

33.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

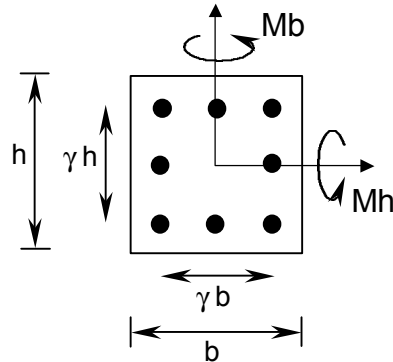
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

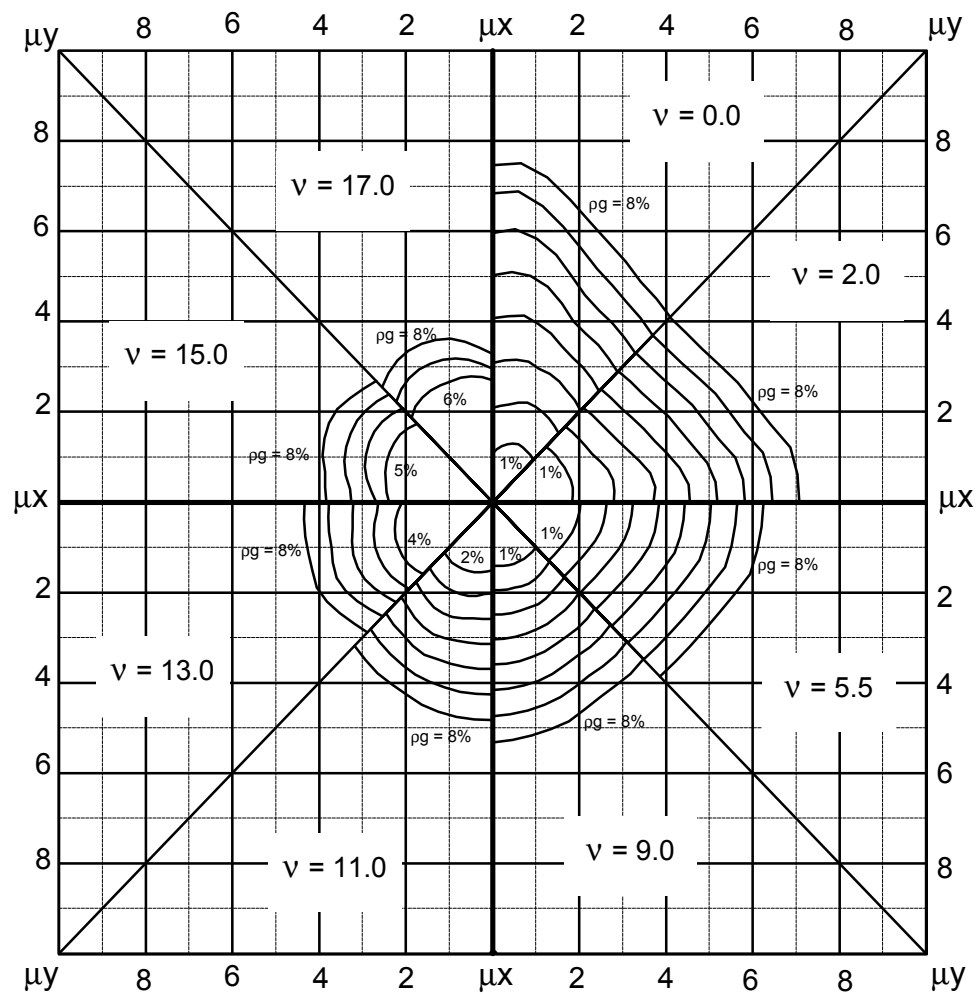


$$f_c = 20 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



34.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

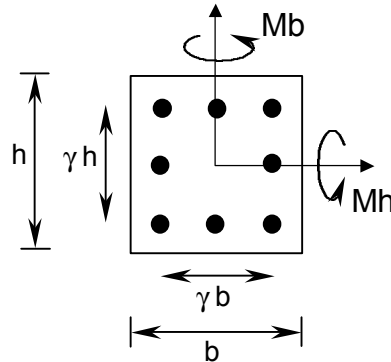
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

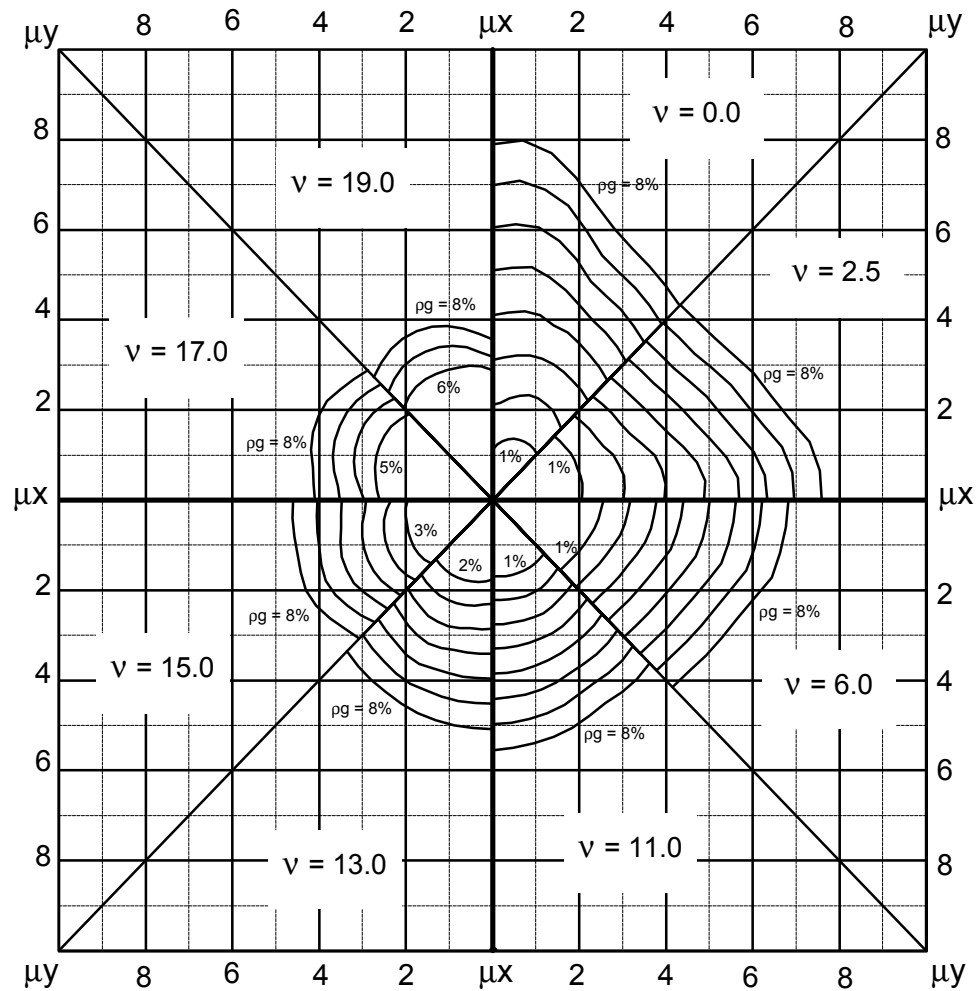


$$f'_c = 25 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



35.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

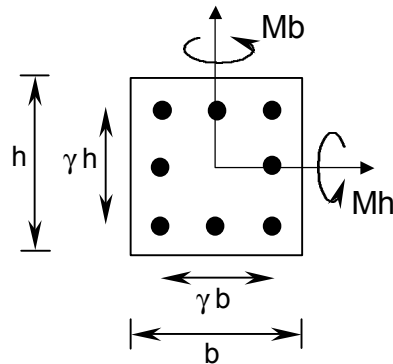
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

