

Density → Sept 16, 2024 / Monday

Demo

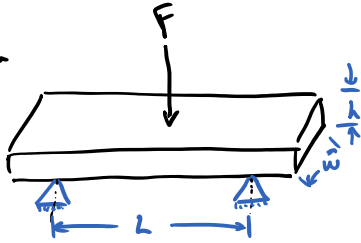
"Bending" method

$$\sigma_{3-pt} = \frac{3FL}{2wh^2}$$

load / point
length

width height

3-pt = 3 point bend strength



$$F = n P_a \quad n = \text{number}$$

$$\sigma_{3-pt} = \frac{3 P_a \text{ mm}}{2 \text{ mm mm}^2}$$

$$= n \text{ Pa/mm}^2 \quad \text{typo during glass :}$$

Demo

#1 glass

$$h - 4.8 \text{ mm} = 0.48 \text{ cm}$$

$$w - 152 \text{ mm} = 15.2 \text{ cm}$$

$$L - 250 \text{ mm} = 25 \text{ cm} \quad \text{data \#1} \times$$

$$382 \text{ mm} = 38.2 \text{ cm} \quad \text{data \#2} \times$$

$$116 \text{ mm} = 11.6 \text{ cm} \quad \text{data \#3} \checkmark$$

#2

$$h - 2 \text{ mm} = 0.2 \text{ cm}$$

$$w - 152 \text{ mm} = 15.2 \text{ cm}$$

$$L - 116 \text{ mm} = 11.6 \text{ cm} \quad \text{data \#3} \checkmark$$

$$382 \text{ mm} = 38.2 \text{ cm} \quad \text{data \#2} \times$$

$$250 \text{ mm} = 25 \text{ cm} \quad \text{data \#1} \times$$

metal

$$h - 4.0 \text{ mm} = 0.40 \text{ cm}$$

$$w - 154 \text{ mm} = 15.4 \text{ cm}$$

$$L - 250 \text{ mm} = 25.0 \text{ cm} \sim \text{1st glass}$$

$$382 \text{ mm} = 38.2 \text{ cm} - \text{worse than 1st glass}$$

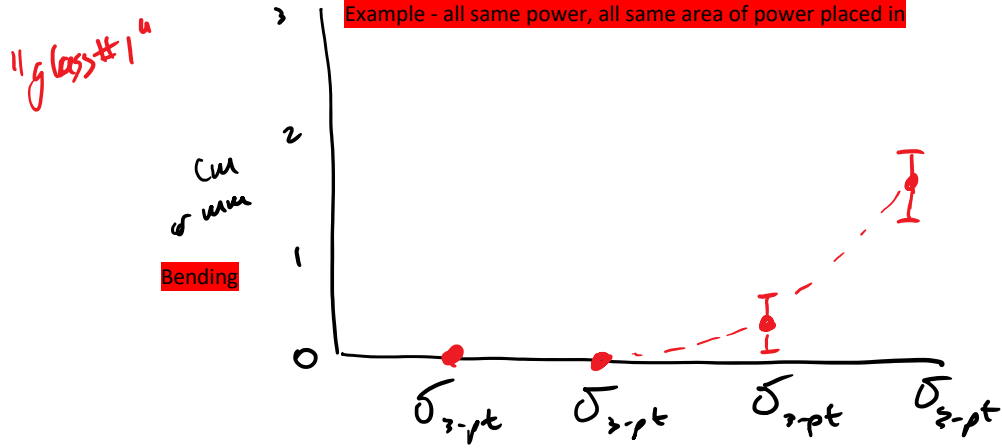
$$116 \text{ mm} = 11.6 \text{ cm} - \text{seems "ok"}$$

plastic

$$h - 6.0 \text{ mm} = 0.6 \text{ cm}$$

$$w - 156.0 \text{ mm} = 15.6 \text{ cm}$$

L	$250 \text{ mm} = 25.0 \text{ cm}$	\times
	$382 \text{ mm} = 38.2 \text{ cm}$	\times
	$116 \text{ mm} = 11.6 \text{ cm}$	maybe



Glass 1

September 13, 2024

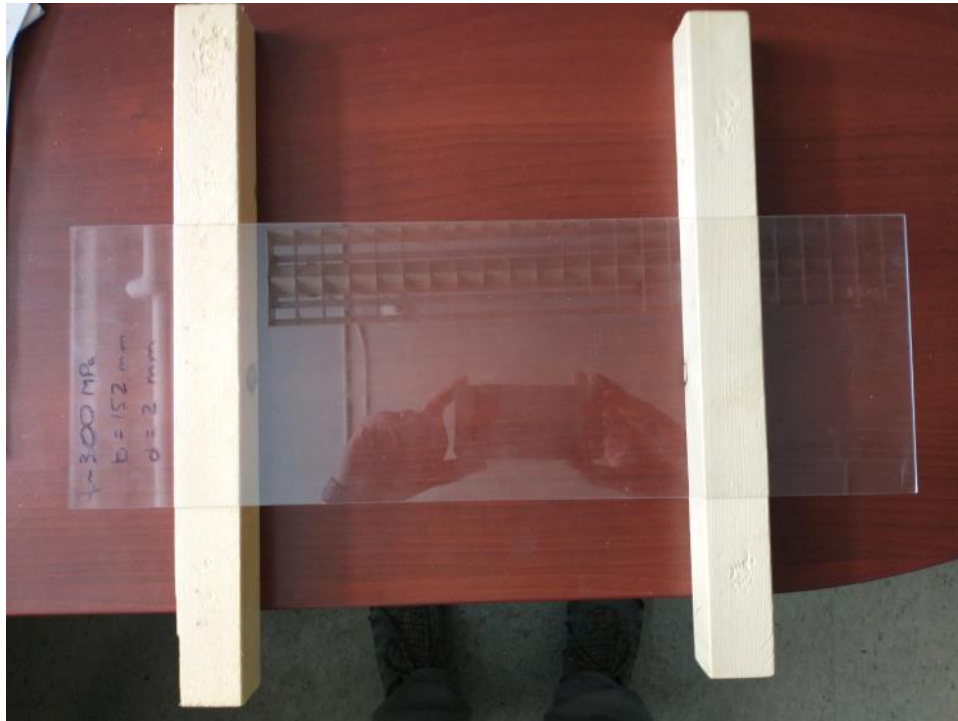
4:14 PM



Glass 2

September 13, 2024

4:14 PM



Metal

September 13, 2024 4:14 PM



Plastic

September 13, 2024

4:15 PM

