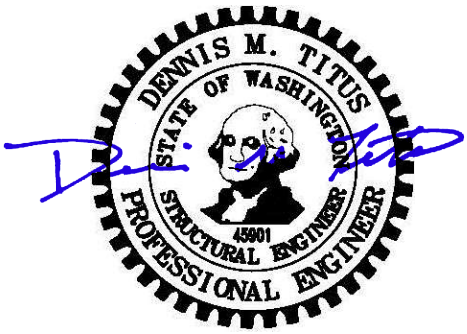
civil & structural
engineering & planning

STRUCTURAL CALCULATIONS

Talarico's Pizzeria Covered Dining

4718 California Ave SW
Seattle, WA 98116



03/10/2021

250 4th Ave S Ste 200
Edmonds, WA 98020
Phone: (425) 778-8500
Fax: (425) 778-5536

CG Project No.: 21133.10

Project Location
4718 California Ave SW
Seattle, WA 98116

Project Description
A covered outdoor dining area has been built for an existing restaurant. The covered area is approximately 6 x 50ft. The covered area has minimal lateral resistance and will be designed as a temporary structural for gravity loads only.

Scope of Work
Provide structural calculations in accordance with current building code.

Basis of Design

Loads	Dead	5 psf
	Snow	25 psf (snow)

ENGINEERING
250 4th Ave South
Suite 200
Edmonds, WA 98020

Description: Project Summary		By: ZSH	Date: 3/5/2021
		Checked	Date
		Scale: NTS	Sheet No.
Project: Talarico's Pizzeria		Job No.: 21133.10	1

Gravity Design Loads

Roof DL

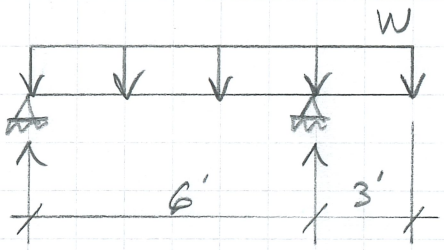
Roofing Material		0.3	psf
2x8 @ 24" OC		1.5	psf
Misc		1.5	psf
		3.3	psf
	USE	5.0	psf

Roof LL (Snow)	25.0	psf

ENGINEERING
250 4th Ave. South
Suite 200
Edmonds, WA 98020

Description: Gravity Design Loads		By: ZSH	Date: 03/05/21
		Checked	Date
		Scale	Sheet No.
Project: Talarico's Pizzeria		Job No.	2
		21133.10	

RJ1

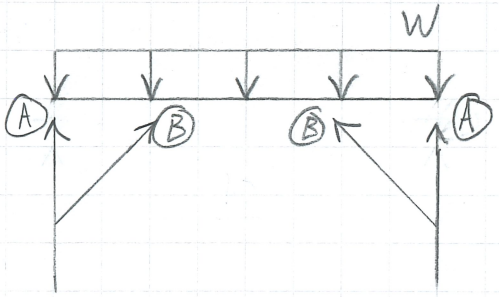


$W = (\overset{D}{5} + \overset{S}{25})\,psf\,(24''/12)$

$W = (\overset{D}{10} + \overset{S}{50})\,plf$

Use 2x8 HF #2 or 3x6 HF#2 @ 24" OC Per Woodworks

BM1



$W = (\overset{D}{5} + \overset{S}{25})\,psf\left[(6'/2) + 3'\right]$

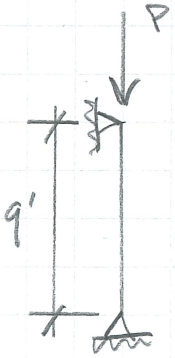
$W = (\overset{D}{30} + \overset{S}{150})\,plf$

Use 4x6 HF #2 Per Woodworks

Reaction @ (A) $= (\overset{D}{44} + \overset{S}{229})\#$

Reaction @ (B) $= (\overset{D}{106} + \overset{S}{562})\#\,(\sin 45°) = (\overset{D}{75} + \overset{S}{397})\#$

C1



$P = (\overset{D}{339} + \overset{S}{1762})\#$

Use PT 4x4 HF#2 Per Woodworks

CG ENGINEERING 250 4th Ave. South Suite 200 Edmonds, WA 98020 425.778.8500 www.cgengineering.com	Description	By ZSH	Date 3/9/21
		Checked	Date
		Scale	Sheet No. 3
	Project Talarico's Pizzeria	Job No. 21133.10	