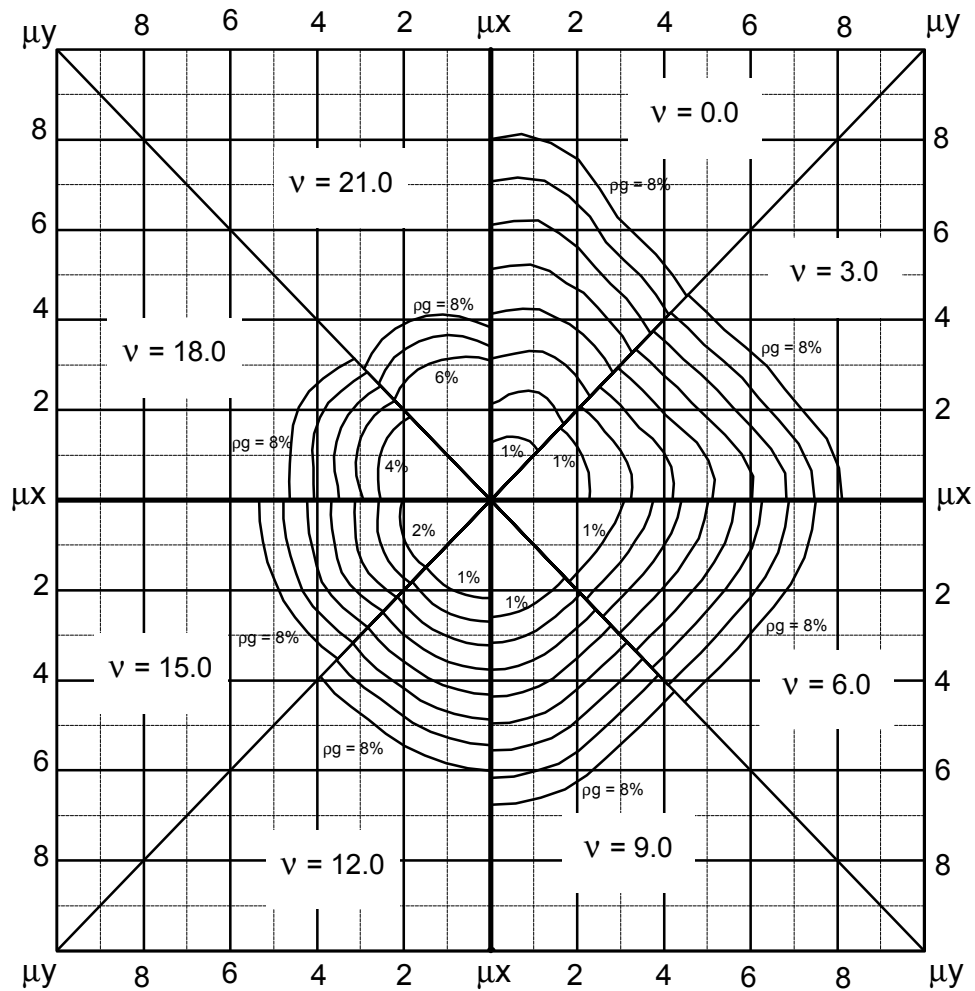


$$f_c = 30 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



36.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

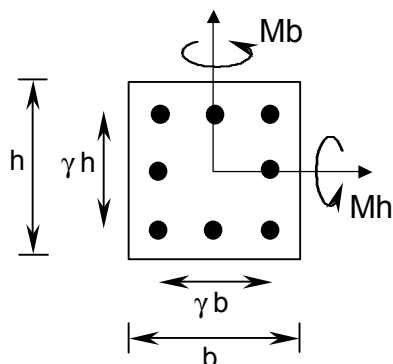
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

