

## Corrections

### Key No. 1.7 Exist. Header, DF No. 2, verify min 4x8"

Span:	L	=	4 ft
Load:	exist. roof w/ trib 14 ft, new wall w/ h 4 ft, point load from beam 1.4		
	DL	14 x 15 + 4 x 10	= 250 plf
	SL	14 x 25	= 350 plf
	PDL	at L/2	= 480 lbs
	PSL		= 800 lbs

For calculation see design sheets

### Key No. 1.8 Exist. Header, DF No. 2, verify min 4x10"

Span:	L	=	8 ft
Load:	exist. roof w/ trib 14 ft, new wall w/ h 4 ft		
	DL	14 x 15 + 4 x 10	= 250 plf
	SL	14 x 25	= 350 plf

For calculation see design sheets

### Header Support at Door Jam 2<sup>nd</sup> Level, verify min (2) 2x6" Studs

Height:	H	=	7 ft
Load:	reactions from headers 1.7 and 1.8		
	PDL	750 + 1,010	= 1,760 lbs
	PSL	1,110 + 1,415	= 2,525 lbs

For calculation see design sheets

### Header Support at Door Jam 1st Level, verify min (3) 2x6" Studs

Height:	H	=	7 ft
Load:	reactions from headers 2.8 and 2.9 + 2 <sup>nd</sup> level jambs		
	PDL	895 + 450 + 1,760	= 4,000 lbs
	PLL	2,435 + 1,220	= 3,655 lbs
	PSL		= 2,525 lbs

For calculation see design sheets

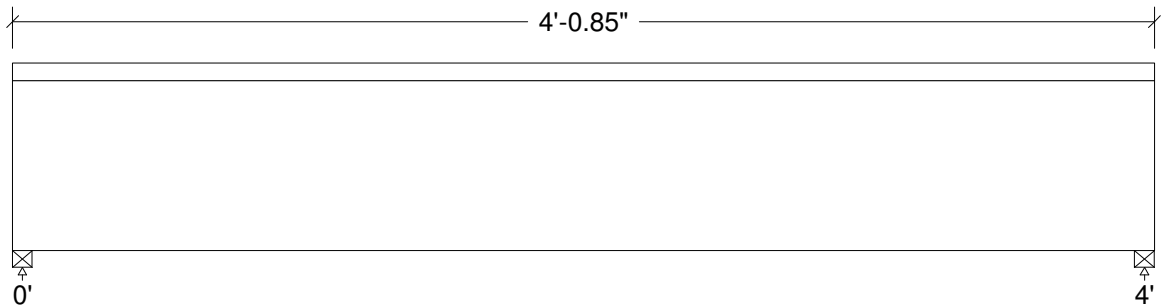


### Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 4)

**Loads:**

Load	Type	Distribution	Pat-tern	Location [ft]		Magnitude		Unit
				Start	End	Start	End	
DL	Dead	Full UDL				250.0		plf
SL	Snow	Full UDL				350.0		plf
PDL	Dead	Point		2.04		480		lbs
PSL	Snow	Point		2.04		800		lbs

**Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :**


Unfactored:			
Dead	749		749
Snow	1112		1112
Factored:			
Total	1861		1861
Bearing:			
Capacity			
Beam	1861		1861
Support	2061		2061
Des ratio			
Beam	1.00		1.00
Support	0.90		0.90
Load comb	#2		#2
Length	0.85		0.85
Min req'd	0.85		0.85
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.11		1.11
Fcp sup	625		625

**Lumber-soft, D.Fir-L (N), No.1/No.2, 4x8 (3-1/2"x7-1/4")**

Supports: All - Timber-soft Beam, D.Fir-L (N) No.2  
 Total length: 4'-0.88"; Clear span: 3'-11.13"; Volume = 0.7 cu.ft.  
 Lateral support: top = continuous, bottom = at supports;  
**This section PASSES the design code check.**

**Analysis vs. Allowable Stress and Deflection using NDS 2018 :**

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 86	Fv' = 207	psi	fv/Fv' = 0.42
Bending(+)	fb = 971	Fb' = 1271	psi	fb/Fb' = 0.76
Dead Defl'n	0.01 = < L/999			
Live Defl'n	0.02 = < L/999	0.13 = L/360	in	0.16
Total Defl'n	0.04 = < L/999	0.20 = L/240	in	0.18

**Additional Data:**

FACTORS:	F/E (psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfirt	Ci	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	2
Fb'+	850	1.15	1.00	1.00	1.000	1.300	-	1.00	1.00	1.00	2
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	2
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = D + S  
 Bending(+): LC #2 = D + S  
 Deflection: LC #2 = D + S (live)  
                   LC #2 = D + S (total)  
 Bearing : Support 1 - LC #2 = D + S  
                   Support 2 - LC #2 = D + S

D=dead S=snow

All LC's are listed in the Analysis output

Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.1

**CALCULATIONS:**

V max = 1840, V design = 1456 lbs; M(+) = 2480 lbs-ft

EIy = 177.83 lb-in<sup>2</sup>

"Live" deflection is due to all non-dead loads (live, wind, snow...)

