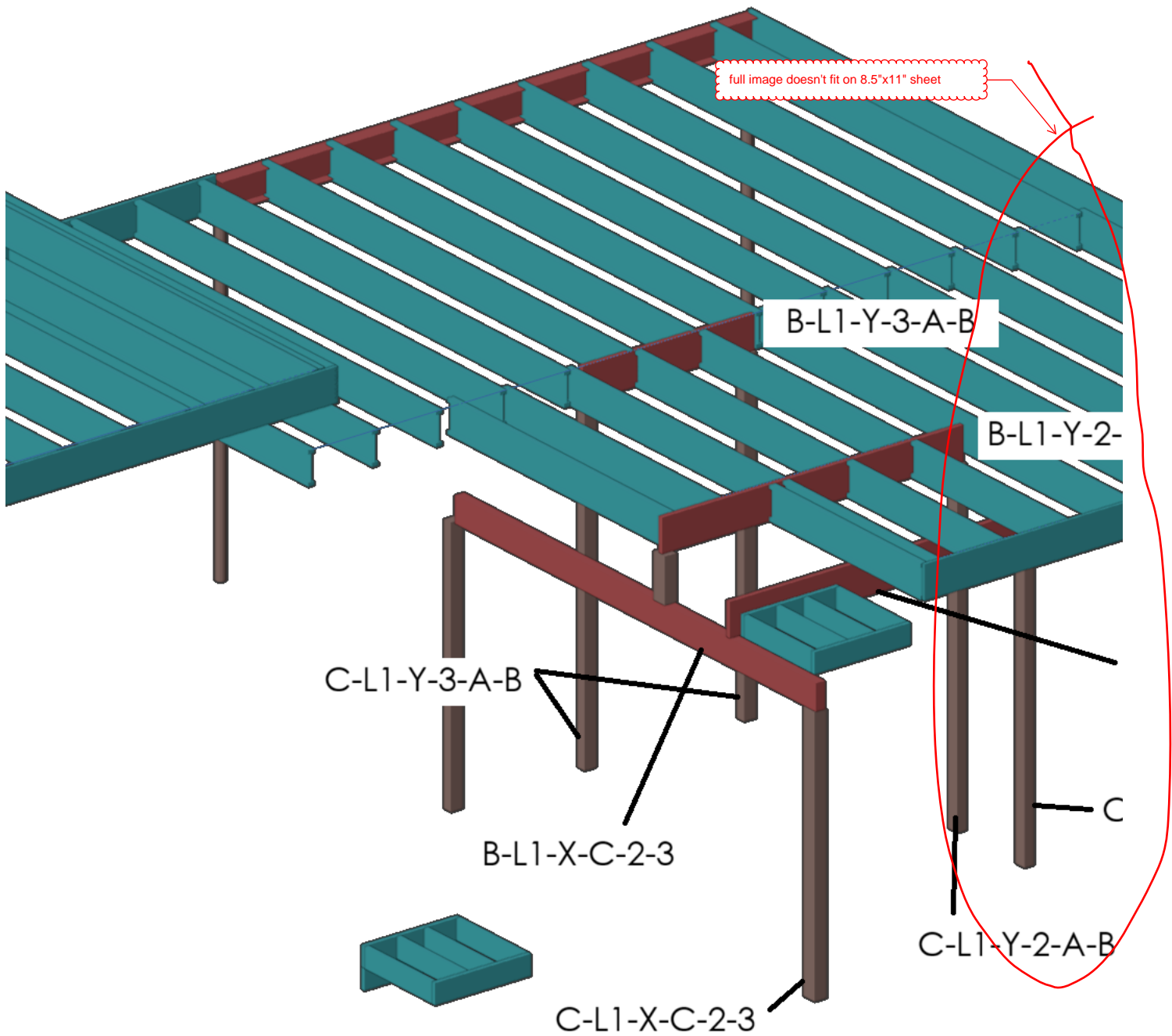


Beam Design - Mezzanine

- Beam Design: B-L1-Y-2-A-B
- Beam Design: B-L1-Y-2-A-B-2
- Beam Design: B-L1-Y-3-A-B
- Beam Design: B-L1-X-C-2-3

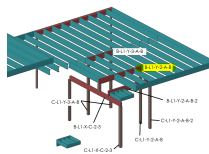


Beam Design: B-L1-Y-2-A-B

Components

Length: 9.4 ft

1.75"x11.875"?



