is 310c. 310c is the lowest temperature of soil from all the depths. The cooling load requirement is calculated for the office of two persons and that basic ground earth heat exchanger is designed the material was selected for this heat exchanger is aluminum because of its good thermal conductivity, cheaper, easily available and easily fabricated. By using this setup 9 degree temperature difference from atmosphere in summer is achieved by earth air heat exchanger.

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