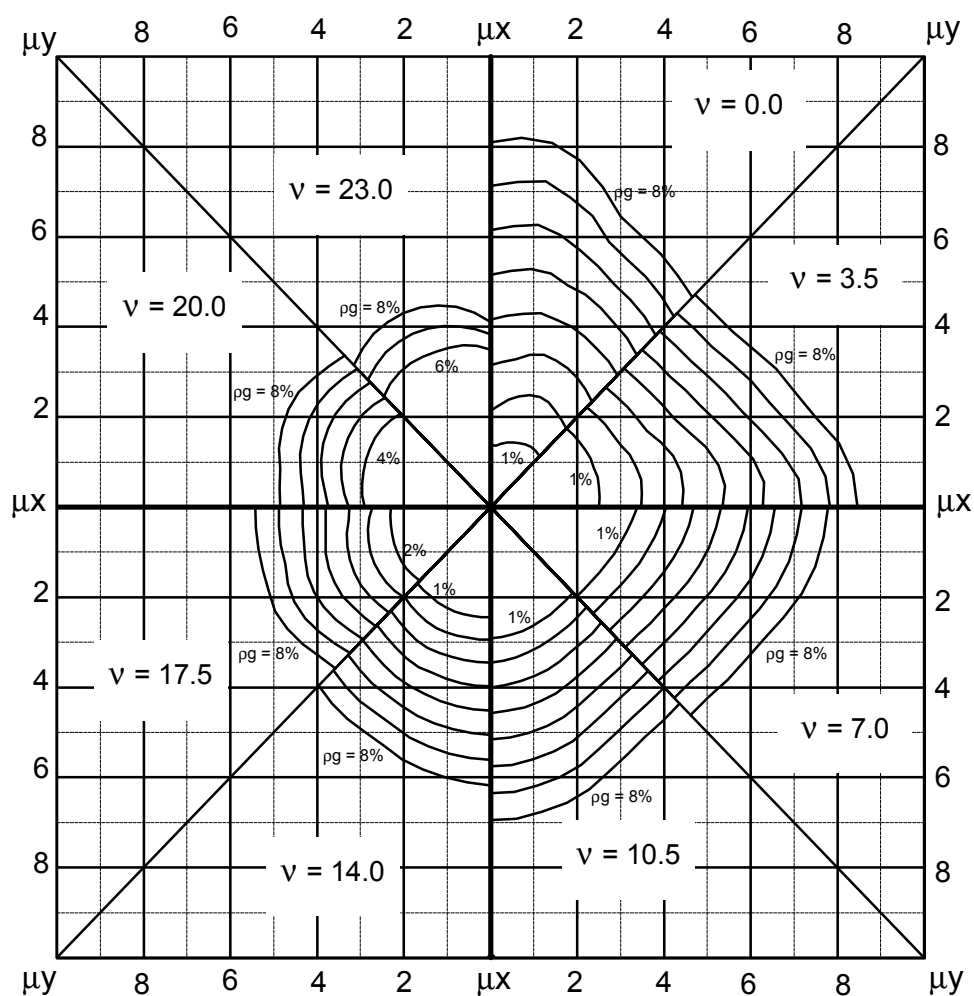


$$f_c = 35 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



37.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

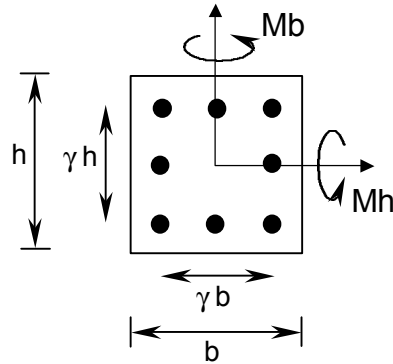
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

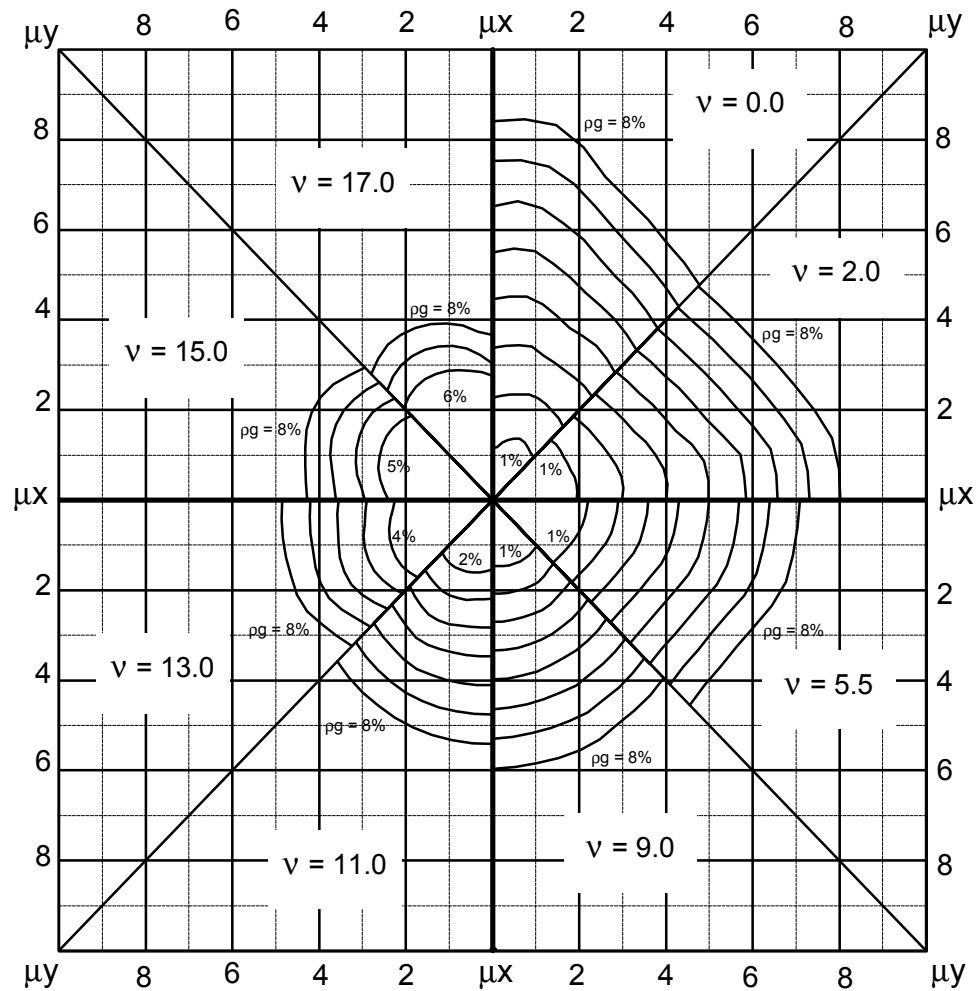


$$f'_c = 20 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



38.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

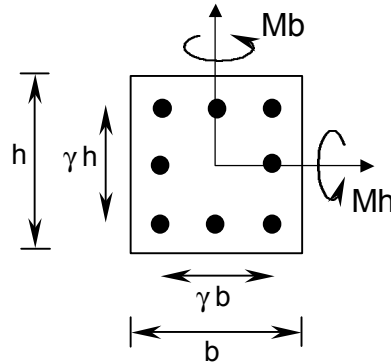
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

