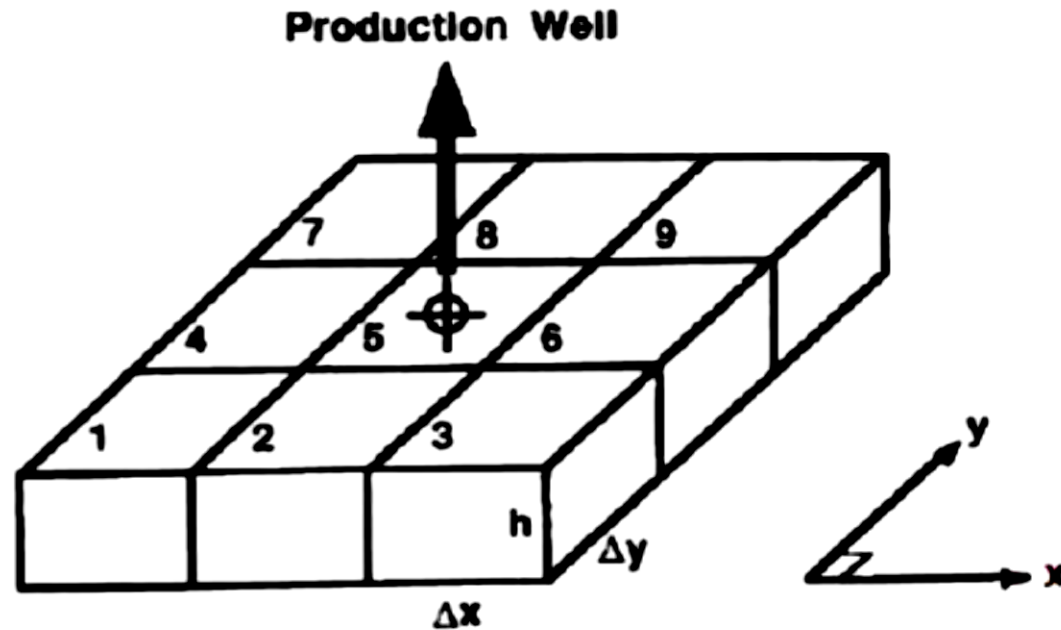


Guía para resolución Celda bidimensional

Problema: cálculo de distribución de presiones



Problema: cálculo de distribución de presiones

$$T_{lx_{i+1/2},j} (p_{i+1,j}^{n+1} - p_{i,j}^{n+1}) - T_{lx_{i-1/2},j} (p_{i,j}^{n+1} - p_{i-1,j}^{n+1}) +$$

$$T_{ly_{i,j+1/2}} (p_{i,j+1}^{n+1} - p_{i,j}^{n+1}) - T_{ly_{i,j-1/2}} (p_{i,j}^{n+1} - p_{i,j-1}^{n+1}) + q_{lsci,j} = \left(\frac{V_b \phi c_l}{\alpha_c B_l^o \Delta t} \right)_{i,j} (p_{i,j}^{n+1} - p_{i,j}^n) \quad (6a)$$

$$l = o, w$$

o

$$S_{i,j} p_{i,j-1}^{n+1} + W_{i,j} p_{i-1,j}^{n+1} + C_{i,j} p_{i,j}^{n+1} + E_{i,j} p_{i+1,j}^{n+1} + N_{i,j} p_{i,j+1}^{n+1} = Q_{i,j} \quad (6b)$$

