$\therefore \tau_{adm,//} = 0.71 * 2.34 = 1.66\ N/mm^2$

Maximum applied stress $\leq$ Permissible stress

$0.123w \leq 1.66$

$\therefore$ Max^m safe load $= \frac{1.66}{0.123} = 13.5\ kN/m$

V) Consider deflection criteria

$\delta_{actual} = \delta_{bending} + \delta_{shear}$

$\delta_{bending} = \frac{5wl^4}{384EI}$

$E = E_{mean} * K_{20}$

$= 10800 * 1.07$

$= 11556\ N/mm^2$

E_{mean} (Table 8)

K_{20} (Table 24)

$\delta_{shear} = \frac{M}{AG}$ $\quad G = \text{Shear modulus} = \frac{E}{16} = \frac{11556}{16} = 722\ N/mm^2$

$\therefore \delta_{actual} = \frac{5w(8000)^4}{(384)*(11556)*(524.9\times10^6)} + \frac{8w*10^6}{48.6\times10^3\times722}$

$= 8.794w + 0.23w$

$= 9.024w\ mm$

$\delta_{adm} = 0.003 * span = 0.003 * 8000 = 24\ mm$

$\delta_{actual} \leq \delta_{adm}$ (Actual deflection $\leq$ Permissible deflection)

$9.024w \leq 24$

$\therefore$ max^m safe load, $w = 24/9.02 = 2.66\ kN/m$

$\therefore$ Max^m Safe load, w is governed by deflection criteria $= 2.66\ kN/m$