COMPANY	PROJECT
Mar. 10, 2021 08:39	Roof Joist1

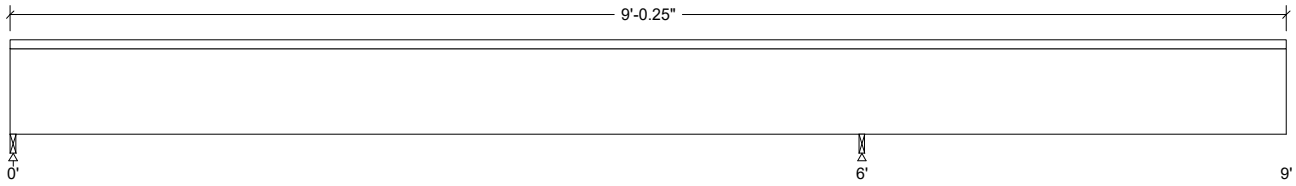
Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 1)

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area	No			5.00(24.0")		psf
Load2	Snow	Full Area	Yes			25.00(24.0")		psf

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



Unfactored:					
Dead	23		68		
Snow	132		338		
Factored:					
Total	155		405		
Bearing:					
Capacity					
Joist	304		532		
Support	586		586		
Des ratio					
Joist	0.51		0.76		
Support	0.26		0.69		
Load comb	#3		#2		
Length	0.50*		0.50*		
Min req'd	0.50*		0.38		
Cb	1.00		1.75		
Cb min	1.00		1.75		
Cb support	1.25		1.25		
Fcp sup	625		625		

*Minimum bearing length setting used: 1/2" for end supports and 1/2" for interior supports

RJ1

Lumber-soft, Hem-Fir, No.2, 2x8 (1-1/2"x7-1/4")

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

Roof joist spaced at 24.0" c/c; Total length: 9'-0.25"; Clear span: 5'-11.5", 2'-11.75"; Volume = 0.7 cu.ft.

Lateral support: top = continuous, bottom = at supports; 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
Shear	fv = 26	Fv' = 172	psi	fv/Fv' = 0.15
Bending(+)	fb = 180	Fb' = 1349	psi	fb/Fb' = 0.13
Bending(-)	fb = 247	Fb' = 1121	psi	fb/Fb' = 0.22
Deflection:				
Interior Live	0.02 = < L/999	0.30 = L/240	in	0.06
Total	0.02 = < L/999	0.40 = L/180	in	0.05
Cantil. Live	0.03 = < L/999	0.30 = L/120	in	0.11
Total	0.04 = < L/999	0.40 = L/90	in	0.09

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	150	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	850	1.15	1.00	1.00	1.000	1.200	-	1.15	1.00	1.00	-	3
Fb'-	850	1.15	1.00	1.00	0.831	1.200	-	1.15	1.00	1.00	-	2
Fcp'	405	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.3 million		1.00	1.00	-	-	-	-	1.00	1.00	-	4
Emin'	0.47 million		1.00	1.00	-	-	-	-	1.00	1.00	-	4

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = D+S
Bending(+): LC #3  = D+S (pattern: Ss)
Bending(-): LC #2  = D+S
Deflection: LC #4  =   (live)
            LC #4  =   (total)
Bearing   : Support 1 - LC #3 = D+S (pattern: Ss)
            Support 2 - LC #2 = D+S
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load Patterns: s=S/2,  X=L+S or L+Lr,  _=no pattern load in this span
Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.2
```

CALCULATIONS:

