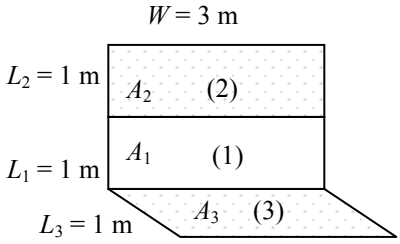
15-49 The view factors between the rectangular surfaces shown in the figure are to be determined.

Assumptions The surfaces are diffuse emitters and reflectors.

Analysis From Fig. 15-6,

$$\left.\begin{aligned}\frac{L_3}{W}&=\frac{1}{3}=0.33\\ \frac{L_1}{W}&=\frac{1}{3}=0.33\end{aligned}\right\}F_{31}=0.27$$



and

$$\left.\begin{aligned}\frac{L_3}{W}&=\frac{1}{3}=0.33\\ \frac{L_1+L_2}{W}&=\frac{2}{3}=0.67\end{aligned}\right\}F_{3\to(1+2)}=0.32$$

We note that $A_1 = A_3$. Then the reciprocity and superposition rules gives

$$\mathrm{A}_1F_{13}=A_3F_{31}\longrightarrow F_{13}=F_{31}=\mathbf{0.27}$$

$$F_{3\to(1+2)}=F_{31}+F_{32}\longrightarrow \quad 0.32=0.27+F_{32}\longrightarrow F_{32}=0.05$$

Finally, $\quad A_2=A_3\longrightarrow F_{23}=F_{32}=\mathbf{0.05}$

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