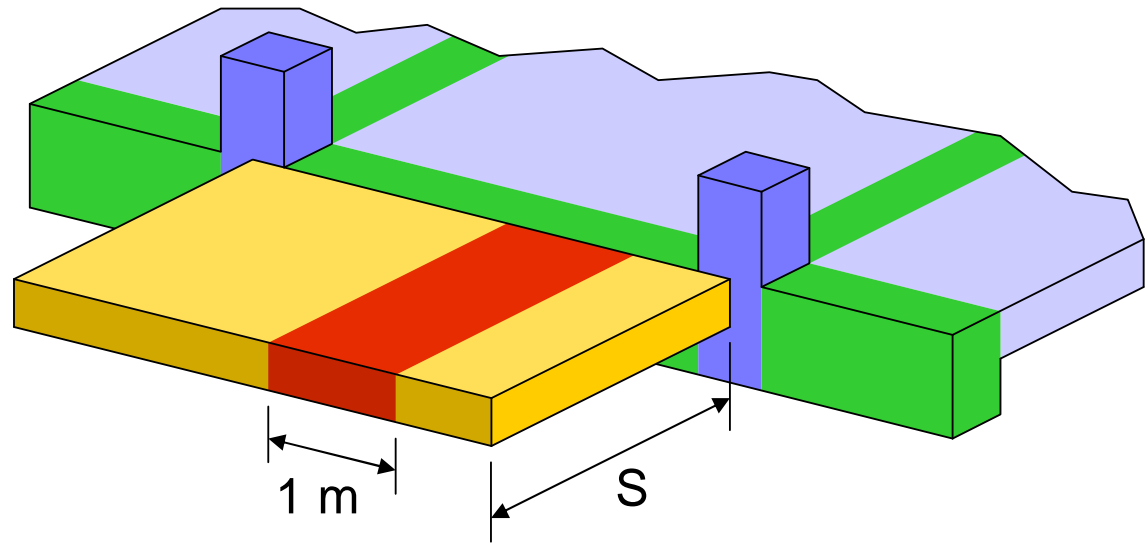
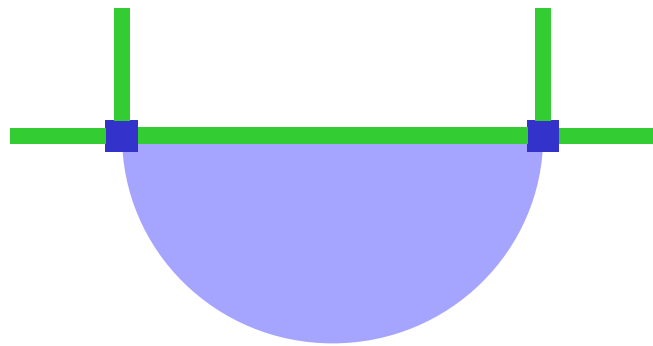
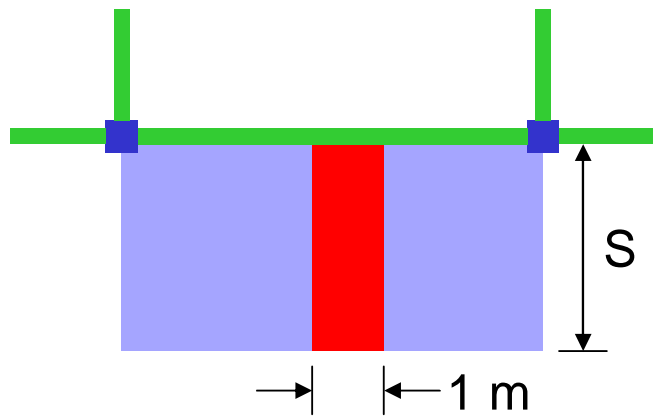