```
V max = 225, V design = 188 lbs; M(+) = 197 lbs-ft; M(-) = 270 lbs-ft
EI = 61.92e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow…)
Total deflection = 1.0 dead + "live"
Lateral stability(-):  Lu = 6'  Le = 10'-5.44"  RB = 20.1; Lu based on full span
```

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2018), the National Design Specification (NDS 2018), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Continuous or Cantilevered Beams: NDS Clause 4.2.5.5 requires that normal grading provisions be extended to the middle 2/3 of 2 span beams and to the full length of cantilevers and other spans.
4. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	Mar. 9, 2021 16:26	Roof Joist1'

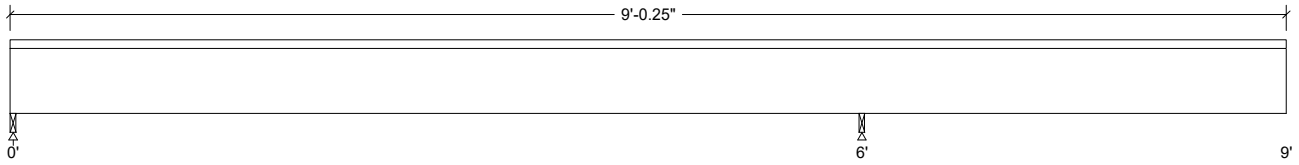
Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 1)

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Dead	Full Area	No			5.00(24.0")		psf
Load2	Snow	Full Area	Yes			25.00(24.0")		psf

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



Unfactored:					
Dead	23		68		
Snow	132		338		
Factored:					
Total	155		405		
Bearing:					
Capacity					
Joist	506		886		
Support	898		898		
Des ratio					
Joist	0.31		0.46		
Support	0.17		0.45		
Load comb	#3		#2		
Length	0.50*		0.50*		
Min req'd	0.50*		0.50*		
Cb	1.00		1.75		
Cb min	1.00		1.75		
Cb support	1.15		1.15		
Fcp sup	625		625		

*Minimum bearing length setting used: 1/2" for end supports and 1/2" for interior supports

RJ1

Lumber-soft, Hem-Fir, No.2, 3x6 (2-1/2"x5-1/2")

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

Roof joist spaced at 24.0" c/c; Total length: 9'-0.25"; Clear span: 5'-11.5", 2'-11.75"; Volume = 0.9 cu.ft.

Lateral support: top = continuous, bottom = at supports; 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
Shear	fv = 21	Fv' = 172	psi	fv/Fv' = 0.12
Bending(+)	fb = 188	Fb' = 1461	psi	fb/Fb' = 0.13
Bending(-)	fb = 257	Fb' = 1435	psi	fb/Fb' = 0.18
Deflection:				
Interior Live	0.02 = < L/999	0.30 = L/240	in	0.08
Total	0.03 = < L/999	0.40 = L/180	in	0.06
Cantil. Live	0.05 = L/794	0.30 = L/120	in	0.15
Total	0.05 = L/731	0.40 = L/90	in	0.12

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	150	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	850	1.15	1.00	1.00	1.000	1.300	-	1.15	1.00	1.00	-	3
Fb'-	850	1.15	1.00	1.00	0.982	1.300	-	1.15	1.00	1.00	-	2
Fcp'	405	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.3 million		1.00	1.00	-	-	-	-	1.00	1.00	-	4
Emin'	0.47 million		1.00	1.00	-	-	-	-	1.00	1.00	-	4

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = D+S
Bending(+): LC #3  = D+S (pattern: Ss)
Bending(-): LC #2  = D+S
Deflection: LC #4  =   (live)
            LC #4  =   (total)
Bearing   : Support 1 - LC #3 = D+S (pattern: Ss)
            Support 2 - LC #2 = D+S
D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load Patterns: s=S/2,  X=L+S or L+Lr,  _=no pattern load in this span
Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.2
```

CALCULATIONS:

```
V max = 225, V design = 196 lbs; M(+) = 197 lbs-ft; M(-) = 270 lbs-ft
EI = 45.06e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow…)
Total deflection = 1.0 dead + "live"
Lateral stability(-):  Lu = 6'  Le = 10'-0.19"  RB = 10.3; Lu based on full span
```

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2018), the National Design Specification (NDS 2018), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Continuous or Cantilevered Beams: NDS Clause 4.2.5.5 requires that normal grading provisions be extended to the middle 2/3 of 2 span beams and to the full length of cantilevers and other spans.
4. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.

