

**STRUCTURAL
CALCULATIONS**

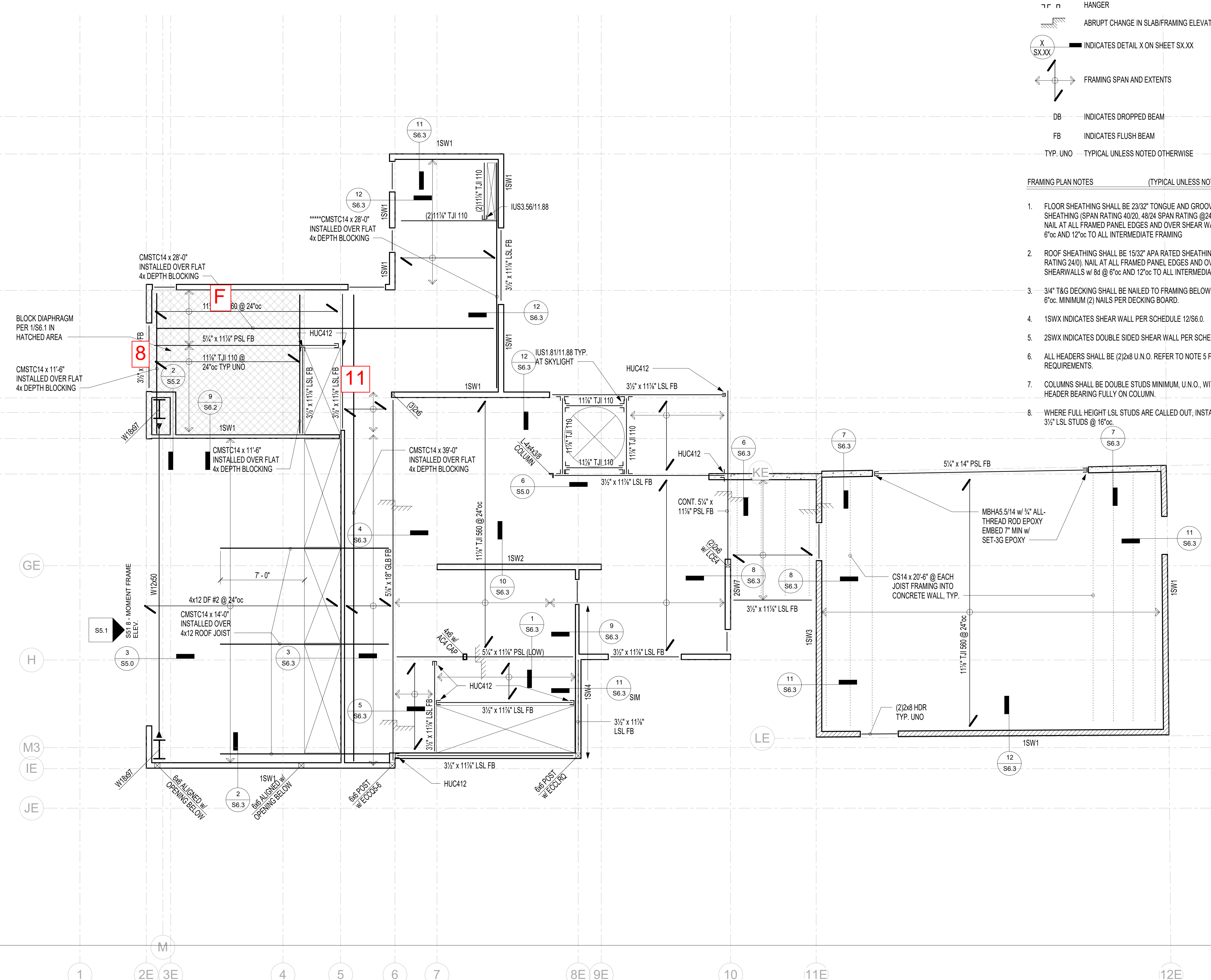
Nestler-Spare Residence
8265 SE 61st St.
Mercer Island, WA 98040

Studio Diaa
3125 Eastlake Ave E, Suite C
Seattle, WA 98102

April 8, 2026



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FRAMING PLAN LEGEND

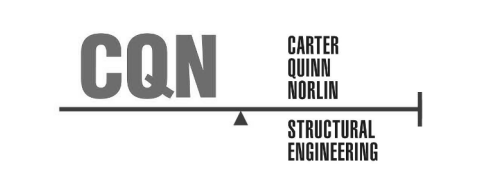
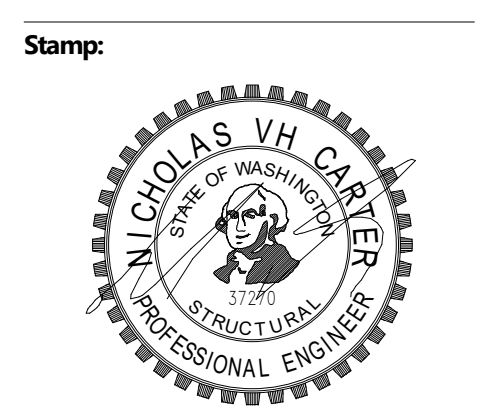
- WALLS BELOW
- COLUMNS BELOW
- HANGER
- ABRUPT CHANGE IN SLAB/FRAMING ELEVATION
- INDICATES DETAIL X ON SHEET SX.XX
- FRAMING SPAN AND EXTENTS
- INDICATES DROPPED BEAM
- INDICATES FLUSH BEAM
- TYP. UNO - TYPICAL UNLESS NOTED OTHERWISE