พื้นระเบียงยื่น

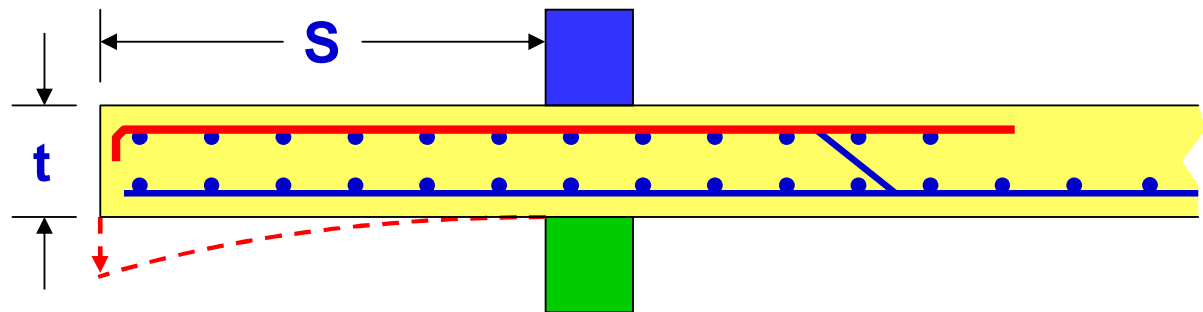


โมเมนต์ดัดต่อความ
กว้าง 1 เมตร

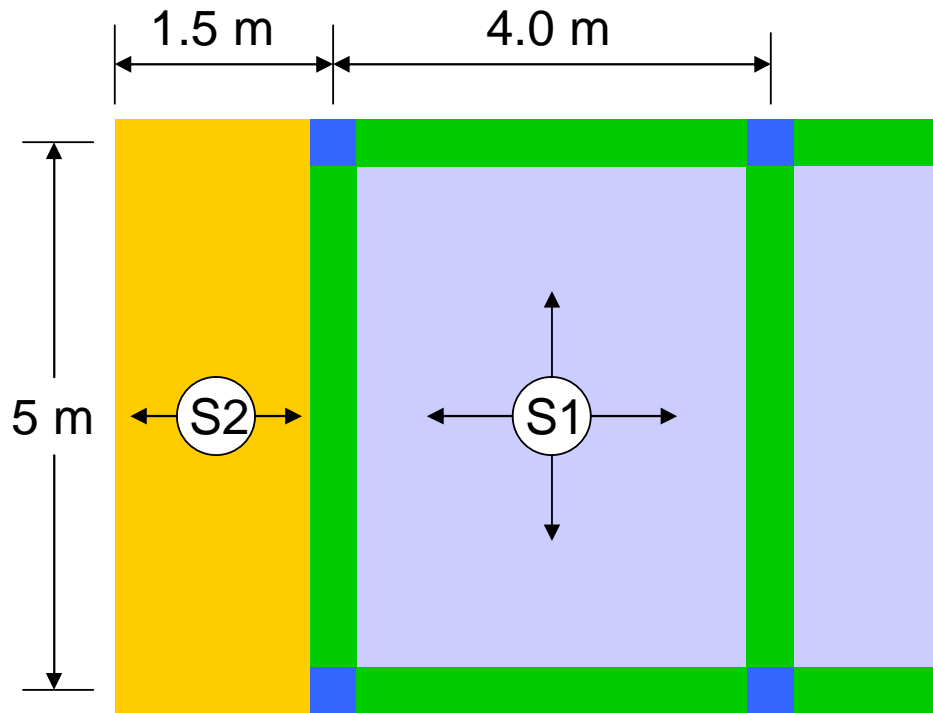
$$M = \frac{wS^2}{2}$$

$$t \geq S / 10$$

for deflection control



ตัวอย่าง ออกแบบพื้นยื่นทางเดียวต่อจากพื้นสองทาง



$$\text{Min. } h = 150/10 = 15 \text{ cm}$$

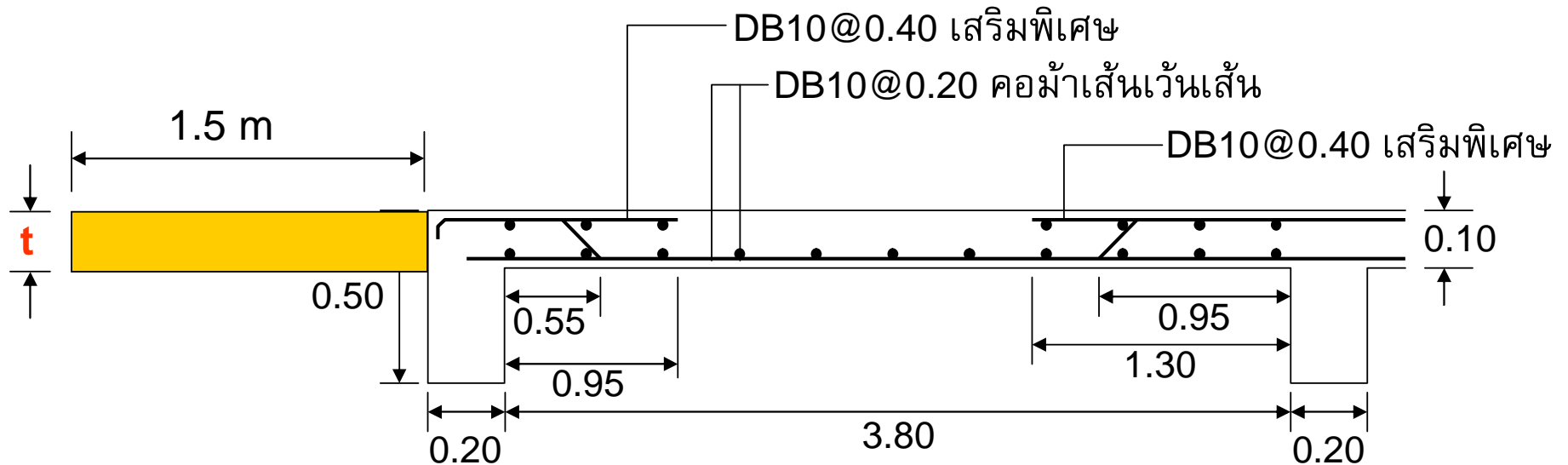
USE $h = 15 \text{ cm}$

$$DL = 0.15 \times 2,400 = 360 \text{ kg/m}^2$$

$$LL = 200 \text{ kg/m}^2$$

$$w_u = 1.4 \times 360 + 1.7 \times 200$$

$$= 844 \text{ kg/m}^2$$



$$M_u = 844 \times 1.5^2 / 2 = \mathbf{949.5 \text{ kg-m}} \text{ (per 1 m width)}$$

USE DB10 with 2 cm covering: $d = 15 - 2 - 0.5 = \mathbf{12.5 \text{ cm}}$

$$R_n = \frac{M_u}{\phi b d^2} = \frac{949.5 \times 100}{0.9 \times 100 \times 12.5^2} = 6.75 \text{ ksc}$$

$$\rho = \frac{0.85 f'_c}{f_y} \left(1 - \sqrt{1 - \frac{2R_n}{0.85 f'_c}} \right) = 0.0017 < \rho_{\min} = \mathbf{0.0035}$$

Use ρ_{\min}

$$\text{Required } A_s = \rho b d = 0.0035 \times 100 \times 12.5 = 4.38 \text{ cm}^2/\text{m}$$

$$\text{DB10 : } A_s = 0.785 \text{ cm}^2 \rightarrow s = 0.785 \times 100 / 4.38 = 17.9 \text{ cm}$$

$$\mathbf{\text{Use DB10@0.17 : } A_s = 0.785 \times 100 / 17 = 4.62 \text{ cm}^2/\text{m} > \text{Required } A_s}$$

OK

$$\text{Temp. steel} = 0.0018 \times 100 \times 15 = 2.70 \text{ cm}^2/\text{m}$$

$$\mathbf{\text{Use DB10@0.20 : } A_s = 0.785 \times 100 / 29 = 2.71 \text{ cm}^2/\text{m}}$$

