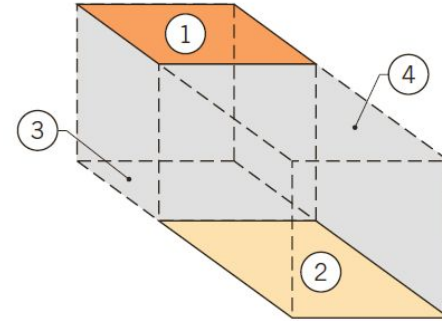


13.42 Consider two very large parallel plates with diffuse, gray surfaces.



Determine the irradiation and radiosity for the upper plate. What is the radiosity for the lower plate? What is the net radiation exchange between the plates per unit area of the plates?

Determine the view factor F_{12}



A cavity composed of three, infinitely long and opaque surfaces has the following conditions at the steady state:

Surface 1: $T_1 = 300 \text{ }^\circ\text{C}$, $L_1 = 0.5 \text{ m}$, $\epsilon_1 = 0.7$.

Surface 2: $T_2 = 200 \text{ }^\circ\text{C}$, $L_2 = 0.5 \text{ m}$, $\epsilon_2 = 1$.

Surface 3: $T_3 = 100 \text{ }^\circ\text{C}$, $L_3 = 0.5 \text{ m}$, $\epsilon_3 = 1$.

Determine the net heat rate for each surface and verify that the sum of the heat rates is equal to 0.