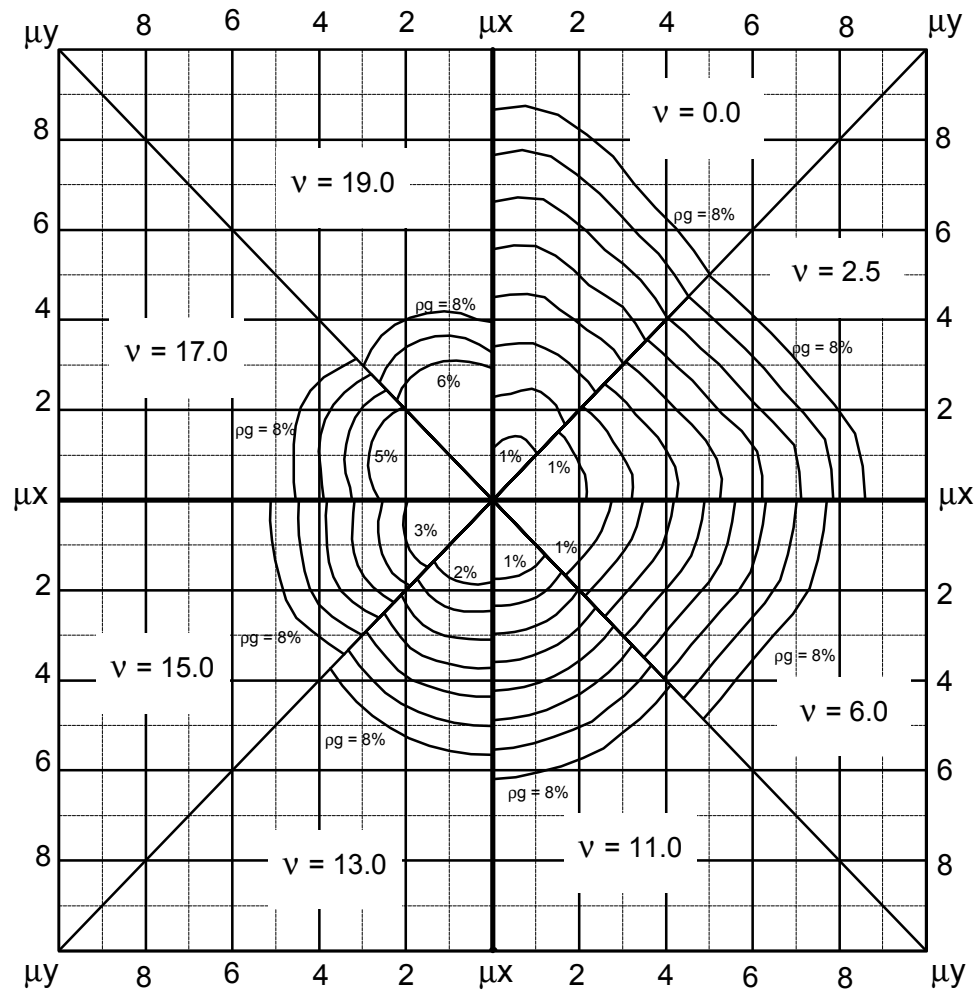


$$f_c = 25 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



39.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

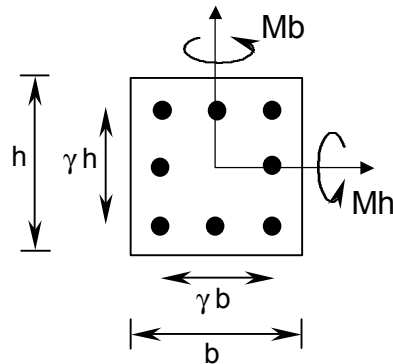
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

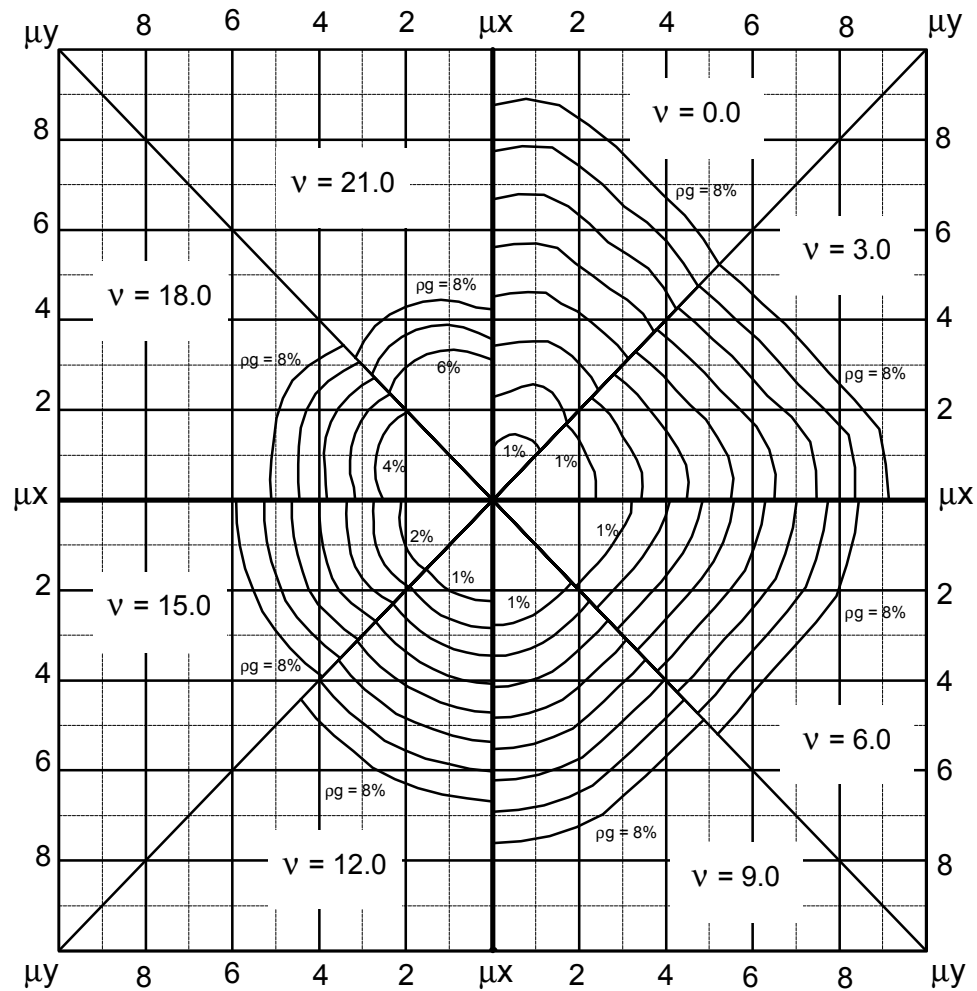


$$f'_c = 30 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



40.- FLEXION BIAxIAL EN COLUMNAS ARMADAS CON 8 BARRAS

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

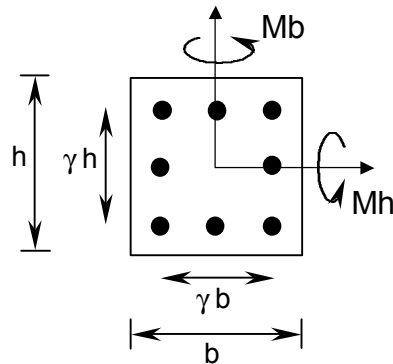
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