FRAMING PLAN NOTES (TYPICAL UNLESS NOTED OTHERWISE)

1. FLOOR SHEATHING SHALL BE 23/32" TONGUE AND GROOVE APA RATED SHEATHING (SPAN RATING 40/20, 48/24 SPAN RATING @24"oc FRAMING). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEAR WALLS w/ 10d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING
2. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING (SPAN RATING 24/0). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEARWALLS w/ 8d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING.
3. 3/4" T&G DECKING SHALL BE NAILED TO FRAMING BELOW WITH 10d @ 6"oc. MINIMUM (2) NAILS PER DECKING BOARD.
4. 1SWX INDICATES SHEAR WALL PER SCHEDULE 12/S6.0.
5. 2SWX INDICATES DOUBLE SIDED SHEAR WALL PER SCHEDULE 12/S6.0.
6. ALL HEADERS SHALL BE (2)2x8 U.N.O. REFER TO NOTE 5 FOR SUPPORT REQUIREMENTS.
7. COLUMNS SHALL BE DOUBLE STUDS MINIMUM. U.N.O., WITH BEAM OR HEADER BEARING FULLY ON COLUMN.
8. WHERE FULL HEIGHT LSL STUDS ARE CALLED OUT, INSTALL 1.3E 1 1/2" x 3 1/2" LSL STUDS @ 16"oc.

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Revision: _____ **Date:** _____



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Consultants:

Project:
NS Residence
project no. 2401
8265 SE 61st St
Mercer Island, WA 98040

Drawing Title:
Roof Framing Plan

Date: February 27, 2026

Issued For: 75% CD Set

Drawn By:

Checked By:

Scale: As indicated

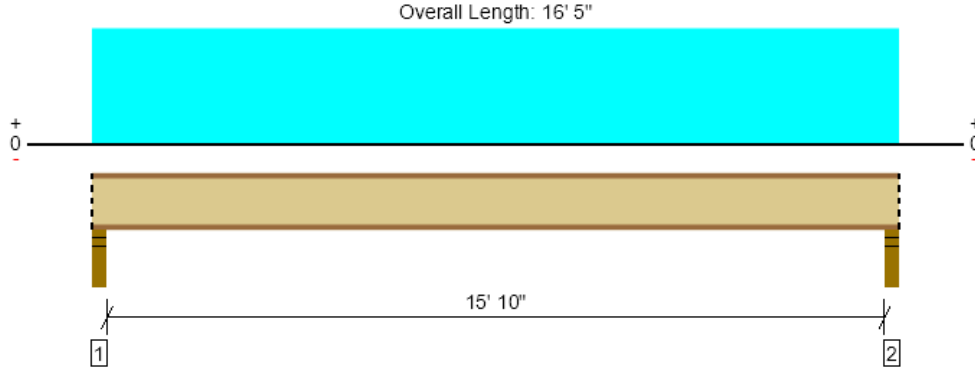
Sheet No.:

S2.3

1 Roof Framing Plan
1/4" = 1'-0"

Roof Framing, Joist F

1 piece(s) 11 7/8" TJI® 110 @ 24" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	739 @ 2 1/2"	1581 (3.50")	Passed (47%)	1.15	1.0 D + 1.0 S (All Spans)
Shear (lbs)	713 @ 3 1/2"	1794	Passed (40%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2880 @ 8' 2 1/2"	3634	Passed (79%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.305 @ 8' 2 1/2"	0.533	Passed (L/630)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.549 @ 8' 2 1/2"	0.800	Passed (L/350)	--	1.0 D + 1.0 S (All Spans)

Member Length : 16' 5"
 System : Roof
 Member Type : Joist
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD
 Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Stud wall - HF	3.50"	3.50"	1.75"	328	410	739	Blocking
2 - Stud wall - HF	3.50"	3.50"	1.75"	328	410	739	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 3" o/c	
Bottom Edge (Lu)	16' 5" o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

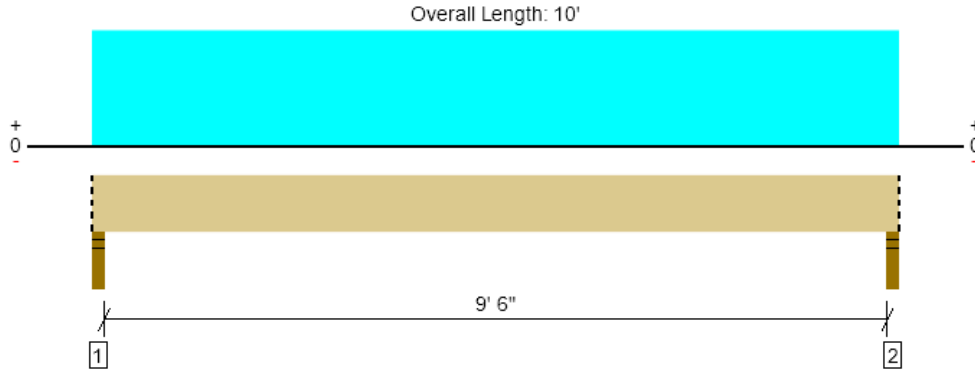
Vertical Load	Location	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 16' 5"	24"	20.0	25.0	Default Load

