Post Frame Structural Engineering Calculations

Roper Marc Naylor Liberty
Post Frame Building
4602 N 3300 E
Liberty, Utah

Prepared for:

Roper Buildings
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Date: 8/10/2023

WHITE PINE ENGINEERING
- CIVIL STRUCTURAL -

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Project	Roper Marc Naylor Liberty
Date	8/10/2023
Engineer	J. Sagers

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Design Criteria

Codes

IBC 2021
ASCE7-16

Risk Category	I	ASCE 7-16 Table 1.5-1

Is	0.8	ASCE 7-16 Table 1.5-2
Ie	1.0	ASCE 7-16 Table 1.5-2

Seismic Loads

S1	0.37	ASCE 7 Hazard Tool
SM1	0.92	ASCE 7 Hazard Tool
SMS	1.30	ASCE 7 Hazard Tool
TL	8	ASCE 7 Hazard Tool

Site Class	D	(ASSUMED)
SDC	D	ASCE 7 Hazard Tool

R (Cant)	1.5	ASCE7-16 table 12.2-1
R (SW)	6.5	ASCE7-16 table 12.2-1

Wind Loads

V	105	mph 3 Sec Gust	
Category	C		
Elevation	5121	ft	USU Snow Load Map

Snow Loads

Pg	60	psf	USU Snow Load Map
Ws	0	psf	

Ce	1.2	ASCE7-16 Table 7.3-1
Ct	1.2	ASCE7-16 Table 7.3-2
Cs	1	ASCE7-16 Figure 7.4-1

Pf	48	ASCE7-16 Eq 7.3-1
Ps	48	ASCE7-16 Eq 7.4-1

Dead Loads

Roof	4	psf	(Trusses, Purlins, 29 gauge metal)
Floor	10	psf	(Joists, 3/4" OSB)
Walls	3	psf	(Posts, Girts, 29 gauge metal)
Concrete	145	pcf	

Live Loads

Roof	20	psf	ASCE7-16 Table 4.3-1
Floor	40	psf	ASCE7-16 Table 4.3-1

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Soil Properties

Geotechnical Report by	N/A
Report Number	N/A
Date of Report	N/A

If no report is listed above, the follow values are assumed
Unified Soil Classification Assumed to be GW, GP, SW, or SP IBC Table 1610.1

Bearing Pressure	1500	psf
Active Pressure	35	pcf
At Rest Presssure	60	pcf
Passive Pressure	250	pcf
Coefficient of Friction	0.3	
Lateral Bearing Pressure	400	psf/ft

IBC 1806.1, 1806.2, & 1806.3.4

**Engineer assumes stable soil conditions.
If there are any global stability concerns, a geotechnical report is required.

Deflection Criteria

Roof

Live Load	L/150	Table 1604.3 Footnote a
Total Load	L/120	Table 1604.3

Floor

Live Load	L/360	Table 1604.3
Total Load	L/240	Table 1604.3

Wall

Live Load	L/90	Table 1604.3 Footnote a

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Main Building Info

Ridge Ht	29.75	ft
Width	57	ft
Length	67	ft
Clear Ht	19	ft
Floor Level	0	ft
Floor Area	0	ft^2

Pitch	4	:12

Bearing Posts	14	quantity
Gable Posts	8	quantity
Post Spacing	12	ft

Pier Diameter Requirements

Bearing Pressure	1500	psf
Adj Bearing Pressure	1800	psf

Tributary Area	402	ft^2
Axial Load	21058.37	lbs

Minimum Area	11.69909	ft^2
Minimum Diameter	46.3	in

Continuous Trimmer Option

15.6 in^2 of bearing area

Ledger Lok Option

33 # of lags per block

3/4" Thru Bolt Option

9 # of thru bolts

16d Option

99 # of nails per block

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ELF

SD1	0.61	Eq 11.4-4
SDS	0.87	Eq 11.4-3
Cs	0.13	Eq 12.8-2
Ta	0.22	Eq 12.8-7
Ct	0.02	table 12.8-2
x	0.75	table 12.8-2
hn	24.375	
Cs Max	0.43	Eq 12.8-3
Cs Max	N/A	Eq 12.8-4
Cs Min	0.04	Eq 12.8-5
Cs Min	0.01	Eq 12.8-5
Cs Min	N/A	Eq 12.8-6
Cs Max	0.43	
Cs Min	0.04	
Cs	0.13	
V (lbs)	3922	Eq 12.8-1