Problema: cálculo de distribución de presiones

$$S_{i,j} = T_{ly_{i,j-1/2}} \quad (6.b1)$$

$$W_{i,j} = T_{lx_{i-1/2,j}} \quad (6.b2)$$

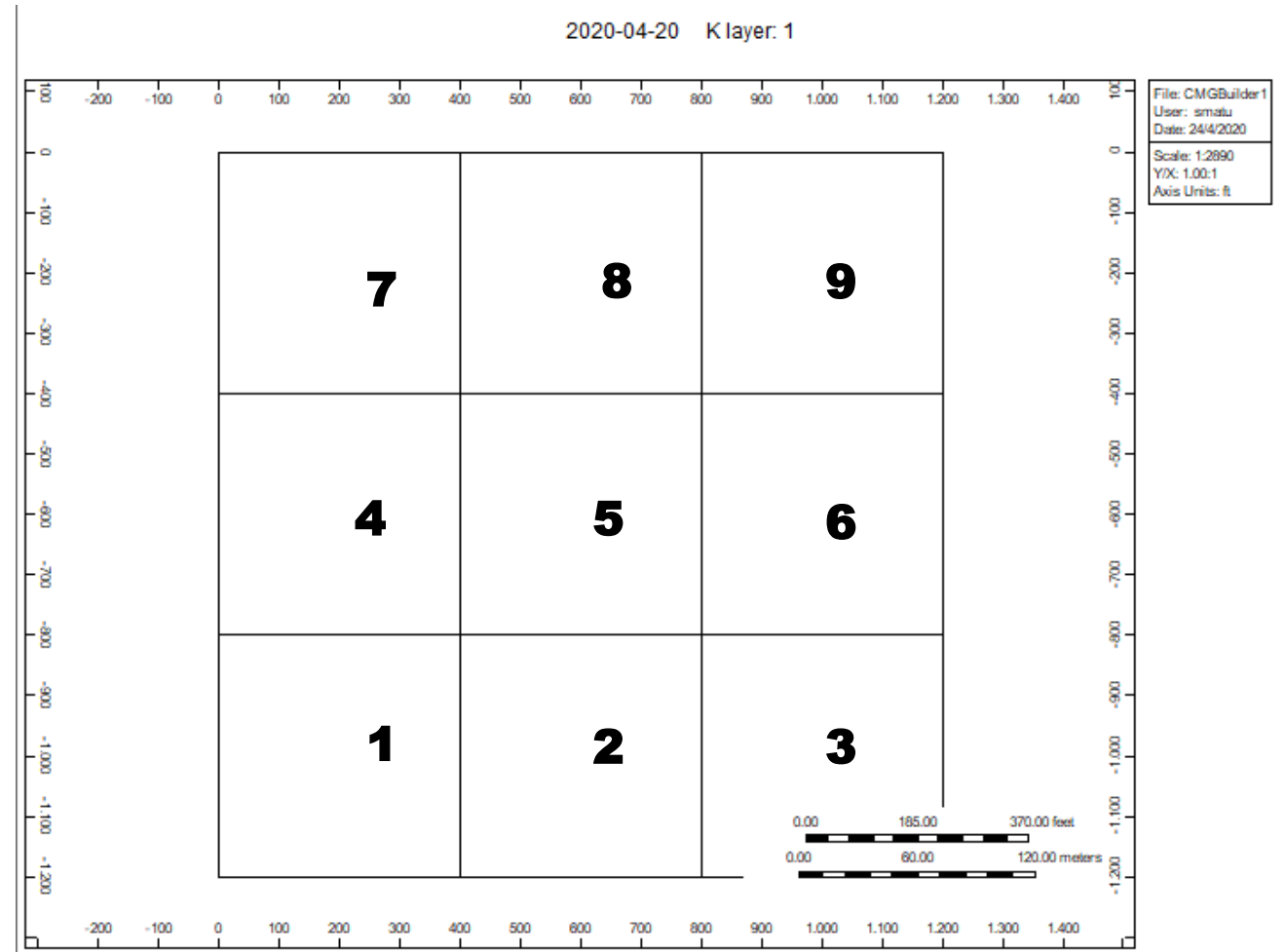
$$C_{i,j} = - \left[T_{ly_{i,j-1/2}} + T_{lx_{i-1/2,j}} + T_{lx_{i+1/2,j}} + T_{ly_{i,j+1/2}} + \left(\frac{V_b \phi c_l}{\alpha_c B_l^o \Delta t} \right)_{i,j} \right] \quad (6.b3)$$

$$E_{i,j} = T_{lx_{i+1/2,j}} \quad (6.b4)$$

$$N_{i,j} = T_{ly_{i,j+1/2}} \quad (6.b5)$$

$$Q_{i,j} = - \left(\frac{V_b \phi c_l}{\alpha_c B_l^o \Delta t} \right)_{i,j} p_{i,j}^n - q_{lsci,j} \quad (6.b6)$$

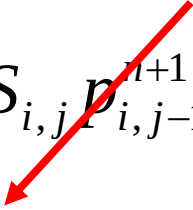
Problema: cálculo de distribución de presiones



Problema: cálculo de distribución de presiones

$$S_{i,j}p_{i,j-1}^{n+1} + W_{i,j}p_{i-1,j}^{n+1} + C_{i,j}p_{i,j}^{n+1} + E_{i,j}p_{i+1,j}^{n+1} + N_{i,j}p_{i,j+1}^{n+1} = Q_{i,j} \quad (6b)$$

Ejemplo de ecuación para la celda 2


$$S_{i,j}p_{i,j-1}^{n+1} + W_{i,j}p_{i-1,j}^{n+1} + C_{i,j}p_{i,j}^{n+1} + E_{i,j}p_{i+1,j}^{n+1} + N_{i,j}p_{i,j+1}^{n+1} = Q_{i,j}$$

Problema: cálculo de distribución de presiones

The diagram illustrates a matrix multiplication operation. On the left, a large matrix is represented by a parallelogram with diagonal lines. Inside this matrix, the labels $S_{i,j}$, $W_{i,j}$, $C_{i,j}$, $E_{i,j}$, and $N_{i,j}$ are arranged along the diagonal from bottom-left to top-right. This matrix is multiplied by a vertical vector on the right, labeled $P_{i,j}^{n+1}$. An equals sign follows, leading to another vertical vector labeled $Q_{i,j}$.

$$\begin{bmatrix} & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \end{bmatrix} \begin{bmatrix} \\ \\ \\ \\ \\ \\ \\ \\ \\ \end{bmatrix} = \begin{bmatrix} \\ \\ \\ \\ \\ \\ \\ \\ \\ \end{bmatrix}$$

Labels within the matrix: $S_{i,j}$, $W_{i,j}$, $C_{i,j}$, $E_{i,j}$, $N_{i,j}$

Labels on the vectors: $P_{i,j}^{n+1}$, $Q_{i,j}$