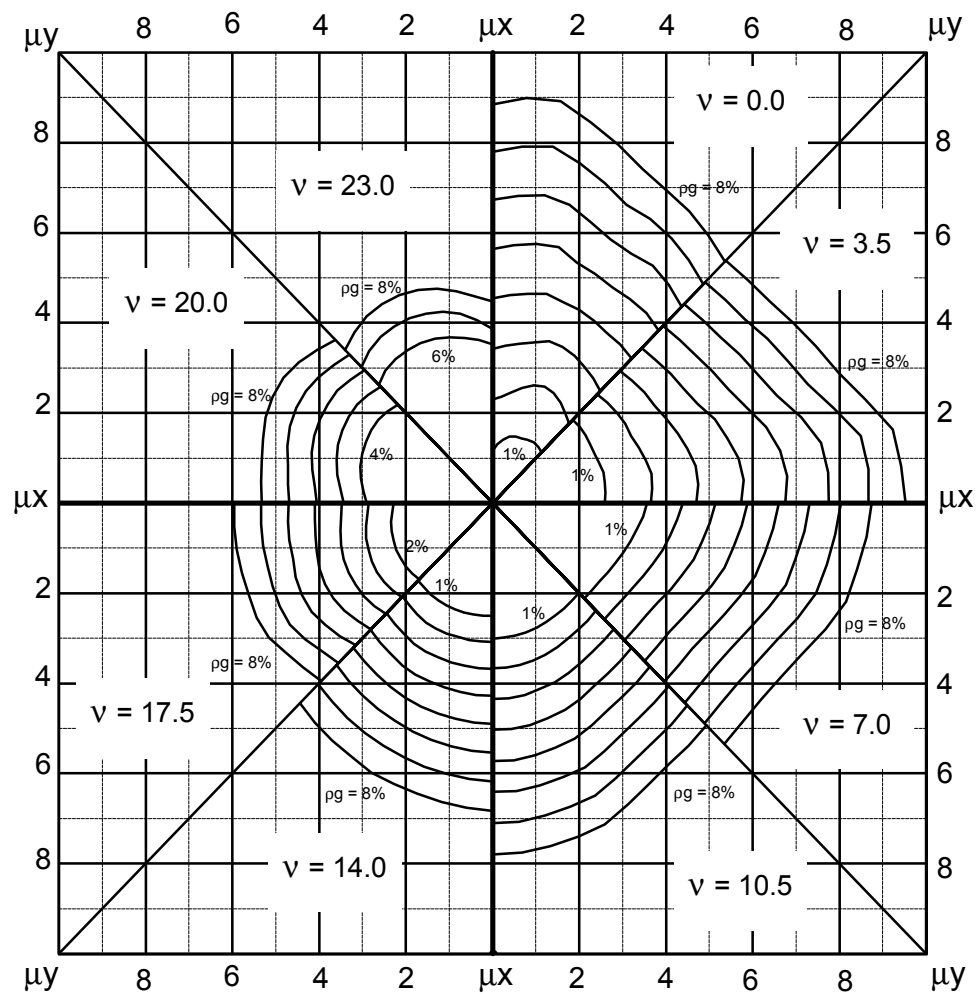


$$f'_c = 35 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



41.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

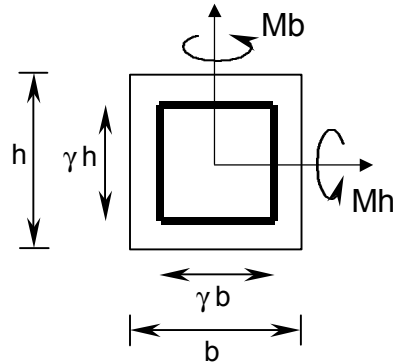
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

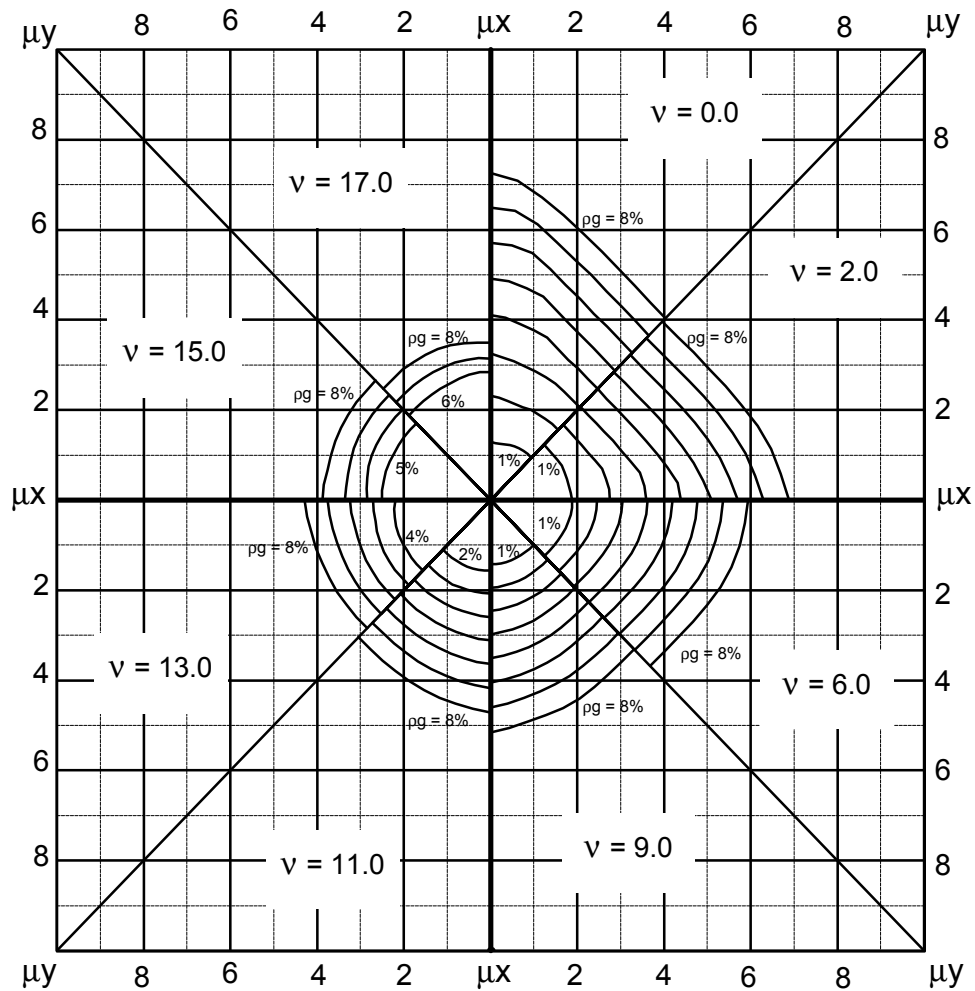


$$f'_c = 20 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



42.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

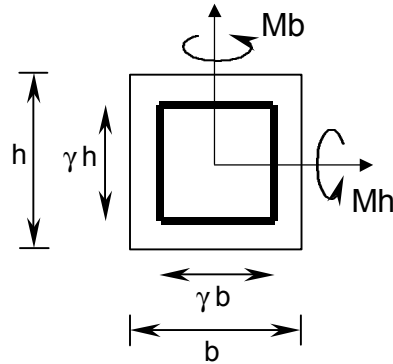
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