Building Info

k=1 for T<=.5

	Z (ft)	Area (ft^2)	Weight (psf)	Weight (lbs)	Wx (lbs)	Cvx	Fx (lbs)	Shear (lbs)
Ridge	29.75	3819	4	15276				
Top Clear Ht	19	4712	3	14136	22344	1.000	3922	3922
Floor	0	0	10	0				
Bottom Clear Ht	0	0	3	0	7068	0.000	0	3922
				29412				

Width	57
Length	67
Roof Pitch F-B	4 :12 Pitch

Simplified Seismic

V	3922	Eq 12.14-12	
F	1	1	1 story
		1.1	2 story
		1.2	3 story

	Wx (lbs)	Fx (lbs)	Shear (lbs)
Top	22344	2979	2979
Bottom	7068	942	3922

Directional

hn	24.375	
G	0.85	(26.11.4,26.11.2)
ke	0.8307884	table 26.9-1
kzt	1	26.8.2
kd	0.85	table 26.6-1
kh	0.935	table 26.10-1

V 105 mph 3 Sec Gust

Category C

Surface	Cp	L/B or h/L	z or h	kz or kh	Theta	q (psf)	p (psf)	Area (ft^2)	Force (lbs)
Top Front Wall	0.80	0.85	19	0.89	0.00	17.74	12.06	1273	15355
Bottom Front Wall	0.80	0.85	0	0.85	0.00	16.94	11.52	0	0
Front Roof Plane	0.00	0.43	24.375	0.94	18.43	18.64	0.00	720.25	-3
Top Rear Wall	-0.50	0.85	24.375	0.94	0.00	18.64	-7.92	1273	-10082
Bottom Rear Wall	-0.50	0.85	24.375	0.94	0.00	18.64	-7.92	0	0
Rear Roof Plane	-0.57	0.43	24.375	0.94	18.43	18.64	-9.01	720.25	-6488
Top Left Wall	0.80	1.18	19	0.89	0.00	17.74	12.06	1083	13063
Bottom Left Wall	0.80	1.18	0	0.85	0.00	16.94	11.52	0	0
Left Roof Plane	0.80	0.36	24.375	0.94	90.00	18.64	12.67	306.375	3882
Top Right Wall	-0.46	1.18	24.375	0.94	0.00	18.64	-7.36	1083	-7975
Bottom Right Wall	-0.46	1.18	24.375	0.94	0.00	18.64	-7.36	0	0
Right Roof Plane	-0.46	0.36	24.375	0.94	90.00	18.64	-7.36	306.375	-2256

L/R Walls	Shear (lbs)
Top	19204
Bottom	31923

F/B Walls	Shear (lbs)
Top	16658
Bottom	27178

Simplified Wind

Case A	A	B	C	D
Ps30	23.51	0.00	15.63	0.00
Ps	31.56	0.00	20.98	0.00

Case B	A	C
Ps30	17.50	11.60
Ps	23.49	15.57

a 5.7 Lambda 1.3425

	C&D (lbs)	C&D/2 (lbs)	A&B (lbs)	L/R Shear (lbs)		C&D (lbs)	C&D/2 (lbs)	AA&BA (lbs)	AB (lbs)	A&B (lsb)	F/B Shear (lbs)
Top	13356	6678	1146	7824		13204	6602	1146	429	429	7031
Bottom	26713	13356	2292	15648		21637	10818	2292	858	858	11676

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Shear Table

	Top		Bottom	
	F/B	L/R	F/B	L/R
ELF	1961	1961	1961	1961
Simplfied S	1490	1490	1961	1961
Directional	8329	9602	13589	15961
Simplified W	7031	7824	11676	15648

Factored Shear Table (0.6W 0.7E)

	Top		Bottom	
	F/B	L/R	F/B	L/R
ELF	1373	1373	1373	1373
Simplfied S	1043	1043	1373	1373
Directional	4997	5761	8153	9577
Simplified W	4219	4694	7006	9389

Factored Shear Table w/ Wind Converted to Seismic Equivalent Loading (W/1.4) (SHEAR WALLS ONLY)