Total deflection = 1.0 dead + "live"

**Design Notes:**

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2018) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.

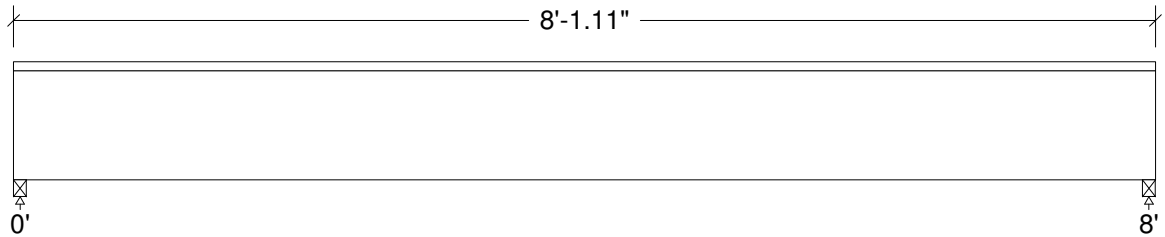


### Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 4)

**Loads:**

Load	Type	Distribution	Pat-tern	Location [ft]		Magnitude		Unit
				Start	End	Start	End	
DL	Dead	Full UDL				250.0		plf
SL	Snow	Full UDL				350.0		plf

**Maximum Reactions (lbs), Bearing Capacities (lbs) and Bearing Lengths (in) :**


Unfactored:			
Dead	1012		1012
Snow	1416		1416
Factored:			
Total	2428		2428
Bearing:			
Capacity			
Beam	2428		2428
Support	2688		2688
Des ratio			
Beam	1.00		1.00
Support	0.90		0.90
Load comb	#2		#2
Length	1.11		1.11
Min req'd	1.11		1.11
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.11		1.11
Fcp sup	625		625

**Lumber-soft, D.Fir-L (N), No.1/No.2, 4x10 (3-1/2"x9-1/4")**

Supports: All - Timber-soft Beam, D.Fir-L (N) No.2

Total length: 8'-1.13"; Clear span: 7'-10.88"; Volume = 1.8 cu.ft.

Lateral support: top = continuous, bottom = at supports;

**This section PASSES the design code check.**
**Analysis vs. Allowable Stress and Deflection using NDS 2018 :**

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$f_v = 88$	$F_v' = 207$	psi	$f_v/F_v' = 0.43$
Bending (+)	$f_b = 1154$	$F_b' = 1173$	psi	$f_b/F_b' = 0.98$
Dead Defl'n	$0.06 = < L/999$			
Live Defl'n	$0.09 = < L/999$	$0.27 = L/360$	in	0.33
Total Defl'n	$0.15 = L/641$	$0.40 = L/240$	in	0.37

**Additional Data:**

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	180	1.15	1.00	1.00	-	-	-	-	1.00	1.00	2
Fb'+	850	1.15	1.00	1.00	1.000	1.200	-	1.00	1.00	1.00	2
Fcp'	625	-	1.00	1.00	-	-	-	-	1.00	1.00	-
E'	1.6 million		1.00	1.00	-	-	-	-	1.00	1.00	2
Emin'	0.58 million		1.00	1.00	-	-	-	-	1.00	1.00	2

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = D + S

Bending(+): LC #2 = D + S

Deflection: LC #2 = D + S (live)

LC #2 = D + S (total)

Bearing : Support 1 - LC #2 = D + S

Support 2 - LC #2 = D + S

D=dead S=snow

All LC's are listed in the Analysis output

Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.1

**CALCULATIONS:**

V max = 2400, V design = 1910 lbs; M(+) = 4800 lbs-ft

EIy = 369.34 lb-in<sup>2</sup>

"Live" deflection is due to all non-dead loads (live, wind, snow...)

Total deflection = 1.0 dead + "live"

**Design Notes:**

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2018) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.

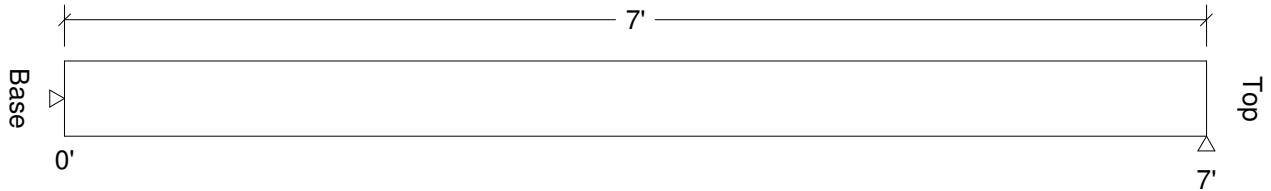


### Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 4)

**Loads:**

Load	Type	Distribution	Location [ft]		Magnitude		Unit
			Start	End	Start	End	
PDL	Dead	Axial	(Ecc. = 0.00")		4000		lbs
PLL	Live	Axial	(Ecc. = 0.00")		3655		lbs
PSL	Snow	Axial	(Ecc. = 0.00")		2525		lbs

**Reactions (lbs):**


Unfactored:		
Lateral:		
Dead		
Live		
Snow		
Axial:		
Dead	4000	4000
Live	3655	3655
Snow	2525	2525
Factored:		
L->R		
Load comb	#1	#1

#### Lumber n-ply, Hem-Fir (N), No.1/No.2, 2x6, 3-ply (4-1/2"x5-1/2")

Support: Non-wood

Total length: 7'; Volume = 1.2 cu.ft.