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 The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	



Roof Framing, Beam 8
2 piece(s) 2 x 12 HF No.2



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1843 @ 1 1/2"	3645 (3.00")	Passed (51%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1405 @ 1' 2 1/4"	3881	Passed (36%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	4379 @ 5'	5155	Passed (85%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.088 @ 5'	0.325	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.162 @ 5'	0.488	Passed (L/722)	--	1.0 D + 1.0 S (All Spans)

Member Length : 10'
System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Stud wall - HF	3.00"	3.00"	1.52"	843	1000	1843	Blocking
2 - Stud wall - HF	3.00"	3.00"	1.52"	843	1000	1843	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 10" o/c	
Bottom Edge (Lu)	10' o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 10'	N/A	8.6	--	
1 - Uniform (PSF)	0 to 10' (Front)	8'	20.0	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

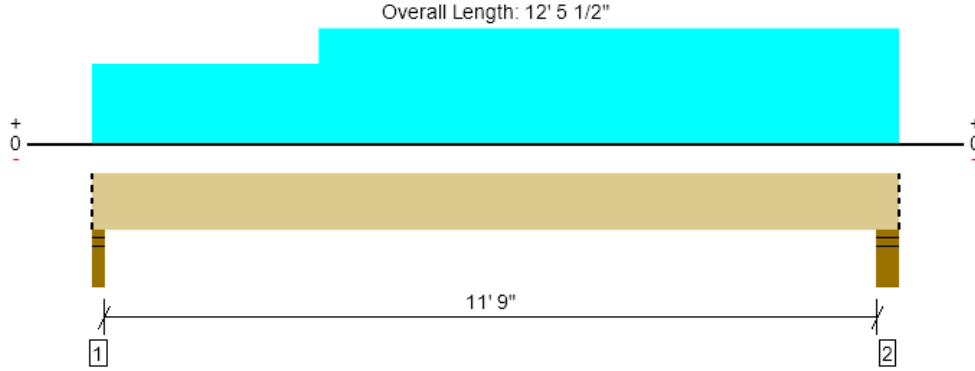
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Roof Framing, Beam 11

1 piece(s) 3 1/2" x 11 7/8" 1.55E TimberStrand® LSL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3509 @ 1 1/2"	4253 (3.00")	Passed (83%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	3192 @ 11' 1/8"	9878	Passed (32%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	11544 @ 6' 3 3/16"	18346	Passed (63%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.236 @ 6' 2"	0.400	Passed (L/610)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.434 @ 6' 1 15/16"	0.600	Passed (L/332)	--	1.0 D + 1.0 S (All Spans)

Member Length : 12' 5 1/2"
 System : Roof
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD
 Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Stud wall - HF	3.00"	3.00"	2.48"	1604	1905	3509	Blocking
2 - Stud wall - HF	5.50"	5.50"	2.94"	1897	2269	4166	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	12' 6" o/c	
Bottom Edge (Lu)	12' 6" o/c	

- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12' 5 1/2"	N/A	13.0	--	
1 - Uniform (PSF)	0 to 3' 6" (Front)	10' 2"	20.0	25.0	Default Load
2 - Uniform (PSF)	3' 6" to 12' 5 1/2" (Front)	14' 8"	20.0	25.0	Default Load

- Side loads are assumed to not induce cross-grain tension.

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

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FOUNDATION PLAN NOTES

- STRUCTURAL SLAB ON GRADE AND REINFORCING PER PLAN. PREPARE SOILS AND PROVIDE MINIMUM 10-MIL VISQUEEN VAPOR BARRIER UNDER ALL SLABS. REFER TO ARCHITECTURAL PLANS FOR SLAB ON GRADE ELEVATION AND TOPPING SLAB, WHERE OCCURS.
- REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS AND TOP OF SLAB ELEVATIONS.
- ALL HOLDOWNS TO BE INSTALLED AS REQUIRED BY MANUFACTURER. REFER TO HOLDOWN SCHEDULE 10/S3.0.
- CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

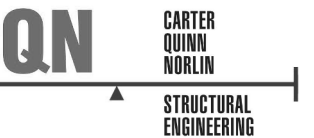
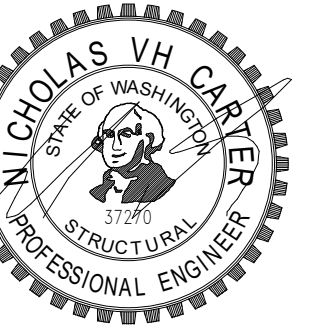
FOUNDATION PLAN LEGEND

- ABRUPT CHANGE IN SLAB/FRAMING ELEVATION
- INDICATES EXISTING FOUNDATION
- INDICATES NEW FOUNDATION
- INDICATES DETAIL X ON SHEET SX.XX
- INDICATES SIMPSON HOLDOWN. REFER TO DETAIL 10/S3.0 & FOUNDATION PLAN NOTES FOR ANCHOR AND STUD STACK REQUIREMENTS.
- 2"Ø PIPE PILE. REFER TO DETAILS ON SHEETS S3.0 & S3.1 FOR BATTERED PILES, WHERE APPLICABLE
- 3"Ø PIPE PILE. REFER TO DETAILS ON SHEETS S3.0 & S3.1 FOR BATTERED PILES, WHERE APPLICABLE
- EPOXY EMBED (2#4x2'-0" BOT INTO (E) FOUNDATION 4" MIN USING SET-3G EPOXY