WoodWorks® SOFTWARE FOR WOOD DESIGN	COMPANY	PROJECT
	Mar. 10, 2021 08:38	Beam1 - High Side

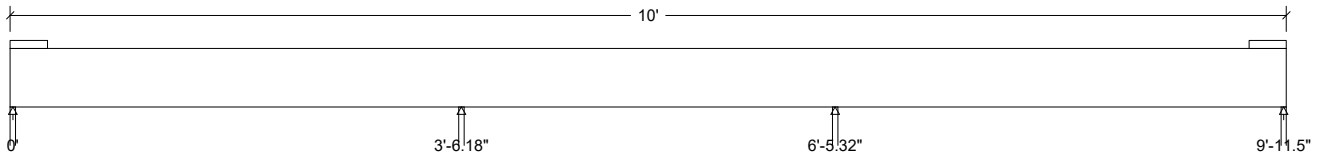
Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 1)

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	Location [ft] End	Magnitude Start	Magnitude End	Unit
Load3	Dead	Full Area	No			5.00(6.00')		psf
Load4	Snow	Full Area	Yes			25.00(6.00')		psf

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



Unfactored:						
Dead	44		106	106		44
Snow	229		562	562		229
Factored:						
Total	273		668	668		273
Bearing:						
Capacity						
Beam	709		1243	1243		709
Support	1620		1627	1627		1620
Des ratio						
Beam	0.39		0.54	0.54		0.39
Support	0.17		0.41	0.41		0.17
Load comb	#7		#5	#8		#7
Length	0.50*		0.50	0.50		0.50*
Min req'd	0.50*		0.50*	0.50*		0.50*
Cb	1.00		1.75	1.75		1.00
Cb min	1.00		1.75	1.75		1.00
Cb support	-		-	-		-
Fc sup	700		700	700		700

*Minimum bearing length setting used: 1/2" for end supports

BM1 - High Side

Lumber-soft, Hem-Fir, No.2, 4x6 (3-1/2"x5-1/2")

Supports: All - Timber-soft Column, D.Fir-L No.2

Total length: 10'; Clear span: 3'-5.68", 2'-10.65", 3'-5.68"; Volume = 1.3 cu.ft.

Lateral support: top = at end supports, bottom = at end 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 = 23	Fv' = 172	psi	fv/Fv' = 0.13
Bending(+)	fb = 137	Fb' = 1271	psi	fb/Fb' = 0.11
Bending(-)	fb = 143	Fb' = 1271	psi	fb/Fb' = 0.11
Live Defl'n	0.01 = < L/999	0.12 = L/360	in	0.05
Total Defl'n	0.01 = < L/999	0.18 = L/240	in	0.04

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	150	1.15	1.00	1.00	-	-	-	-	1.00	1.00	1.00	5
Fb'+	850	1.15	1.00	1.00	1.000	1.300	-	1.00	1.00	1.00	-	7
Fb'-	850	1.15	1.00	1.00	1.000	1.300	-	1.00	1.00	1.00	-	5
Fcp'	405	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.3 million		1.00	1.00	-	-	-	-	1.00	1.00	-	7

CRITICAL LOAD COMBINATIONS:

```
 Shear     : LC #5  = D+S (pattern: SSs)
 Bending(+): LC #7  = D+S (pattern: SsS)
 Bending(-): LC #5  = D+S (pattern: SSs)
 Deflection: LC #7  =   (live)
             LC #7  =   (total)
 Bearing   : Support 1 - LC #7 = D+S (pattern: SsS)
             Support 2 - LC #5 = D+S (pattern: SSs)
             Support 3 - LC #8 = D+S (pattern: sSS)
             Support 4 - LC #7 = D+S (pattern: SsS)
 D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
 All LC's are listed in the Analysis output
 Load Patterns: s=S/2,  X=L+S or L+Lr,  _=no pattern load in this span
 Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.2
```

CALCULATIONS:

```
 V max = 376, V design = 290 lbs; M(+) = 201 lbs-ft; M(-) = 210 lbs-ft
 EI = 63.08e06 lb-in^2
 "Live" deflection is due to all non-dead loads (live, wind, snow…)
 Total deflection = 1.0 dead + "live"
```

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2018), the National Design Specification (NDS 2018), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Continuous or Cantilevered Beams: NDS Clause 4.2.5.5 requires that normal grading provisions be extended to the middle 2/3 of 2 span beams and to the full length of cantilevers and other spans.
4. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.