Pinned base; Built-up fastener: nails; Ke x Lb: 1.0 x 7.0 = 7.0 ft; Ke x Ld: 1.0 x 7.0 = 7.0 ft; Repetitive factor: applied where permitted (refer to online help);

**This section PASSES the design code check.**

**Analysis vs. Allowable Stress and Deflection using NDS 2018 :**

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Axial	fc = 349	Fc' = 642	psi	fc/Fc' = 0.54
Axial Bearing	fc = 349	Fc* = 1834	psi	fc/Fc* = 0.19

**Additional Data:**

FACTORS:	F/E (psi)	CD	CM	Ct	CL/CP	CF	Cfu	Cr	Cfrt	Ci	LC#
Fc'	1450	1.15	1.00	1.00	0.350	1.100	-	-	1.00	1.00	3
Fc*	1450	1.15	1.00	1.00	-	1.100	-	-	1.00	1.00	3

**CRITICAL LOAD COMBINATIONS:**

Axial : LC #3 = D + 0.75(L + S)

D=dead L=live S=snow

All LC's are listed in the Analysis output

Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.1

**Design Notes:**

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2018) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. BUILT-UP COLUMNS: nailed or bolted built-up columns shall conform to the provisions of NDS Clause 15.3.
4. FIRE RATING: Joists, wall studs, and multi-ply members are not rated for fire endurance.

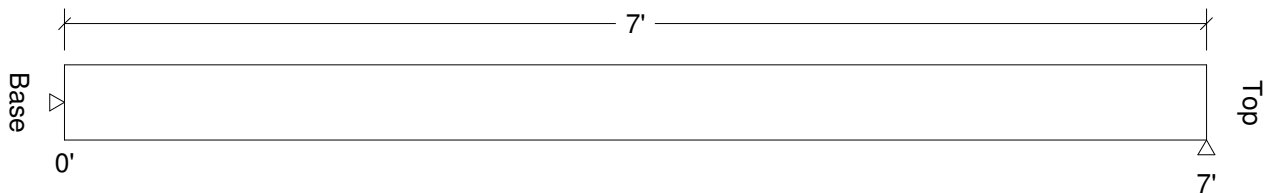


### Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 4)

**Loads:**

Load	Type	Distribution	Location [ft]		Magnitude		Unit
			Start	End	Start	End	
PDL	Dead	Axial	(Ecc. = 0.00")		1760		lbs
PSL	Snow	Axial	(Ecc. = 0.00")		2525		lbs

**Reactions (lbs):**


Unfactored:		
Lateral:		
Dead		
Snow		
Axial:		
Dead	1760	1760
Snow	2525	2525
Factored:		
L->R		
Load comb	#1	#1

#### Lumber n-ply, Hem-Fir (N), No.1/No.2, 2x6, 2-ply (3"x5-1/2")

Support: Non-wood

Total length: 7'; Volume = 0.8 cu.ft.

Pinned base; Built-up fastener: nails; Ke x Lb: 1.0 x 7.0 = 7.0 ft; Ke x Ld: 1.0 x 7.0 = 7.0 ft; Repetitive factor: applied where permitted (refer to online help);

**This section PASSES the design code check.**

**Analysis vs. Allowable Stress and Deflection using NDS 2018 :**

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Axial	fc = 260	Fc' = 335	psi	fc/Fc' = 0.77
Axial Bearing	fc = 260	Fc* = 1834	psi	fc/Fc* = 0.14

**Additional Data:**

FACTORS:	F/E (psi)	CD	CM	Ct	CL/CP	CF	Cfu	Cr	Cfrt	Ci	LC#
Fc'	1450	1.15	1.00	1.00	0.183	1.100	-	-	1.00	1.00	2
Fc*	1450	1.15	1.00	1.00	-	1.100	-	-	1.00	1.00	2

**CRITICAL LOAD COMBINATIONS:**

Axial : LC #2 = D + S

D=dead S=snow

All LC's are listed in the Analysis output

Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.1



**Design Notes:**

1. Analysis and design are in accordance with the ICC International Building Code (IBC 2018) and the National Design Specification (NDS 2018), using Allowable Stress Design (ASD). Design values are from the NDS Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. BUILT-UP COLUMNS: nailed or bolted built-up columns shall conform to the provisions of NDS Clause 15.3.
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