Project: Comas DU700 019 0621

Location: Garage door header
Multi-Loaded Multi-Span Beam
[2015 International Building Code(2015 NDS)]
(2) 1.75 IN x 14.0 IN x 16.0 FT
1.8E-2600F - APA EWS LVL Stress Classes
Section Adequate By: 441.3%
Controlling Factor: Moment

StruCalc 9.0

StruCalc Version 10.0.1.6 7/17/2019 7:45:15 AM

CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

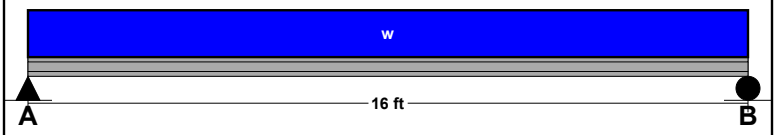
DEFLECTIONS	Center		
Live Load	0.07	IN	L/2606
Dead Load	0.07	in	
Total Load	0.14	IN	L/1337

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A		B	
Live Load	576	lb	576	lb
Dead Load	546	lb	546	lb
Total Load	1122	lb	1122	lb
Bearing Length	0.46	in	0.46	in

BEAM DATA	Center	
Span Length	16	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	16	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

LOADING DIAGRAM



UNIFORM LOADS	Center	
Uniform Live Load	72	plf
Uniform Dead Load	54	plf
Beam Self Weight	14	plf
Total Uniform Load	140	plf

MATERIAL PROPERTIES
1.8E-2600F - APA EWS LVL Stress Classes

	Base Values		Adjusted	
Bending Stress:	Fb = 2600	psi	Fb' = 2550	psi
	Cd=1.00 CF=0.98			
Shear Stress:	Fv = 285	psi	Fv' = 285	psi
	Cd=1.00			
Modulus of Elasticity:	E = 1800	ksi	E' = 1800	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 700	psi	Fc - ⊥' = 700	psi

Controlling Moment: 4489 ft-lb
8.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 1122 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	21.12	in3	114.33	in3
Area (Shear):	5.91	in2	49	in2
Moment of Inertia (deflection):	143.64	in4	800.33	in4
Moment:	4489	ft-lb	24299	ft-lb
Shear:	1122	lb	9310	lb

Project: Comas DU700 019 0621

Location: LVL beam over greatroom
Multi-Loaded Multi-Span Beam
[2015 International Building Code(2015 NDS)]
(3) 1.75 IN x 11.875 IN x 20.75 FT
1.8E-2600F - APA EWS LVL Stress Classes
Section Adequate By: 17.2%
Controlling Factor: Deflection

StruCalc 9.0

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CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

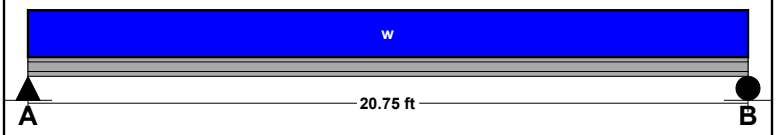
DEFLECTIONS	Center		
Live Load	0.44	IN	L/562
Dead Load	0.17	in	
Total Load	0.61	IN	L/408

Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/240

REACTIONS	A		B	
Live Load	1453	lb	1453	lb
Dead Load	552	lb	552	lb
Total Load	2005	lb	2005	lb
Bearing Length	0.55	in	0.55	in

BEAM DATA	Center	
Span Length	20.75	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	20.75	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

LOADING DIAGRAM



UNIFORM LOADS	Center	
Uniform Live Load	140	plf
Uniform Dead Load	35	plf
Beam Self Weight	18	plf
Total Uniform Load	193	plf

MATERIAL PROPERTIES
1.8E-2600F - APA EWS LVL Stress Classes

	Base Values		Adjusted	
Bending Stress:	Fb = 2600	psi	Fb' = 2603	psi
	Cd=1.00 CF=1.00			
Shear Stress:	Fv = 285	psi	Fv' = 285	psi
	Cd=1.00			
Modulus of Elasticity:	E = 1800	ksi	E' = 1800	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 700	psi	Fc - ⊥' = 700	psi

Controlling Moment: 10397 ft-lb
10.38 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: 2004 lb
At left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	47.92	in3	123.39	in3
Area (Shear):	10.55	in2	62.34	in2
Moment of Inertia (deflection):	625.29	in4	732.62	in4
Moment:	10397	ft-lb	26769	ft-lb
Shear:	2004	lb	11845	lb

Project: Comas DU700 019 0621

Location: LVL beam over Dining Room
Multi-Loaded Multi-Span Beam
[2015 International Building Code(2015 NDS)]
(2) 1.75 IN x 9.25 IN x 5.33 FT
1.8E-2600F - APA EWS LVL Stress Classes
Section Adequate By: 331.9%
Controlling Factor: Shear