COMPANY	PROJECT
Mar. 10, 2021 08:38	Column1

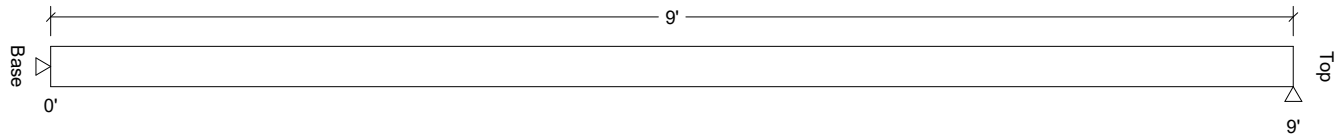
Design Check Calculation Sheet

WoodWorks Sizer 2019 (Update 1)

Loads:

Load	Type	Distribution	Location [ft] Start	Location [ft] End	Magnitude Start	Magnitude End	Unit
Load1	Dead	Axial	(Ecc. = 0.58")		339		lbs
Load2	Snow	Axial	(Ecc. = 0.58")		1762		lbs

Reactions (lbs):



Unfactored:			
Lateral:			
Dead	2		-2
Snow	10		-10
Axial:			
Dead	339		339
Snow	1762		1762
Factored:			
R->L			-11
Load comb			#2
L->R	11		
Load comb	#2		#1

C1

Lumber Post, Hem-Fir, No.2, 4x4 (3-1/2"x3-1/2")

Support: Non-wood

Total length: 9'; Volume = 0.8 cu.ft.

Pinned base; Load face = width(b); Wet service; Incised; Ke x Lb: 1.0 x 9.0 = 9.0 ft; Ke x Ld: 1.0 x 9.0 = 9.0 ft;

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 = 1	Fv' = 134	psi	fv/Fv' = 0.01
Bending(+)	fb = 172	Fb' = 997	psi	fb/Fb' = 0.17
Axial	fc = 172	Fc' = 274	psi	fc/Fc' = 0.63
Combined	(axial + eccentric moment)			Eq.15.4-3 = 0.87
Axial Bearing	fc = 172	Fc* = 1100	psi	fc/Fc* = 0.16
Live Defl'n	0.06 = < L/999	0.60 = L/180	in	0.09
Total Defl'n	0.07 = < L/999	0.60 = L/180	in	0.11

Additional Data:

FACTORS:	F/E(psi)	CD	CM	Ct	CL/CP	CF	Cfu	Cr	Cfrt	Ci	LC#
Fv'	150	1.15	0.97	1.00	-	-	-	-	1.00	0.80	2
Fb'+	850	1.15	0.85	1.00	1.000	1.500	-	1.00	1.00	0.80	2
Fc'	1300	1.15	0.80	1.00	0.249	1.150	-	-	1.00	0.80	2
E'	1.3 million		0.90	1.00	-	-	-	-	1.00	0.95	2
Emin'	0.47 million		0.90	1.00	-	-	-	-	1.00	0.95	2
Fc*	1300	1.15	0.80	1.00	-	1.150	-	-	1.00	0.80	2

CRITICAL LOAD COMBINATIONS:

