

# Joist Design: Floor joists - Mezzanine

## Components

Length: 15 ft

what if we go with 16" o.c.?

Section	Product / Species
TJI 12-560 @ 24 in O.C.	Trus Joist TJI

## Loads

Source	Dead	Live	Concentrated Live
Floor - Mezzanine	20 psf	80 psf	2000 lbf over 2.5 ft x 2.5 ft area

## Analysis and Design Results

### Strength Checks (ASD)

Combination	Check Type	Action	Resistance	Ratio	Check
D + L	Bending	M: 5.62 kip-ft	$M_U$ : 9.5 kip-ft	0.59	✓
D + L (concentrated)	Bending	M: 7.13 kip-ft	$M_U$ : 9.5 kip-ft	0.75	✓
D + L	Shear	V: 1.5 kip	$V_U$ : 2.05 kip	0.73	✓
D + L (concentrated)	Shear	V: 1.72 kip	$V_U$ : 2.05 kip	0.84	✓

### Serviceability Checks

Combination	Check Type	Action	Limit	Ratio	Check
L	Deflection	d: 0.37 in	$d_U$ : 0.5 in (L / 360)	0.74	✓
L (concentrated)	Deflection	d: 0.31 in	$d_U$ : 0.5 in (L / 360)	0.62	✓
1.5 D + L	Deflection	d: 0.51 in	$d_U$ : 0.75 in (L / 240)	0.67	✓
1.5 D + L (concentrated)	Deflection	d: 0.45 in	$d_U$ : 0.75 in (L / 240)	0.6	✓