Step-1

We know that Ax = b has a solution or there exists a vector y, such that yA = 0 and $yb \ne 0$.

Let
$$y = (2,-1)$$
.

Therefore,

$$yA = (2,-1)\begin{bmatrix} 2 & 2 \\ 4 & 4 \end{bmatrix}$$
$$= (2 \times 2 + (-1) \times 4, 2 \times 2 + (-1) \times 4)$$
$$= (0,0)$$

Also,

$$yb = (2,-1)\begin{bmatrix} 1\\1 \end{bmatrix}$$
$$= 2 \times 1 + (-1) \times 1$$
$$= 1$$
$$\neq 0$$

Step-2

Thus, we have produced a vector y = (2,-1) such that yA = 0 and $yb \ne 0$. Therefore, for $A = \begin{bmatrix} 2 & 2 \\ 4 & 4 \end{bmatrix}$ and $b = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$, the equation Ax = b has no solution.