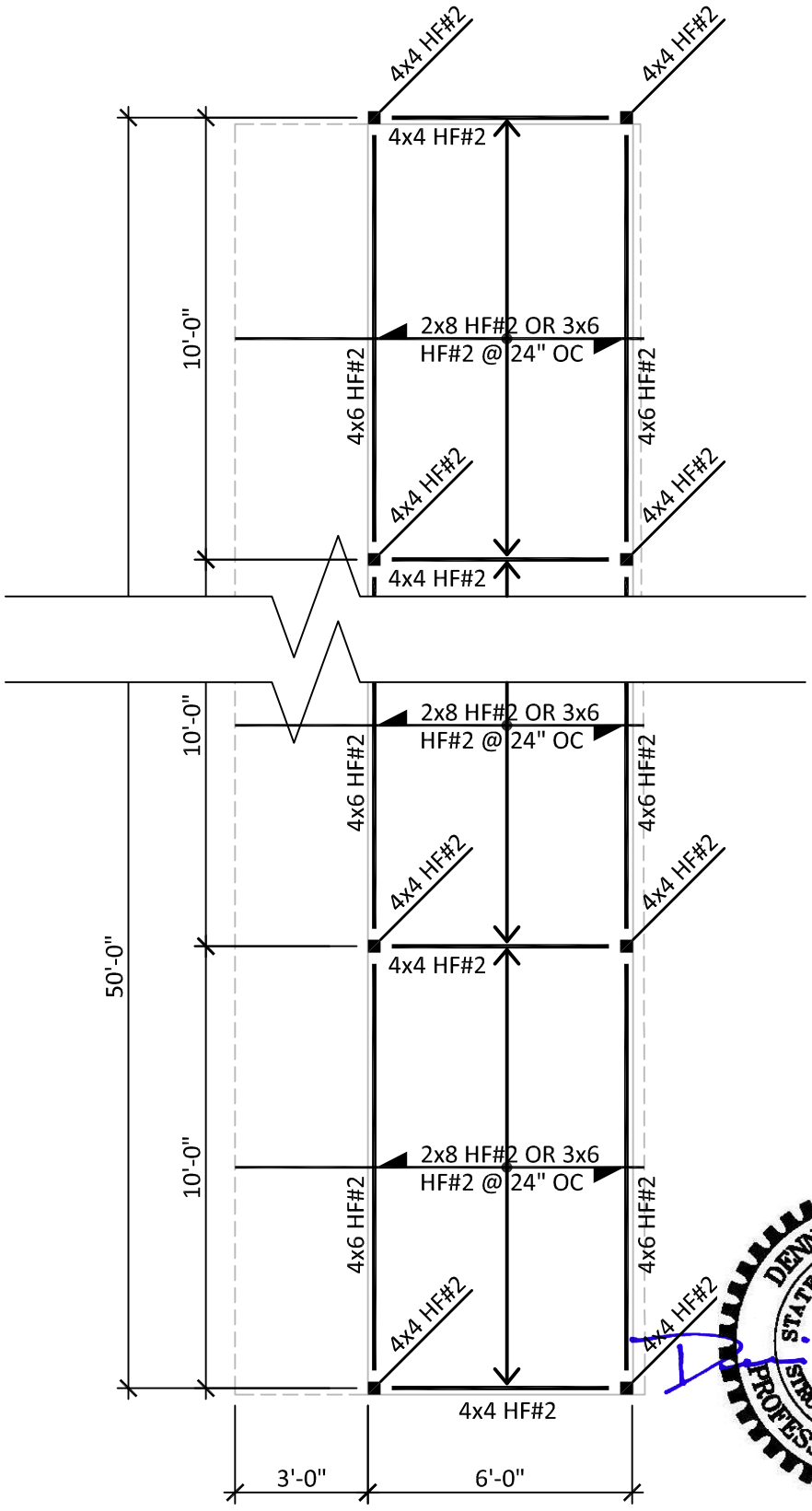
```
 Shear     : LC #2  = D+S
 Bending(+): LC #2  = D+S
 Deflection: LC #2  = D+S  (live)
             LC #2  = D+S  (total)
 Axial     : LC #2  = D+S
 Combined  : LC #2  = D+S   Fb'= 997
             FcE= 292     Pxe/S=fc(6xe/d)= 172
 D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
 All LC's are listed in the Analysis output
 Load combinations: ASD Basic from ASCE 7-16 2.4 / IBC 2018 1605.3.2
```

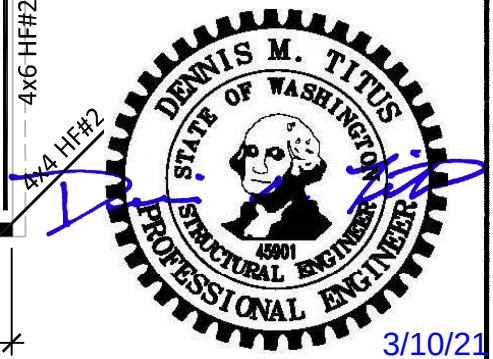
CALCULATIONS:

```
 V = 11 lbs; M(+) = 102 lbs-ft; P = 2101 lbs
 EI = 16.26e06 lb-in^2
 "Live" deflection is due to all non-dead loads (live, wind, snow…)
 Total deflection = 1.0 dead + "live"
```

Design Notes:

1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2018), the National Design Specification (NDS 2018), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Axial load eccentricity applied in direction of load face only. It is the designers responsibility to check for effect of eccentricity in the other direction.