	Top		Bottom	
	F/B	L/R	F/B	L/R
ELF	1373	1373	1373	1373
Simplfied S	1043	1043	1373	1373
Directional	3570	4115	5824	6841
Simplified W	3013	3353	5004	6706

Factored Shear Table w/ Wind Converted to Seismic Equivalent Loading (W/1.4) (SHEAR WALLS ONLY)

	Top		Bottom	
	F/B	L/R	F/B	L/R
Simplfied S	1043	1043	1373	1373
Simplified W	3013	3353	5004	6706

Factored Shear Table w/ Wind Converted to Seismic Equivalent Loading (W/1.4) (SHEAR WALLS ONLY)

	Top		Bottom	
	F/B	L/R	F/B	L/R
Max Load	3013	3353	5004	6706
		Gable Walls		Gable Walls

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Top Front — Shear 3013 lbs

Segments (ft)	10	10	10								Semented	18	86
Segmented h (ft)	19	19	19	19	19	19	19	19	19	19		24	49
Segmented ARF	1	1	1	0	0	0	0	0	0	0		30	31
Adjusted Length (ft)	10	10	10	0	0	0	0	0	0	0		36	22
Segmented shear (plf)	100	Segmented Uplift (lbs)		1908								42	16
Perforated Height	19	19	19	19	19	19	19	19	19	19			
Perforated ARF	1	1	1	0	0	0	0	0	0	0	Perforated	18	86
Adjusted Length (ft)	10	10	10	0	0	0	0	0	0	0		24	49
Perforation Width (ft)	6	6	6	6								30	31
Perforation Height (ft)	2	2	2	2								36	22
Perforation Area (ft^2)	12	12	12	12	0	0	0	0	0	0		42	16
Perforated Length (ft)	67	Afhs (ft^2)	43	Ao (ft^2)	48	Awall (ft^2)	1273	Sumbi (ft)	30	Co	1.00		
Perforated Shear (plf)	100	Perforated Uplift		1908									

Top Back — Shear 3013 lbs

Segments (ft)	6.5	11.5	13.5	8.5							Semented	18	66
Segmented h (ft)	19	19	19	19	19	19	19	19	19	19		24	37
Segmented ARF	0.8846154	1	1	0.970588235	0	0	0	0	0	0		30	24
Adjusted Length (ft)	5.75	11.5	13.5	8.25	0	0	0	0	0	0		36	17
Segmented shear (plf)	77	Segmented Uplift (lbs)		1468								42	12
Perforated Height	19	19	19	19	19	19	19	19	19	19			
Perforated ARF	0.6842105	1	1	0.894736842	0	0	0	0	0	0	Perforated	18	70
Adjusted Length (ft)	4.4473684	11.5	13.5	7.605263158	0	0	0	0	0	0		24	39
Perforation Width (ft)	4	4	4	4	3							30	25
Perforation Height (ft)	5	5	5	5	7							36	17
Perforation Area (ft^2)	20	20	20	20	21	0	0	0	0	0		42	13
Perforated Length (ft)	67	Afhs (ft^2)	48	Ao (ft^2)	101	Awall (ft^2)	1273	Sumbi (ft)	37.0526316	Co	1.00		
Perforated Shear (plf)	81	Perforated Uplift		1545									

Top Left — Shear 3353 lbs

Segments (ft)	15.67	22.33									Semented	18	76
Segmented h (ft)	19	19	19	19	19	19	19	19	19	19		24	43
Segmented ARF	1	1	0	0	0	0	0	0	0	0		30	27
Adjusted Length (ft)	15.67	22.33	0	0	0	0	0	0	0	0		36	19
Segmented shear (plf)	88	Segmented Uplift (lbs)		1677								42	14
Perforated Height	19	19	19	19	19	19	19	19	19	19			
Perforated ARF	1	1	0	0	0	0	0	0	0	0	Perforated	18	76
Adjusted Length (ft)	15.67	22.33	0	0	0	0	0	0	0	0		24	43
Perforation Width (ft)	3											30	27
Perforation Height (ft)	7											36	19
Perforation Area (ft^2)	21	0	0	0	0	0	0	0	0	0		42	14
Perforated Length (ft)	44.66	Afhs (ft^2)	41.66	Ao (ft^2)	21	Awall (ft^2)	848.54	Sumbi (ft)	38	Co	1.00		
Perforated Shear (plf)	88	Perforated Uplift		1677									