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Stamp:



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Seattle, WA 98121
206-264-7784
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Consultants:

Project:

NS Residence
Project no. 2401

8265 SE 6th St
Mercer Island, WA 98040

Drawing Title:

Upper Floor Framing Plan

Date: February 27, 2026

Issued For: 75% CD Set

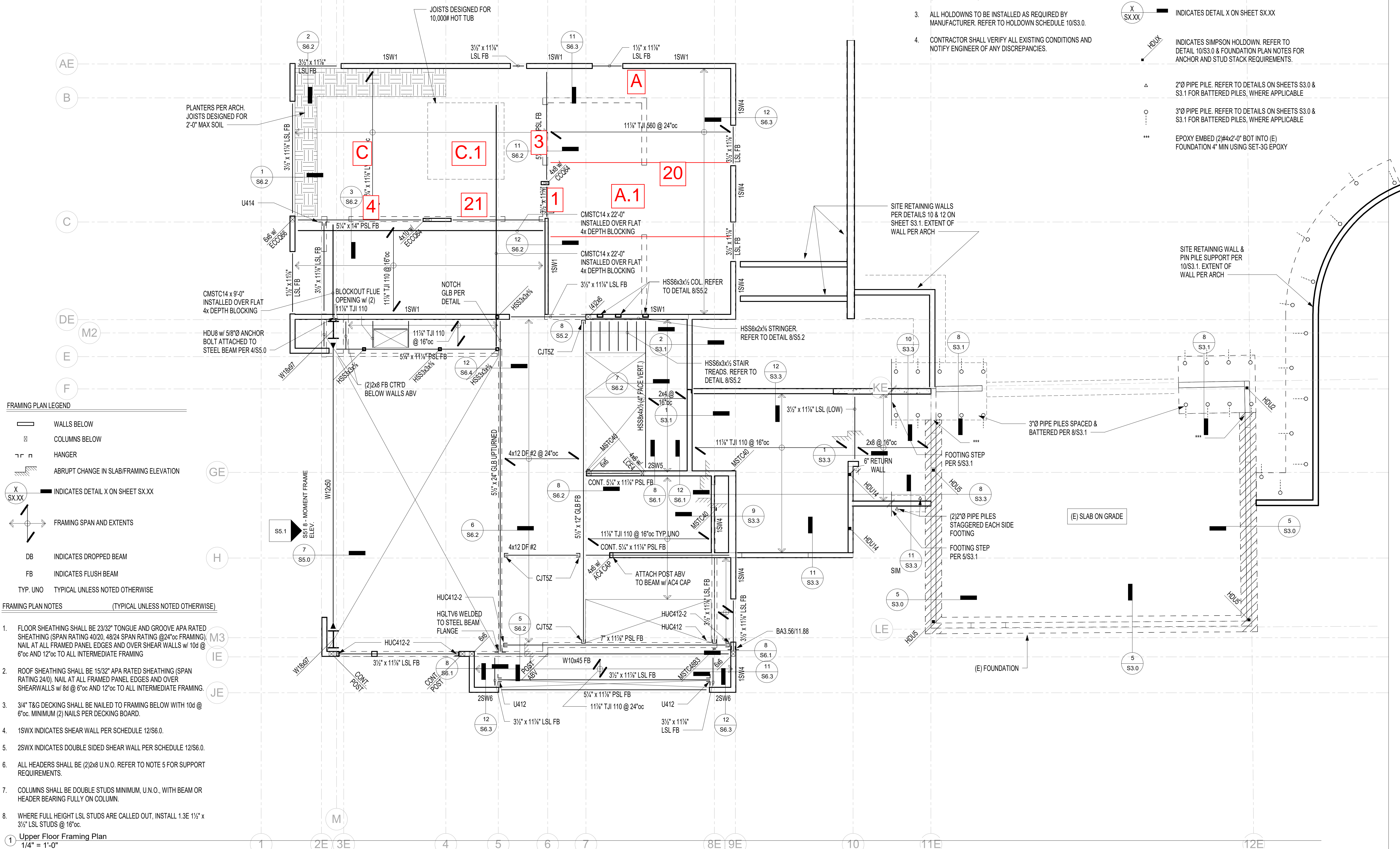
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FRAMING PLAN LEGEND

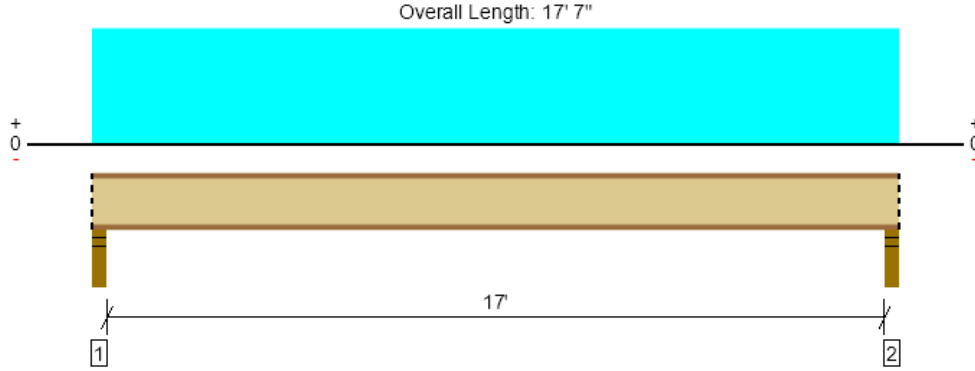
- WALLS BELOW
- COLUMNS BELOW
- HANGER
- ABRUPT CHANGE IN SLAB/FRAMING ELEVATION
- INDICATES DETAIL X ON SHEET SX.XX
- FRAMING SPAN AND EXTENTS
- DB INDICATES DROPPED BEAM
- FB INDICATES FLUSH BEAM
- TYP. UNO TYPICAL UNLESS NOTED OTHERWISE