Section	Product / Species	Grade
LVL-2x12	LVL	2.0E

Loads

Source	Dead	Live	Concentrated Live	Width

Source	Dead	Live	Concentrated Live	Width
Floor - Mezzanine	20 psf	80 psf	2000 lbf over 2.5 ft x 2.5 ft area	7.5 ft

Analysis and Design Results

Strength Checks (ASD)

Combination	Check Type	Action	Resistance	Ratio	Check
D + L	Bending	M: 8.28 kip-ft , f_b : 2416.9 psi	M_U : 8.93 kip-ft	0.93	✓
D + L (concentrated)	Bending	M: 6.4 kip-ft	M_U : 8.93 kip-ft	0.72	✓
D + L	Shear	V: 3.53 kip , f_v : 254.4 psi	V_U : 3.95 kip	0.89	✓
D + L (concentrated)	Shear	V: 2 kip	V_U : 3.95 kip	0.51	✓

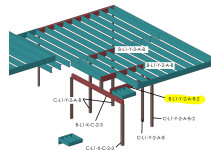
Serviceability Checks

Combination	Check Type	Action	Limit	Ratio	Check
L	Deflection	d: 0.25 in	d_U : 0.31 in (L / 360)	0.81	✓
L (concentrated)	Deflection	d: 0.13 in	d_U : 0.31 in (L / 360)	0.42	✓
1.5 D + L	Deflection	d: 0.35 in	d_U : 0.47 in (L / 240)	0.74	✓
1.5 D + L (concentrated)	Deflection	d: 0.23 in	d_U : 0.47 in (L / 240)	0.49	✓

Beam Design: B-L1-Y-2-A-B-2

Components

Length: 9.4 ft



Section	Product / Species	Grade
LVL-2x12	LVL	2.0E

Loads

Source	Dead	Live	Concentrated Live	Width
Floor - Mezzanine	20 psf	80 psf	-	1.5 ft

Analysis and Design Results

Strength Checks (ASD)

Combination	Check Type	Action	Resistance	Ratio	Check
D + L	Bending	M: 1.66 kip-ft , f_b : 483.4 psi	M_U : 8.93 kip-ft	0.19	✓
D + L	Shear	V: 0.71 kip , f_v : 50.9 psi	V_U : 3.95 kip	0.18	✓

Serviceability Checks

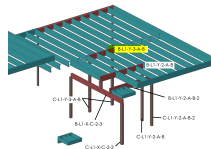
Combination	Check Type	Action	Limit	Ratio	Check
L	Deflection	d: 0.051 in	d_U : 0.31 in (L / 360)	0.16	✓
1.5 D + L	Deflection	d: 0.069 in	d_U : 0.47 in (L / 240)	0.15	✓

Beam Design: B-L1-Y-3-A-B

Components

Length: 5.4 ft

1.75"x11.875"?



Section	Product / Species	Grade
LVL-2x12	LVL	2.0E

Loads

Source	Dead	Live	Concentrated Live	Width
Floor - Mezzanine	20 psf	80 psf	2000 lbf over 2.5 ft x 2.5 ft area	12 ft

Analysis and Design Results

Strength Checks (ASD)

Combination	Check Type	Action	Resistance	Ratio	Check
D + L	Bending	M: 4.37 kip-ft , f_b : 1276.2 psi	M_U : 8.93 kip-ft	0.49	✓
D + L (concentrated)	Bending	M: 3.58 kip-ft	M_U : 8.93 kip-ft	0.4	✓
D + L	Shear	V: 3.24 kip , f_v : 233.9 psi	V_U : 3.95 kip	0.82	✓
D + L (concentrated)	Shear	V: 2 kip	V_U : 3.95 kip	0.51	✓

Serviceability Checks

Combination	Check Type	Action	Limit	Ratio	Check
L	Deflection	d: 0.057 in	d_U : 0.18 in (L / 360)	0.32	✓
L (concentrated)	Deflection	d: 0.024 in	d_U : 0.18 in (L / 360)	0.14	✓
1.5 D + L	Deflection	d: 0.078 in	d_U : 0.27 in (L / 240)	0.29	✓