Top Right — Shear 3353 lbs

Segments (ft)	12.33	6	6	12.33							Semented	18	83
Segmented h (ft)	19	19	19	19	19	19	19	19	19	19		24	46
Segmented ARF	1	0.85416667	0.8541667	1	0	0	0	0	0	0		30	30
Adjusted Length (ft)	12.33	5.125	5.125	12.33	0	0	0	0	0	0		36	21
Segmented shear (plf)	96	Segmented Uplift (lbs)		1825								42	15
Perforated Height	19	19	19	19	19	19	19	19	19	19			
Perforated ARF	1	0.63157895	0.6315789	1	0	0	0	0	0	0	Perforated	18	89
Adjusted Length (ft)	12.33	3.78947368	3.7894737	12.33	0	0	0	0	0	0		24	50
Perforation Width (ft)	4	4										30	32
Perforation Height (ft)	5	5										36	22
Perforation Area (ft^2)	20	20	0	0	0	0	0	0	0	0		42	16
Perforated Length (ft)	44.66	Afhs (ft^2)	36.66	Ao (ft^2)	40	Awall (ft^2)	848.54	Sumbi (ft)	32.2389474	Co	1.00		
Perforated Shear (plf)	104	Perforated Uplift		1976									

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Gable Post

Height (ft)	19
Posts	1
Ref. #	51

	Live Loads	Dead Loads	Units	Location	
Distributed	86.85	0	plf		
Triangular	0	0	Max plf	Max @ Right	
Triangular	0	0	Max plf	Centered	
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left

Deflection Limits

Live load	L/	90
Total Load	L/	90

Factors	
CD	1.6
CM	1.0
Ct	1.0
CL	1.0
CF	1.0
Cfu	1.0
Ci	0.8
Cr	1.0
CV	1.0
Cc	1.0
CI	1.0
CVR	1.0

Type	#	Size	Design
	1	6 X 8 HF #1	OK

Fb	975.00	psi		Max Moment	3,919	ft lbs	Flexure Check	Ratio
Fb'	1248.00	psi		Location	9.50	ft From Left	OK	0.699
Sx	53.91	In^3		Req Sx	37.68	In^3		
Fv	140.00	psi		L Reaction	825	lbs	Shear Check	Ratio
Fv'	179.20	psi		R Reaction	825	lbs	OK	0.160
Area	43.13	In^2		Max Shear	825	lbs		
				Req Area	6.91	In^2	Adj Shear Check	Ratio
			3.4.3.1	Adj Max Shear	776	lbs	OK	0.151
			(Non Hangered Loads)	Req Area	6.49	In^2		
E	1,300,000	psi		Max LL Defl.	1.211	In	LL Deflection Check	Actual L/
E'	1,040,000	psi		Location	9.50	ft From Left	OK	188
Ix	202.15	In^4						
Deflection Limits				Max TL Defl.	1.211	In	TL Deflection Check	Actual L/
LL	2.533	In		Location	9.50	ft From Left	OK	188
TL	2.533	In						

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Gable Post

Height (ft)	19
Posts	1
Ref. #	104

	Live Loads	Dead Loads	Units	Location	
Distributed	86.85	0	plf		
Triangular	0	0	Max plf	Max @ Right	
Triangular	0	0	Max plf	Centered	
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left

Deflection Limits

Live load	L/	90
Total Load	L/	90

Factors	
CD	1.6
CM	1.0
Ct	1.0
CL	1.0
CF	1.0
Cfu	1.0
Ci	1.0
Cr	1.0
CV	1.0
Cc	1.0
CI	1.0
CVR	1.0

Type	#	Size	Design
	1	DBL Triad (4) Ply 2x6	OK

Fb	340.20	psi		Max Moment	3,919	ft lbs	Flexure Check	Ratio
Fb'	544.32	psi		Location	9.50	ft From Left	OK	0.670
Sx	129.00	In^3		Req Sx	86.40	In^3		
Fv	175.00	psi		L Reaction	825	lbs	Shear Check	Ratio
Fv'	280.00	psi		R Reaction	825	lbs	OK	0.069
Area	64.50	In^2		Max Shear	825	lbs		
				Req Area	4.42	In^2	Adj Shear Check	Ratio
			3.4.3.1	Adj Max Shear	743	lbs	OK	0.062
			(Non Hangered Loads)	Req Area	3.98	In^2		
E	1,550,000	psi		Max LL Defl.	0.212	In	LL Deflection Check	Actual L/
E'	1,550,000	psi		Location	9.50	ft From Left	OK	1074
Ix	774.00	In^4						
Deflection Limits				Max TL Defl.	0.212	In	TL Deflection Check	Actual L/
LL	2.533	In		Location	9.50	ft From Left	OK	1074
TL	2.533	In						