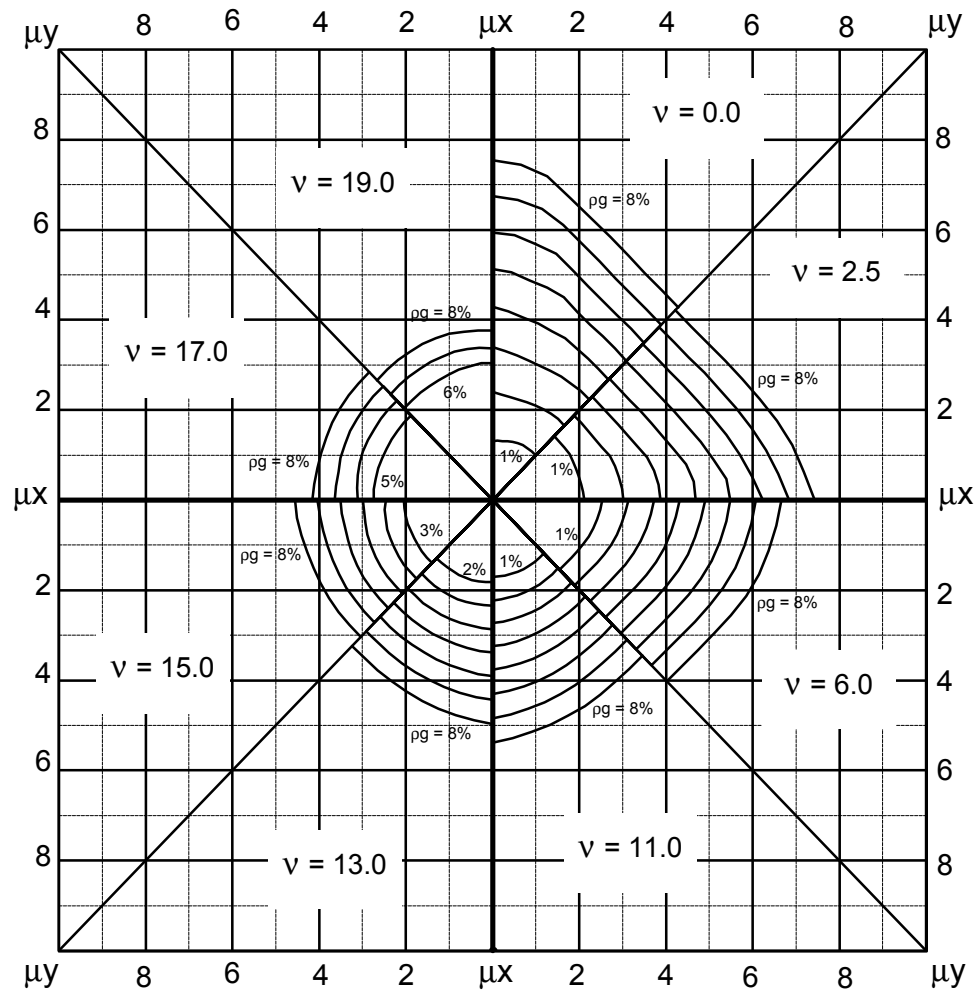


$$f'_c = 25 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



43.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

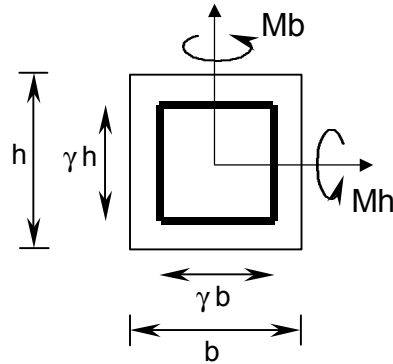
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

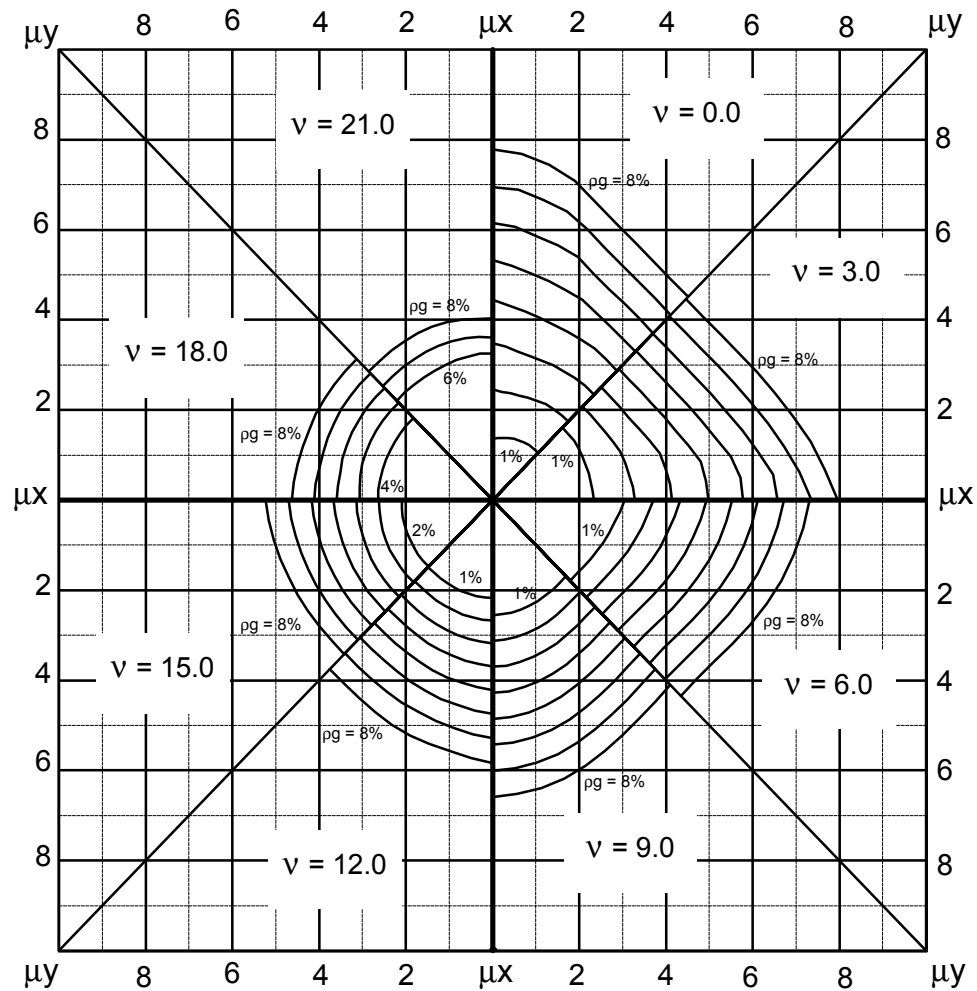


$$f'_c = 30 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



44.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

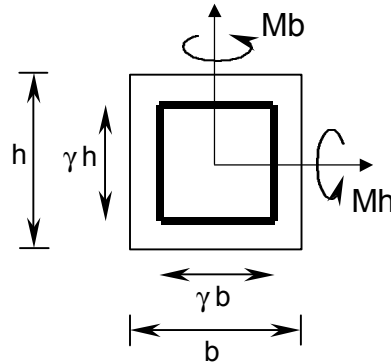
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