FRAMING PLAN NOTES (TYPICAL UNLESS NOTED OTHERWISE)

- FLOOR SHEATHING SHALL BE 23/32" TONGUE AND GROOVE APA RATED SHEATHING (SPAN RATING 40/20, 48/24 SPAN RATING @24"oc FRAMING). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEAR WALLS w/ 10d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING.
- ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING (SPAN RATING 24/0). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEAR WALLS w/ 8d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING.
- 3/4" T&G DECKING SHALL BE NAILED TO FRAMING BELOW WITH 10d @ 6"oc. MINIMUM (2) NAILS PER DECKING BOARD.
- 1SWX INDICATES SHEAR WALL PER SCHEDULE 12/S6.0.
- 2SWX INDICATES DOUBLE SIDED SHEAR WALL PER SCHEDULE 12/S6.0.
- ALL HEADERS SHALL BE (2)2x8 U.N.O. REFER TO NOTE 5 FOR SUPPORT REQUIREMENTS.
- COLUMNS SHALL BE DOUBLE STUDS MINIMUM, U.N.O., WITH BEAM OR HEADER BEARING FULLY ON COLUMN.
- WHERE FULL HEIGHT LSL STUDS ARE CALLED OUT, INSTALL 1.3E 1 1/2" x 3 1/2" LSL STUDS @ 16"oc.

1 Upper Floor Framing Plan
1/4" = 1'-0"

Upper Floor Framing, Joist A
1 piece(s) 11 7/8" TJI® 560 @ 24" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1758 @ 2 1/2"	1984 (3.50")	Passed (89%)	1.15	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1700 @ 3 1/2"	2358	Passed (72%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	7367 @ 8' 9 1/2"	10925	Passed (67%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.182 @ 8' 9 1/2"	0.572	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.728 @ 8' 9 1/2"	0.858	Passed (L/283)	--	1.0 D + 1.0 S (All Spans)

Member Length : 17' 7"
 System : Roof
 Member Type : Joist
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD
 Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Stud wall - HF	3.50"	3.50"	2.75"	1319	440	1758	Blocking
2 - Stud wall - HF	3.50"	3.50"	2.75"	1319	440	1758	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 4" o/c	
Bottom Edge (Lu)	17' 7" o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 17' 7"	24"	15.0	25.0	Default Load
2 - Uniform (PSF)	0 to 17' 7"	24"	60.0	--	Green Roof

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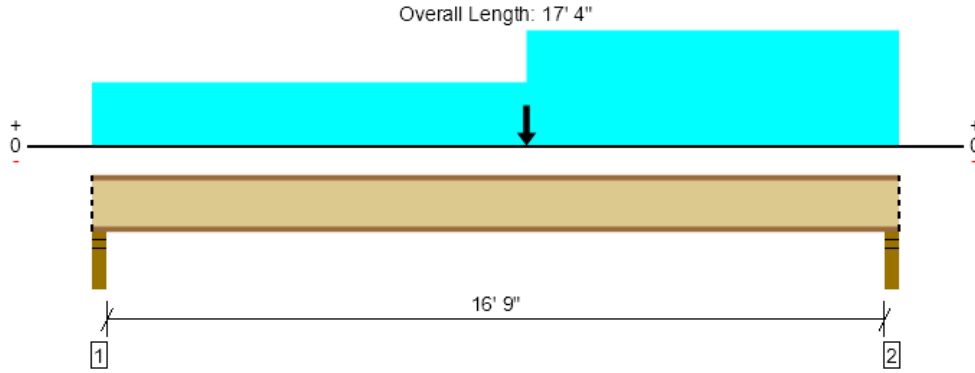
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Upper Floor Framing, Joist A.1
1 piece(s) 11 7/8" TJI@ 560 @ 16" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1118 @ 17' 1 1/2"	1984 (3.50")	Passed (56%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1082 @ 17' 1/2"	2358	Passed (46%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	4164 @ 9' 4"	9500	Passed (44%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.147 @ 8' 7 1/8"	0.564	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.426 @ 9' 4"	0.846	Passed (L/476)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 17' 4"
 System : Roof
 Member Type : Joist
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD
 Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Stud wall - HF	3.50"	3.50"	1.75"	440	367	118	806	Blocking
2 - Stud wall - HF	3.50"	3.50"	1.75"	814	131	275	1118	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	8' 2" o/c	
Bottom Edge (Lu)	17' 4" o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 9' 4"	16"	15.0	40.0	--	Default Load
2 - Uniform (PSF)	9' 4" to 17' 4"	16"	15.0	--	25.0	Default Load
3 - Uniform (PSF)	9' 4" to 17' 4"	16"	60.0	--	--	Green Roof
4 - Point (PLF)	9' 4"	16"	200.0	--	95.0	4'-9" roof trib

