"C" STUD-JOIST DESIGN

TOTAL LOAD ON JOIST:

PLYWOOD = 3.3 PSF
JOIST → ASSUME 4" CSJ 18 = 1.167 #/FT
LIVE LOAD = 40 PSF

FACTORED LOAD = (1.2 x 3.3 PSF) + (1.6 x 40 PSF) = 67.96 → 68 PSF

TRIBUTARY AREA = 2' x 4' = 8 FT²

TOTAL WEIGHT ON BEAM = 8 FT² x 68 PSF = $\frac{544 \text{ LBS}}{4'}$ = 136 #/FT

136 #/FT + 1.2 #/FT = 137.2 → 137 #/LF

SIMPLE BEAM – UNIFORM LOAD FULL LENGTH OF SPAN L.
w = 137 #/LF, L = 4'-0"

CALCULATE MAX. MOMENT:

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

w = 137 #/LF, W = 137 #/LF x 4' = 548 LBS. TOTAL LOAD

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

ELEVATION BEAM

SHEAR DIAGRAM

$M_{2.0}$ = (274 LB x 2') − (137 #/LF x 2 x 1)

$M_{2.0}$ = 274 FT. LBS

MOMENT DIAGRAM

RESURGAM. CITY OF PORTLAND, MAINE
Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 05/30/13