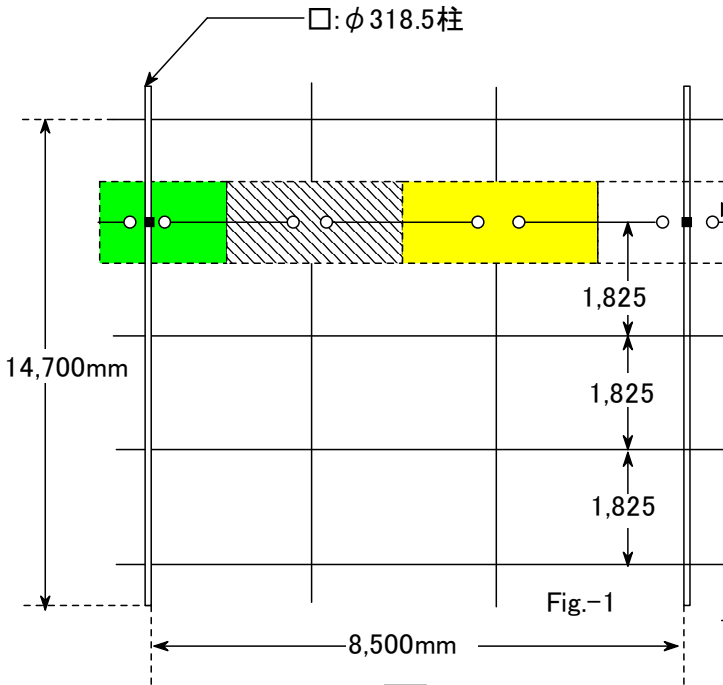


<地区開発J街区工事>

作図・数式すべてカルキングで作成

1.仕様 $P_{max}=184\text{kg/m}^2$

(座屈防止吊りボルト)



I:FB-40×230 チェック(Fig-2でチェック)

$$P'=184[\text{kg/m}^2] \quad L=850[\text{cm}]$$

$$S=\frac{L}{3} \times 1825[\text{mm}]$$

$$= \frac{850[\text{cm}]}{3} \times 1825[\text{mm}] = 5.1708[\text{m}^2]$$

$$P=P' \times S = 184[\text{kg/m}^2] \times 5.1708[\text{m}^2] = 951.4[\text{kg}]$$

$$b=40[\text{mm}] \quad h=230[\text{mm}]$$

$$I_x = \frac{bh^3}{12} = \frac{40[\text{mm}] \times (230[\text{mm}])^3}{12} = 4056[\text{cm}^4]$$

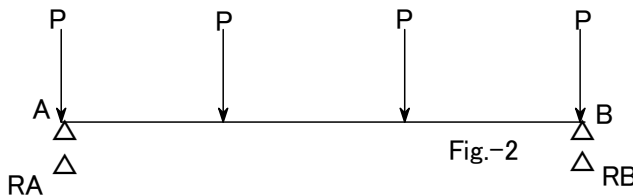
$$Z_x = \frac{I_x}{\frac{h}{2}} = \frac{4056[\text{cm}^4]}{\frac{230[\text{mm}]}{2}} = 352.7[\text{cm}^3]$$

$$I_y = 122.7[\text{cm}^4] \quad Z_y = 61.3[\text{cm}^3]$$

$$A = bh = 40[\text{mm}] \times 230[\text{mm}] = 92[\text{cm}^2]$$

$$i = \sqrt{\frac{I_y}{A}} = \sqrt{\frac{122.7[\text{cm}^4]}{92[\text{cm}^2]}} = 1.155[\text{cm}]$$

$$R_A = R_B = 2P$$



$$M_{max} = \frac{PL}{3} = \frac{951.4[\text{kg}] \times 850[\text{cm}]}{3} = 269563[\text{kg} \cdot \text{cm}]$$

$$Q=P \quad \tau_c = \frac{Q}{A} = \frac{951.4[\text{kg}]}{92[\text{cm}^2]} = 10.34[\text{kg/cm}^2]$$

$$\sigma_{max} = \sigma_c = \frac{P \times \frac{L}{3}}{Z_x} = \frac{951.4[\text{kg}] \times \frac{850[\text{cm}]}{3}}{352.7[\text{cm}^3]} = 764.3[\text{kg/cm}^2]$$

$$\text{複合} \quad \sigma = \sqrt{\sigma_{max}^2 + 3\tau_c^2} = \sqrt{(764.3[\text{kg/cm}^2])^2 + 3 \times (10.34[\text{kg/cm}^2])^2} = 764.5[\text{kg/cm}^2]$$

$$f = 2400[\text{kg/cm}^2]$$

$$\sigma/f = 764.5[\text{kg/cm}^2] / 2400[\text{kg/cm}^2] = 0.319 < 1 \quad \therefore \text{OK}$$