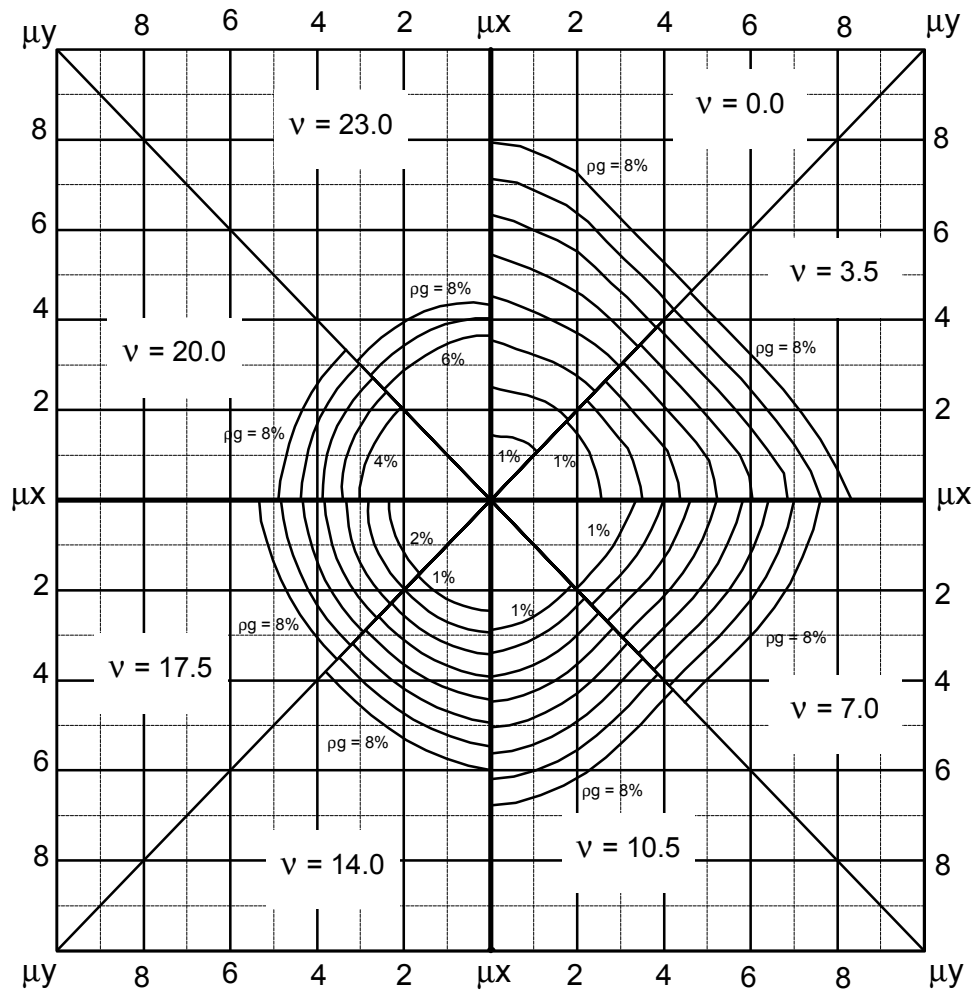


$$f'_c = 35 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.8$$

$$\Delta \rho_g = 1\%$$



45.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

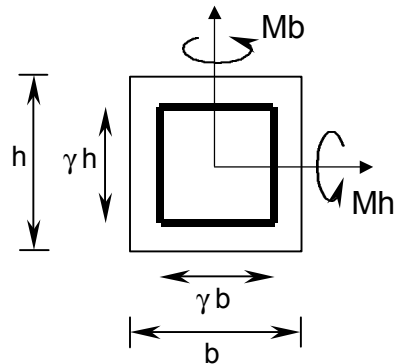
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

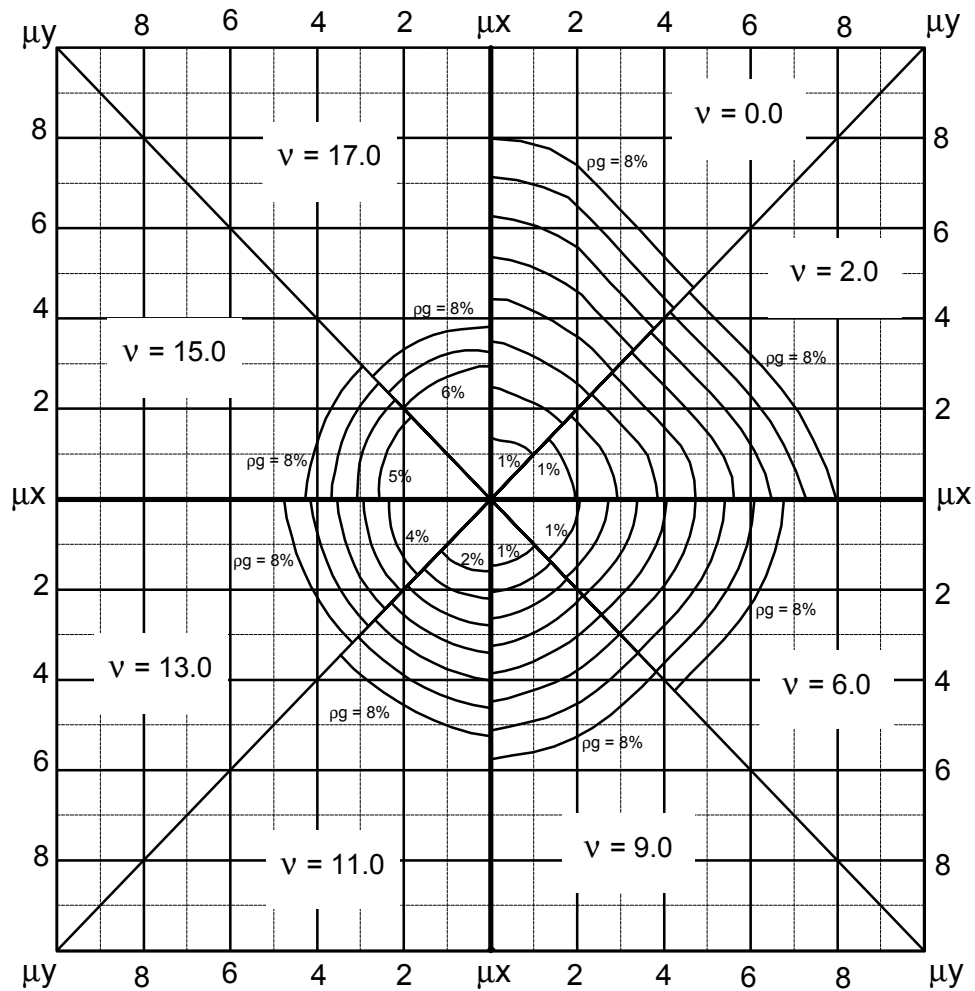


$$f_c = 20 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



46.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

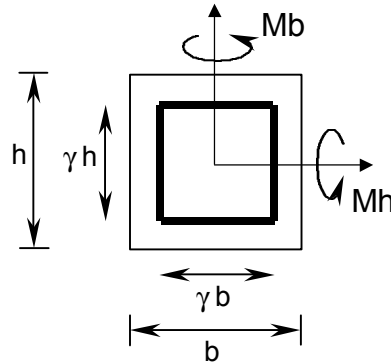
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