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Combined Bending and Axial

Fc	850	psi
Fc*	1088	psi
Fc'	850	psi
Emin	470000	psi
Emin'	446500	psi
Fb	585	psi
Fb*	749	psi
Fb'	745	psi
Sx	126.74	in^3
fb1	278	psi
FcE2	32917	psi
fb2	0	psi
FcE1	1459	psi
FbE	8445	psi
fc	239	psi
l2	24	in
l1	228	in
ke	0.8	
le2	19.2	in
le1	182.4	in
d2	5.75	in
d1	11.5	in
Rb	7.965141	
c	0.8	

Factors	
CD	1.6
CM	1.0
Ct	1.0
CL	1.00
CF	1.0
Cfu	1.0
Ci	0.8
Cr	1.0
CV	1.0
Cc	1.0
CI	1.0
CVR	1.0
Cp	0.78

fc<FCE1	OK	
fc<FcE2	OK	
fb1<FbE	OK	
Check	0.53	(3.9-3)
Check	0.01	(3.9-4)

Ref. #	84	
Plys	1	
Section	DBL 6 X 6 HF #1	
Height	19	ft
Vertical Load	15794	lbs
Lateral Load	65	plf
Moment	2939	ft lbs

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Combined Bending and Axial

Fc	1550	psi
Fc*	1984	psi
Fc'	1603	psi
Emin	673401	psi
Emin'	639731	psi
Fb	340	psi
Fb*	435	psi
Fb'	434	psi
Sx	129.00	in^3
fb1	273	psi
FcE2	41212	psi
fb2	0	psi
FcE1	2276	psi
FbE	10133	psi
fc	245	psi
l2	24	in
l1	228	in
ke	0.8	
le2	19.2	in
le1	182.4	in
d2	5.375	in
d1	12	in
Rb	8.704114	
c	0.9	

Factors	
CD	1.6
CM	1.0
Ct	1.0
CL	1.00
CF	1.0
Cfu	1.0
Ci	0.8
Cr	1.0
CV	1.0
Cc	1.0
CI	1.0
CVR	1.0
Cp	0.81

fc<FCE1	OK	
fc<FcE2	OK	
fb1<FbE	OK	
Check	0.73	(3.9-3)
Check	0.01	(3.9-4)

Ref. #	104	
Plys	1	
Section	DBL Triad (4) Ply 2x6	
Height	19	ft
Vertical Load	15794	lbs
Lateral Load	65	plf
Moment	2939	ft lbs

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Purlin Calc

Span (ft)	11.25
Plys	1
Ref. #	2

	Live Loads	Dead Loads	Units		
Distributed	64	8	plf		

Deflection Limits

Live load	L/	150
Total Load	L/	120

Factors	
CD	1.00
CM	1.0
Ct	1.0
CL	1.0
CF	1.3
Cfu	1.0
Ci	1.0
Cr	1.15
CV	1.0
Cc	1.0
CI	1.0
CVR	1.0

12" Lap Required Nailing
4 16D @ each end and middle
13 16D Total each lap

Type	#	Size		Design
	1	2 X 6 DF-L#2	Lapped	OK

Fb	900.00	psi	Max Moment	759	ft lbs	Flexure Check	Ratio
Fb'	1345.50	psi	Location	0.00	ft From Left	OK	0.896
Sx	7.56	In^3	Req Sx	6.77	In^3		
Fv	180.00	psi	L Reaction	405	lbs	Shear Check	Ratio
Fv'	180.00	psi	R Reaction	405	lbs	OK	0.409
Area	8.25	In^2	Max Shear	405	lbs		
			Req Area	3.38	In^2	Adj Shear Check	Ratio
		3.4.3.1	Adj Max Shear	373	lbs	OK	0.376
		(Non Hangered Loads)	Req Area	3.11	In^2		
E	1,600,000	psi	Max LL Defl.	0.139	In	LL Deflection Check	Actual L/
E'	1,600,000	psi	Location	5.63	ft From Left	OK	974
Ix	20.80	In^4					
Deflection Limits			Max TL Defl.	0.156	In	TL Deflection Check	Actual L/
LL	0.900	In	Location	5.63	ft From Left	OK	866
TL	1.125	In					