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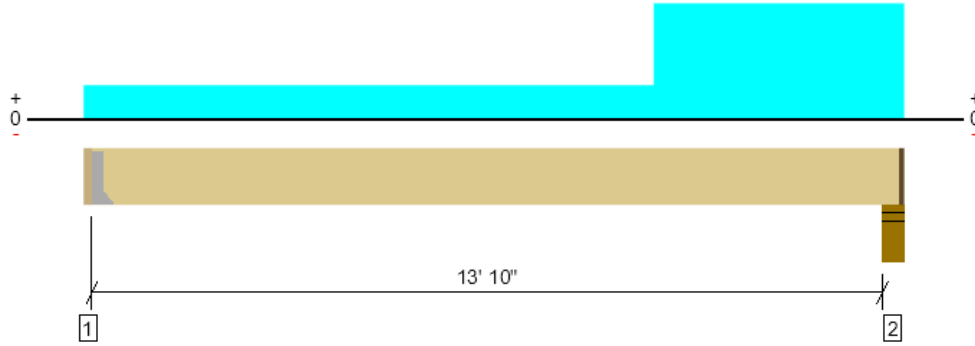
ForteWEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	



Upper Floor Framing, Joist C

1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL @ 12" OC

Overall Length: 14' 5 1/2"



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1477 @ 14' 1"	3012 (4.25")	Passed (49%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1060 @ 13' 1/8"	3948	Passed (27%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3192 @ 8' 7 1/16"	9281	Passed (34%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.104 @ 7' 1 9/16"	0.348	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.230 @ 7' 4 3/4"	0.696	Passed (L/727)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	61	45	Passed	--	--

Member Length : 14' 2 1/4"
 System : Floor
 Member Type : Joist
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 4% increase in the moment capacity has been added to account for repetitive member usage.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Hanger on 11 7/8" HF beam	2.00"	Hanger ¹	1.50"	346	428	773	See note ¹
2 - Stud wall - HF	5.50"	4.25"	2.08"	1069	440	1509	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- ¹ See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	14' 2" o/c	
Bottom Edge (Lu)	14' 2" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	HUS1.81/10	3.00"	N/A	30-10dx1.5	10-10d	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

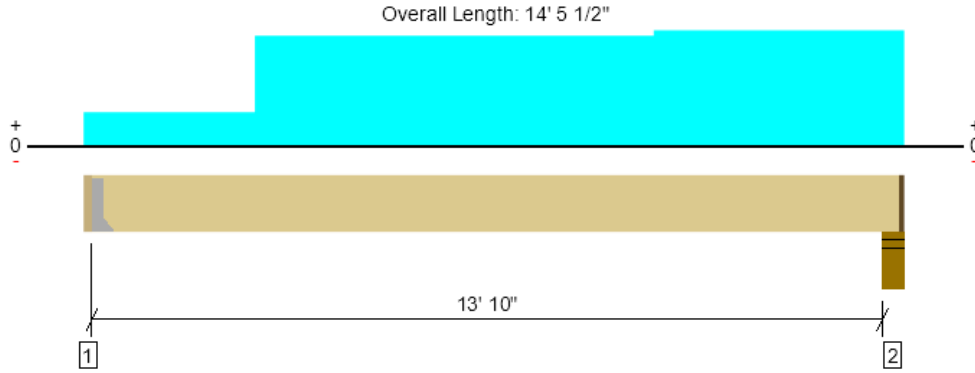
Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 14' 5 1/2"	12"	30.0	60.0	Default Load
2 - Uniform (PSF)	10' to 14' 5 1/2"	12"	220.0	--	Planters

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Upper Floor Framing, Joist C.1

1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL @ 12" OC



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1540 @ 2"	1969 (1.50")	Passed (78%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1713 @ 13' 1/8"	3948	Passed (43%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	6801 @ 7' 4 1/4"	9281	Passed (73%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.356 @ 7' 11/16"	0.348	Passed (L/469)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.482 @ 7' 2 3/8"	0.696	Passed (L/347)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	61	45	Passed	--	--

Member Length : 14' 2 1/4"
 System : Floor
 Member Type : Joist
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 4% increase in the moment capacity has been added to account for repetitive member usage.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Hanger on 11 7/8" HF beam	2.00"	Hanger ¹	1.50"	346	1209	1555	See note ¹
2 - Stud wall - HF	5.50"	4.25"	3.01"	1069	1093	2162	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- ¹ See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 8" o/c	
Bottom Edge (Lu)	14' 2" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	HUS1.81/10	3.00"	N/A	30-10dx1.5	10-10d	

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 14' 5 1/2"	12"	30.0	60.0	Default Load
2 - Uniform (PSF)	10' to 14' 5 1/2"	12"	220.0	--	Planters
3 - Uniform (PSF)	3' to 10'	12"	--	205.0	Default Load

ForteWEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	



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 File Name: Nestler-Spare (2025)

