

4. Earth air tunnel

Soil temperature, at a depth of about 12 feet or more, stays fairly constant throughout the year, and is approximately equal to the average annual ambient air temperature. The ground can, therefore, be used as a heat sink for cooling in the summer and as a heat source for heating in the winter. A simple method of using this concept is to pass air through an underground air tunnel. The air thus cooled or heated can be used directly for the conditioned space or indirectly with air conditioners or heat pumps.

This system can maintain the temperature at 28°C inside the room. Earth temperature below 12 ft is constant throughout the year and it is equal to the yearly average temperature of a particular geographical location. For Bangalore, the temperature below 12 ft is 24°C and it is constant throughout the year.

Power consumption: 0.6 kW is required to cool or heat the space of approximately 1500 sqft area

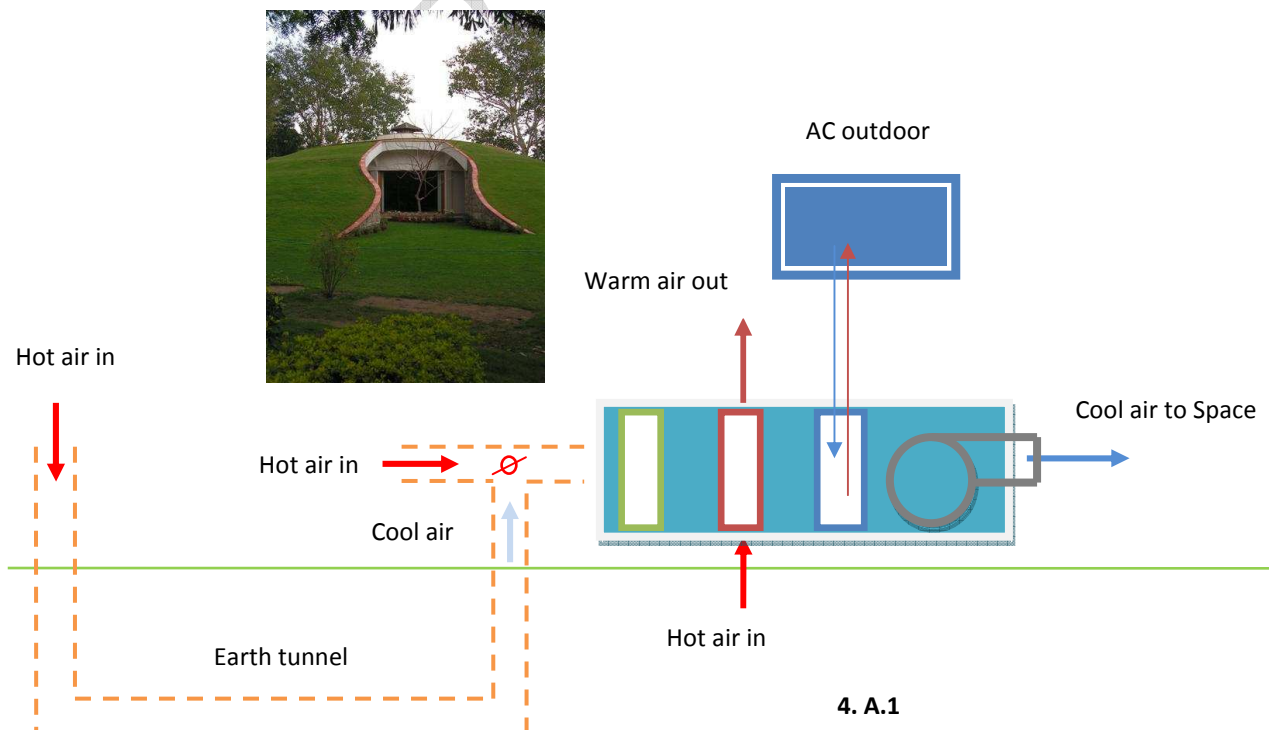
Advantage of the system:

1. Low Energy: 1/3rd of the conventional AC system's power requirement.
2. Better indoor air quality.
3. 100% fresh air circulation in the premises.
4. Min of 28°C can be maintained during peak summer.



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A. Earth air tunnel, evaporative cooling and chilled water



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