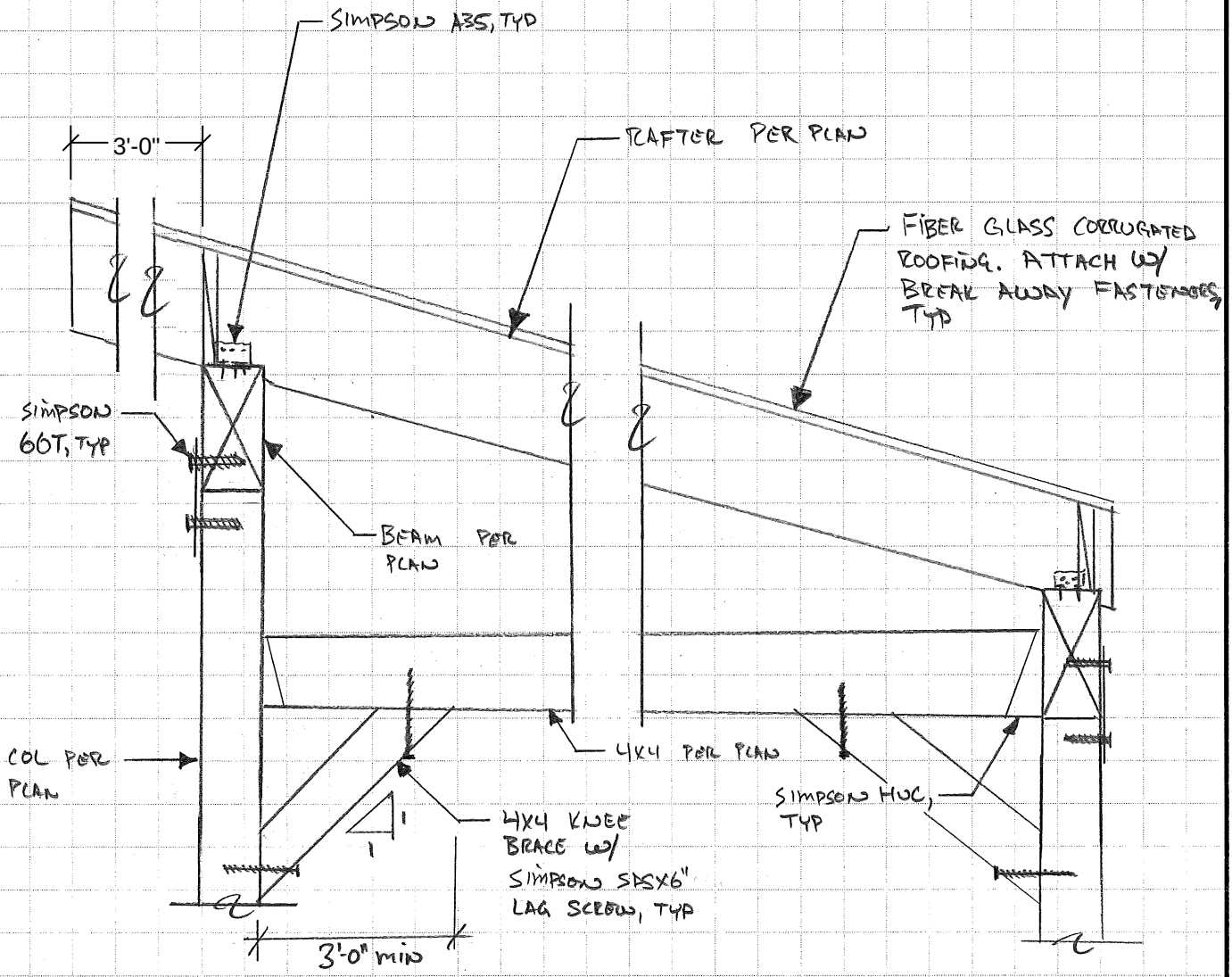




3/10/21

C G ENGINEERING
250 4th Ave. South
Suite 200
Edmonds, WA 98020
425.778.8500
www.cgengineering.com

Description: Framing Plan		By: ZSH	Date: 03/05/21
		Checked	Date
		Scale: 1/4" = 1'	Sheet No.: SK-1
Project: Talarico's Pizzeria		Job No.: 21133.10	



SECTION

1½"=1'-0"