Upper Floor Framing, Beam 1

1 piece(s) 3 1/2" x 11 7/8" 1.55E TimberStrand® LSL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1567 @ 1 1/2"	4253 (3.00")	Passed (37%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	443 @ 1' 2 7/8"	8590	Passed (5%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1116 @ 1' 9 1/2"	15953	Passed (7%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.004 @ 1' 9 1/2"	0.083	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.008 @ 1' 9 1/2"	0.167	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 3' 7"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Stud wall - HF	3.00"	3.00"	1.50"	838	601	371	1567	Blocking
2 - Stud wall - HF	3.00"	3.00"	1.50"	838	601	371	1567	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 7" o/c	
Bottom Edge (Lu)	3' 7" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 7"	N/A	13.0	--	--	
1 - Uniform (PSF)	0 to 3' 7" (Front)	1'	30.0	60.0	--	Default Load
2 - Uniform (PLF)	0 to 3' 7" (Front)	N/A	330.0	275.3	88.5	Linked from: Joist A.1, Support 1
3 - Uniform (PSF)	0 to 3' 7" (Front)	4' 9"	20.0	--	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

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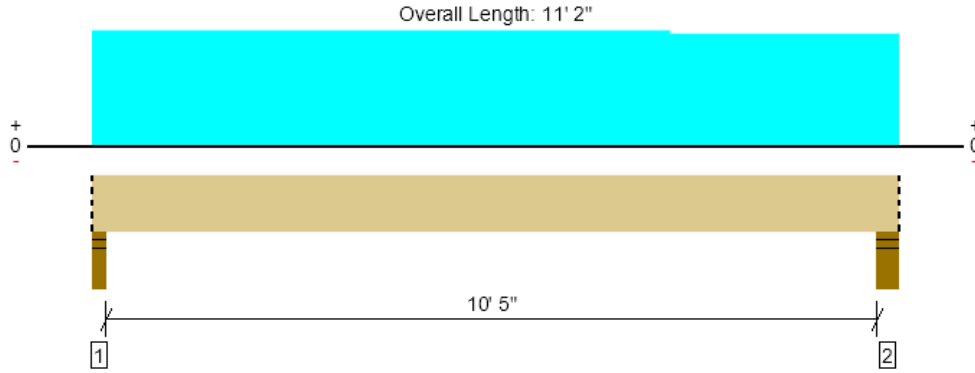
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	



Upper Floor Framing, Beam 3

1 piece(s) 5 1/4" x 11 7/8" 2.0E Parallam® PSL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	4862 @ 2"	7442 (3.50")	Passed (65%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	3401 @ 1' 3 3/8"	12053	Passed (28%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	11435 @ 5' 5 3/4"	29854	Passed (38%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.085 @ 5' 5 3/8"	0.267	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.200 @ 5' 6 1/16"	0.533	Passed (L/641)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 11' 2"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Stud wall - HF	3.50"	3.50"	2.29"	2698	1740	1145	4862	Blocking
2 - Stud wall - HF	5.50"	5.50"	2.40"	3343	1132	1210	5099	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	11' 2" o/c	
Bottom Edge (Lu)	11' 2" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 11' 2"	N/A	19.5	--	--	
1 - Uniform (PSF)	0 to 11' 2" (Front)	1'	30.0	60.0	--	Default Load
2 - Uniform (PLF)	8' to 11' 2" (Front)	N/A	659.5	--	220.0	Linked from: Joist A, Support 1
3 - Uniform (PLF)	0 to 8' (Front)	N/A	330.0	275.3	88.5	Linked from: Joist A.1, Support 1
4 - Uniform (PSF)	0 to 8' (Front)	4' 9"	20.0	--	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

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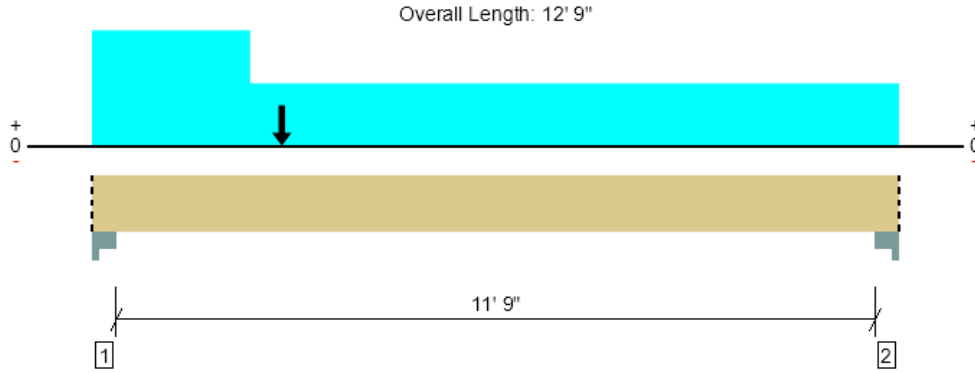
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

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Upper Floor Framing, Beam 4
1 piece(s) 5 1/4" x 14" 2.0E Parallam® PSL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	9687 @ 4 1/2"	19688 (6.00")	Passed (49%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	6536 @ 1' 8"	14210	Passed (46%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	21530 @ 5' 10 15/16"	40743	Passed (53%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.137 @ 6' 4 1/4"	0.300	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.269 @ 6' 3 3/16"	0.600	Passed (L/535)	--	1.0 D + 1.0 L (All Spans)

Member Length : 12' 9"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Column Cap - steel	6.00"	6.00"	2.95"	5687	4000	1005	9687	Blocking
2 - Column Cap - steel	6.00"	6.00"	2.15"	3184	3865	281	7049	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	12' 9" o/c	
Bottom Edge (Lu)	12' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12' 9"	N/A	23.0	--	--	
1 - Uniform (PSF)	0 to 2' 6" (Front)	7' 2"	120.0	--	--	Default Load
2 - Uniform (PSF)	0 to 12' 9" (Front)	4' 3"	15.0	40.0	--	Default Load
3 - Point (lb)	3' (Front)	N/A	1204	240	1286	Linked from: Beam 17, Support 2
4 - Uniform (PLF)	0 to 12' 9" (Front)	N/A	346.0	428.0	--	Linked from: Joist C, Support 1

• Side loads are assumed to not induce cross-grain tension.