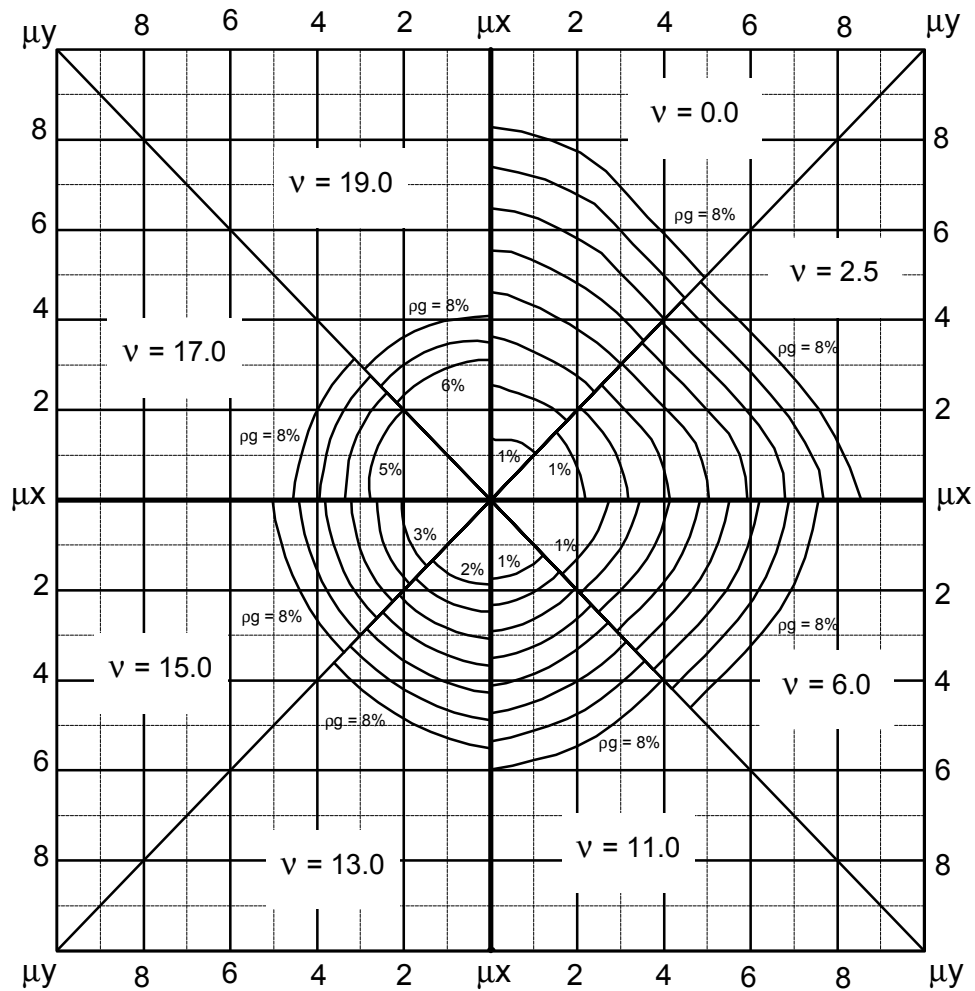


$$f_c = 25 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



47.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

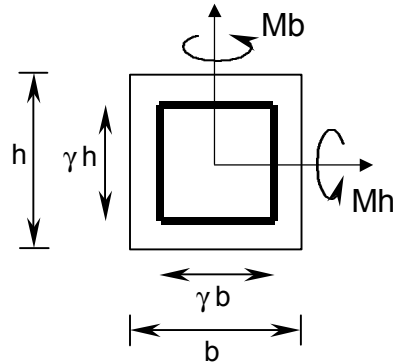
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$

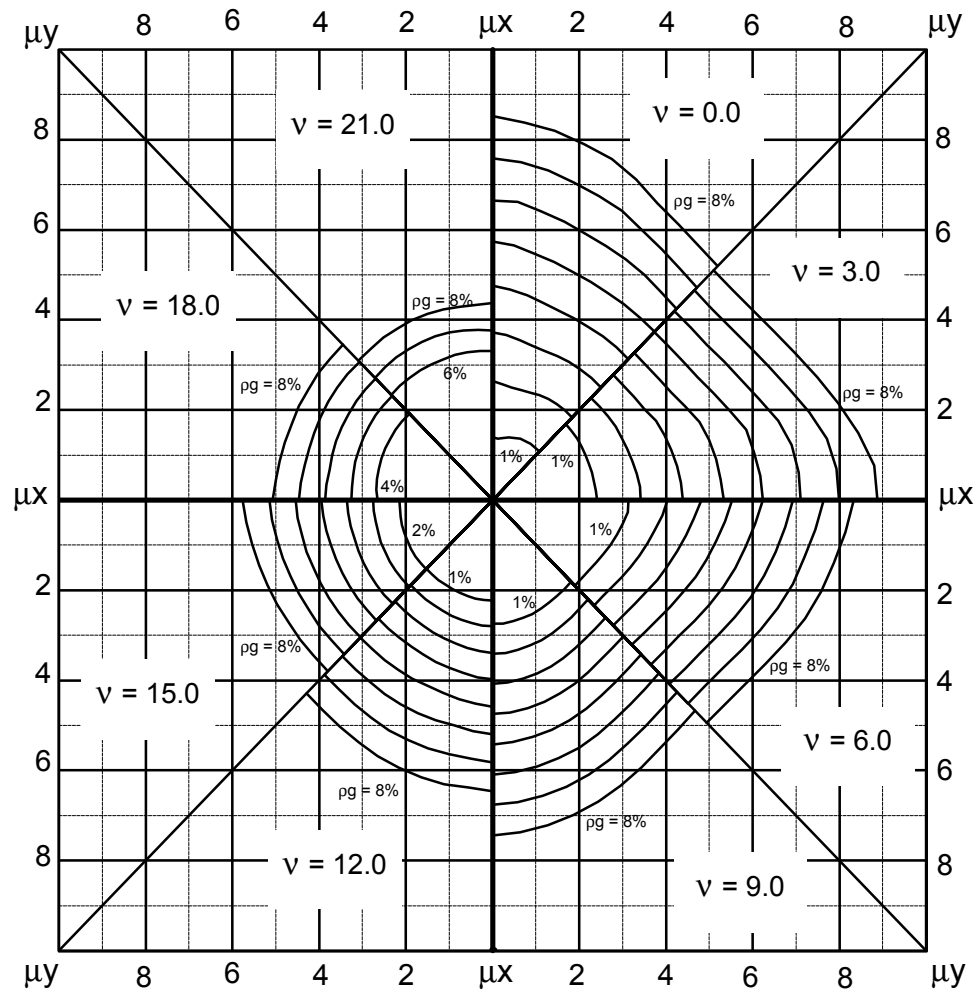


$$f'_c = 30 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$



48.- FLEXION BIAxIAL EN COLUMNAS CON ARMADURA PERIMETRAL

$$A_g = b \cdot h$$

$$\rho_g = A_s / A_g$$

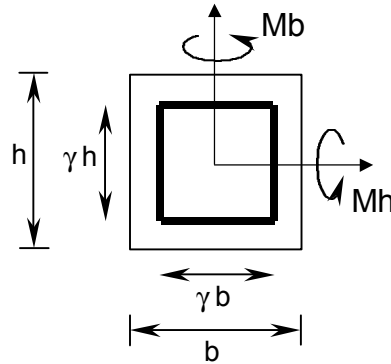
$$\mu_h = M_h / (A_g \cdot h) \text{ [Mpa]}$$

$$\mu_b = M_b / (A_g \cdot b) \text{ [Mpa]}$$

$$v = P_u / A_g \text{ [Mpa]}$$

$$\mu_x = \text{Max} \{ \mu_h, \mu_b \}$$

$$\mu_y = \text{Min} \{ \mu_h, \mu_b \}$$



$$f_c = 35 \text{ MPa}$$

$$f_y = 280 \text{ MPa}$$

$$\gamma = 0.9$$

$$\Delta \rho_g = 1\%$$