StruCalc 9.0

StruCalc Version 10.0.1.6 7/17/2019 7:47:00 AM

CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

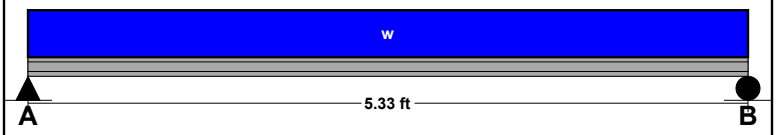
DEFLECTIONS	Center	
Live Load	0.02	IN L/3485
Dead Load	0.01	in
Total Load	0.02	IN L/2739

Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/240

REACTIONS	A		B	
Live Load	1119	lb	1119	lb
Dead Load	305	lb	305	lb
Total Load	1424	lb	1424	lb
Bearing Length	0.58	in	0.58	in

BEAM DATA	Center	
Span Length	5.33	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	5.33	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

LOADING DIAGRAM



UNIFORM LOADS	Center	
Uniform Live Load	420	plf
Uniform Dead Load	105	plf
Beam Self Weight	9	plf
Total Uniform Load	534	plf

MATERIAL PROPERTIES
1.8E-2600F - APA EWS LVL Stress Classes

	Base Values		Adjusted	
Bending Stress:	Fb = 2600	psi	Fb' = 2686	psi
	Cd=1.00 CF=1.03			
Shear Stress:	Fv = 285	psi	Fv' = 285	psi
	Cd=1.00			
Modulus of Elasticity:	E = 1800	ksi	E' = 1800	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 700	psi	Fc - ⊥' = 700	psi

Controlling Moment: 1898 ft-lb
2.66 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1424 lb
5.0 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	8.48	in3	49.91	in3
Area (Shear):	7.5	in2	32.38	in2
Moment of Inertia (deflection):	31.79	in4	230.84	in4
Moment:	1898	ft-lb	11172	ft-lb
Shear:	-1424	lb	6151	lb

Project: Comas DU700 019 0621

Location: LVL beam over Foyer
Multi-Loaded Multi-Span Beam
[2015 International Building Code(2015 NDS)]
(2) 1.75 IN x 11.875 IN x 9.0 FT
1.8E-2600F - APA EWS LVL Stress Classes
Section Adequate By: 496.8%
Controlling Factor: Shear

StruCalc 9.0

StruCalc Version 10.0.1.6 7/17/2019 7:47:57 AM

CAUTIONS
* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.03	IN L/4062
Dead Load	0.01	in
Total Load	0.04	IN L/3062

Live Load Deflection Criteria: L/480 Total Load Deflection Criteria: L/240

REACTIONS	A		B	
Live Load	665	lb	1015	lb
Dead Load	221	lb	308	lb
Total Load	886	lb	1323	lb
Bearing Length	0.36	in	0.54	in

BEAM DATA	Center	
Span Length	9	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	9	ft
Live Load Duration Factor	1.00	
Notch Depth	0.00	

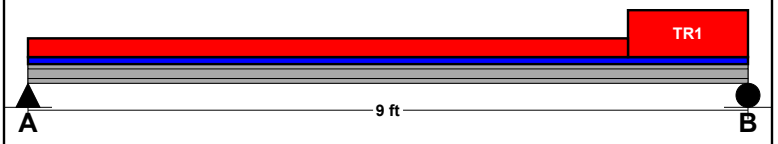
MATERIAL PROPERTIES
1.8E-2600F - APA EWS LVL Stress Classes

	Base Values			Adjusted		
Bending Stress:	Fb =	2600	psi	Fb' =	2603	psi
	Cd=1.00 CF=1.00					
Shear Stress:	Fv =	285	psi	Fv' =	285	psi
	Cd=1.00					
Modulus of Elasticity:	E =	1800	ksi	E' =	1800	ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	700	psi	Fc - ⊥' =	700	psi

Controlling Moment: 2096 ft-lb
4.77 Ft from left support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2
Controlling Shear: -1323 lb
At right support of span 2 (Center Span)
Created by combining all dead loads and live loads on span(s) 2

Comparisons with required sections:	Req'd		Provided	
Section Modulus:	9.66	in3	82.26	in3
Area (Shear):	6.96	in2	41.56	in2
Moment of Inertia (deflection):	57.71	in4	488.41	in4
Moment:	2096	ft-lb	17846	ft-lb
Shear:	-1323	lb	7897	lb

LOADING DIAGRAM



UNIFORM LOADS	Center	
Uniform Live Load	0	plf
Uniform Dead Load	0	plf
Beam Self Weight	12	plf
Total Uniform Load	12	plf

TRAPEZOIDAL LOADS - CENTER SPAN				
Load Number	One		Two	
Left Live Load	420	plf	140	plf
Left Dead Load	105	plf	35	plf
Right Live Load	420	plf	140	plf
Right Dead Load	105	plf	35	plf
Load Start	7.5	ft	0	ft
Load End	9	ft	7.5	ft
Load Length	1.5	ft	7.5	ft