

"C" STUD JOIST DESIGN

TOTAL LOAD ON JOIST:

PLY WOOD = 3.3 PSF

JOIST \rightarrow ASSUME 4" CSJ 18 = 1.67 #/FT

LIVE LOAD = 40 PSF

FACTORED LOAD = $(1.2 \times 3.3 \text{ PSF}) + (1.6 \times 40 \text{ PSF}) = 67.96 \rightarrow 68 \text{ PSF}$

TIBUTARY AREA = $2' \times 4' = 8 \text{ FT}^2$

TOTAL WEIGHT ON BEAM = $8 \text{ FT}^2 \times 68 \text{ PSF} = \frac{544 \text{ LBS}}{4'} = 136 \text{ #/FT}$

$136 \text{ #/FT} + 1.2 \text{ #/FT} = 137.2 \rightarrow 137 \text{ #/LF}$

SIMPLE BEAM - UNIFORM LOAD FULL LENGTH OF SPAN L.
 $W = 137 \text{ #/LF}$, $L = 4'-0"$

CALCULATE MAX. MOMENT:

$M = \frac{WL^2}{8}$ OR $M = \frac{WL}{8}$

$W = 137 \text{ #/LF}$, $W = 137 \text{ #/LF} \times 4' = 548 \text{ LBS. TOTAL LOAD}$

$M = \frac{WL}{8} = \frac{(548 \text{ LBS})(4')}{8} = 274 \text{ FT. LBS. POSITIVE MOMENT}$

