

Chapter3_example3

The Total shape factor of component A is 6.348

The Total shape factor of component B is 17.296

The Total shape factor of component C is 0.0072

The Total shape factor of component D is 0.40608

The Total shape factor of component E is 0.59616

The Total shape factor is 24.65

Solution to part (a)

The heat transferred through the walls of the furnace is 13717 W = 13.7 kW

Solution to part (b)

Neglecting the effects of the edges and corners, the shape factor for all walls is 23.64

Neglecting the effects of the edges and corners, the heat transferred is 13155 W = 13.2 kW

The error introduced by neglecting heat flow through the edges and corners is 4.1 percent