Department : **Mechanical**

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Group No: **24**

Guided By

PROF. V. P. RAJPUT

SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA

Project Title

DESIGN AND DEVELOPMENT OF CLOSED LOOP EARTH TUBE HEAT EXCHANGER

Abstract:

Close loop earth Tube heat exchanger (CLETHE) or earth tube heat exchanger (CLETHE) 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, pipe, material, depth from earth surface, velocity of air, type of land and length of etc. We take different reading of soil at different depths. The reading is taken by using digital indicator. First we escaving the soil then after by the help of digital indicator and probe we take reading of soil at different depths (1m). From this depth we have found that temperature of soil at 1 m is 28 °C.

26°C is the lowest temperature of soil from all the depths. So, we can calculate cooling load required for cooling and identified the length of heat exchanger which is 26m and we choose aluminum for material of duct because aluminum has good thermal conductivity, cheaper in cost,

easily available and easily fabricated, available in variant size.

The Ambient Temperature is About 39 ℃. And 1m insde of soil temperature 28°C.The Output Temperature in April is 26 ℃.

Prepared By:

Sr. No.	Student Name	Enrollment No
1	NIKUNJ A. PATEL	130780119071
2	DARSHAN H. PATEL	130780119053
3	JIMMY K. PATEL	130780119061
4	DHRUVIT R. DAVE	130780119013