Heat transfer problems in underground spaces.

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Note that F1 and F2 are per linear length rather than per square foot. With loose fill, the R-value increases with increasing density up to a point, but goes down after that.

16.4 Thermal Resistance Circuits

Then model the ground as a series of slices whose temperature varies with time. The compression process is adiabatic, and the temperature at the compressor exit is 400 o F. You could use indoor air temperature as a surrogate for slab temperature, although unless the slab is very well insulated it will be a bit colder than room temperature.

A Space

Second, calculate the R-value of each section by adding of the R-values of each of its layers. In the linear case, the temperature is essentially constant at around three seconds but for this nonlinear case, the temperature curve is just beginning to flatten at five seconds.

16.4 Thermal Resistance Circuits

In the composite slab shown in Figure , the heat flux is constant with. Determine a the compressor power in kW, b the refrigerating capacity in tons and c the coefficient of performance. In fall the process reverses.

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Determine, in kJ per kg of refrigerant flow, a the work input to the compressor, b the work developed by the turbine, c the heat transfer to the refrigerant passing through the evaporator and d the coefficient of performance of the cycle? Given that steady state heat loss is usually considered to be linear, its not clear what is going on here, or why you can't just have one table and use a higher indoor temperature when calculating loss of a heated slab. The refrigerant leaving the low-pressure compressor at 0.

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