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WHITE PINE ENGINEERING

Girt Calc

Span (ft)	11.25
Plys	1
Ref. #	50

	Live Loads	Dead Loads	Units	Location	
Distributed	19.3	0	plf		
Triangular	0	0	Max plf	Max @ Right	
Triangular	0	0	Max plf	Centered	
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left

Deflection Limits

Live load	L/	90
Total Load	L/	90

**WALLS CONSIDERED FLEXIBLE, DEFLECTION CRITERIA NOT CONSIDERED

Factors	
CD	1.6
CM	1.0
Ct	1.0
CL	1.0
CF	1.3
Cfu	1.15
Ci	1.0
Cr	1.15
CV	1.0
Cc	1.0
Cl	1.0
CVR	1.0

Type	#	Size	Design
	1	Flat 2 X 6 DF-L#2	OK

Fb	900.00	psi		Max Moment	305	ft lbs	Flexure Check	Ratio
Fb'	2475.72	psi		Location	5.63	ft From Left	OK	0.718
Sx	2.06	In^3		Req Sx	1.48	In^3		
Fv	180.00	psi		L Reaction	109	lbs	Shear Check	Ratio
Fv'	288.00	psi		R Reaction	109	lbs	OK	0.069
Area	8.25	In^2		Max Shear	109	lbs		
				Req Area	0.57	In^2	Adj Shear Check	Ratio
			3.4.3.1	Adj Max Shear	106	lbs	OK	0.067
			(Non Hangered Loads)	Req Area	0.55	In^2		
E	1,600,000	psi		Max LL Defl.	2.810	In	LL Deflection Check	Actual L/
E'	1,600,000	psi		Location	5.63	ft From Left		48
Ix	1.55	In^4						
Deflection Limits				Max TL Defl.	2.810	In	TL Deflection Check	Actual L/
LL	1.500	In		Location	5.63	ft From Left		48
TL	1.500	In						

Project	Roper Marc Naylor Liberty
Date	8/10/2023
Engineer	J. Sagers

WHITE PINE ENGINEERING

Beam Calc #1

Span (ft)	10
Plys	1
Ref. #	103

	Live Loads	Dead Loads	Units	Location	
Distributed	504	24	plf		
Triangular	0	0	Max plf	Max @ Right	
Triangular	0	0	Max plf	Centered	
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left
Point Load	0	0	lbs	0	ft From Left

Deflection Limits

Live load	L/	360
Total Load	L/	240

Factors	
CD	1.0
CM	1.0
Ct	1.0
CL	1.0
CF	1.0
Cfu	1.0
Ci	1.0
Cr	1.0
CV	1.0
Cc	1.0
CI	1.0
CVR	1.0

Type	#	Size	Design
	1	1-3/4" X 11-7/8" LVL	OK

Fb	2600.00	psi		Max Moment	6,600	ft lbs	Flexure Check	Ratio
Fb'	2600.00	psi		Location	5.00	ft From Left	OK	0.741
Sx	41.13	In^3		Req Sx	30.46	In^3		
Fv	285.00	psi		L Reaction	2,640	lbs	Shear Check	Ratio
Fv'	285.00	psi		R Reaction	2,640	lbs	OK	0.669
Area	20.78	In^2		Max Shear	2,640	lbs		
				Req Area	13.89	In^2	Adj Shear Check	Ratio
			3.4.3.1	Adj Max Shear	2,165	lbs	OK	0.548
			(Non Hangered Loads)	Req Area	11.39	In^2		
E	1,900,000	psi		Max LL Defl.	0.244	In	LL Deflection Check	Actual L/
E'	1,900,000	psi		Location	5.00	ft From Left	OK	491
Ix	244.21	In^4						
Deflection Limits				Max TL Defl.	0.256	In	TL Deflection Check	Actual L/
LL	0.333	In		Location	5.00	ft From Left	OK	469
TL	0.500	In						