Solution to part (a)

The perimeter is 0.0818 ft

The Cross sectional area is 0.000532 sq.ft

The value of parameter m is: 2.489/ft

The temperature profile is: T=70+88.55cosh[2.489(0.375-z)]

Solution to part (b)

The heat transferred is 3.13 BTU/hr

Solution to part (c)

The value of mL is: 0.933

The efficiency found from the graph in figure 2.30 is: 0.78

Solution to part (d)

The effectiveness is found to be: 45.2