DENNIS M. TITUS
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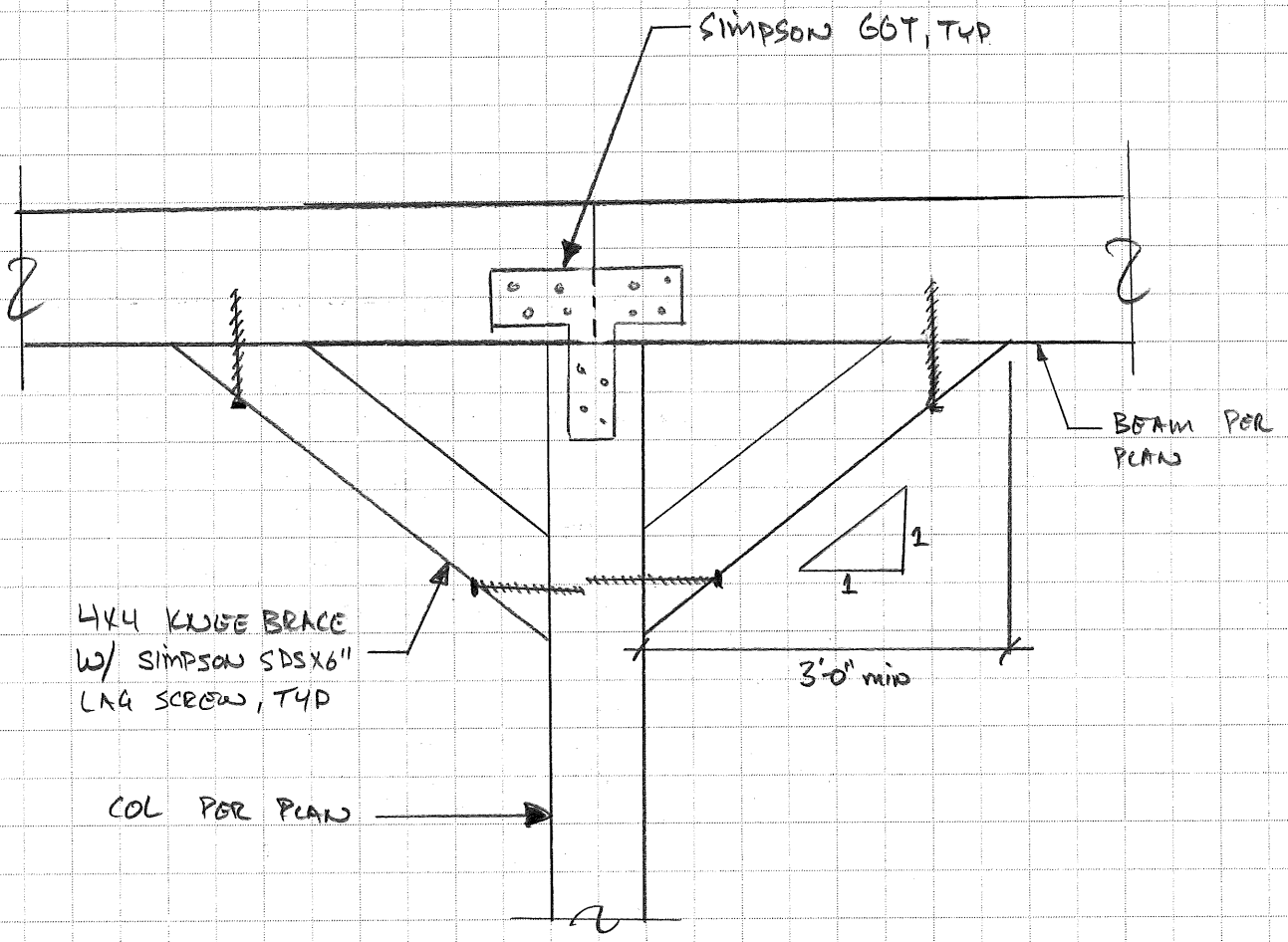
Description SECTION		By DMT	Date 3/10/21
		Checked	Date
		Scale 1½"=1'-0"	Sheet No. SK-2
Project Talarico's Pizzeria		Job No. 21133.10	



POST CONNECTION DETAIL
1½" = 1'-0"

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Description DETAIL		By DMT	Date 3/10/21
		Checked	Date
		Scale	Sheet No. SK-3
Project Talarico's Pizzeria		Job No. 21133.10	