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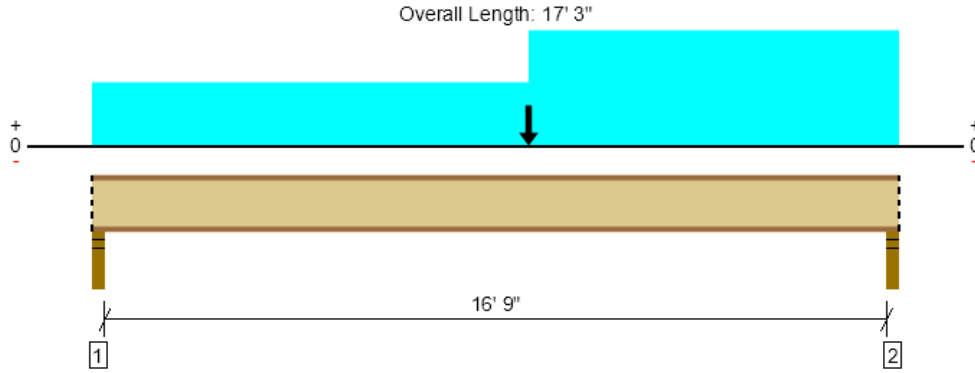
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Upper Floor Framing, Beam 20
2 piece(s) 11 7/8" TJI® 560



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1965 @ 17' 1 1/2"	3665 (3.00")	Passed (54%)	1.15	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1930 @ 17'	4715	Passed (41%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	10883 @ 9' 4"	21850	Passed (50%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.199 @ 9' 4"	0.425	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.459 @ 9' 4"	0.850	Passed (L/445)	--	1.0 D + 1.0 S (All Spans)

Member Length : 17' 3"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Concentrated load(s) located at 9' 4" pass the capacity of the filler block connection.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories	Details
	Total	Available	Required	Dead	Floor Live	Snow	Factored		
1 - Stud wall - HF	3.00"	3.00"	1.75"	786	365	528	1456	Blocking	A1
2 - Stud wall - HF	3.00"	3.00"	1.75"	1206	133	758	1965	Blocking	A1

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	7' 6" o/c	
Bottom Edge (Lu)	17' 3" o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Details	Comments
0 - Self Weight (PLF)	0 to 17' 3"	N/A	8.0	--	--	--	
1 - Uniform (PSF)	0 to 9' 4" (Front)	1' 4"	15.0	40.0	--	--	Default Load
2 - Uniform (PSF)	9' 4" to 17' 3" (Front)	1' 4"	75.0	--	25.0	--	Default Load
3 - Point (lb)	9' 4" (Front)	N/A	876	--	1023	H2	Linked from: Beam 9, Support 1

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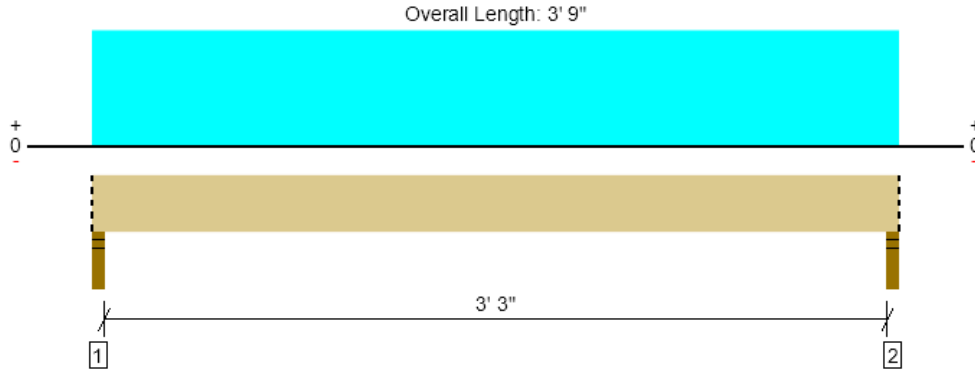
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Upper Floor Framing, Beam 21

1 piece(s) 3 1/2" x 11 7/8" 1.55E TimberStrand® LSL



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3404 @ 1' 1/2"	4253 (3.00")	Passed (80%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1154 @ 1' 2 7/8"	8590	Passed (13%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2780 @ 1' 10 1/2"	15953	Passed (17%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.014 @ 1' 10 1/2"	0.087	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.018 @ 1' 10 1/2"	0.175	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 3' 9"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Stud wall - HF	3.00"	3.00"	2.40"	800	2604	3404	Blocking
2 - Stud wall - HF	3.00"	3.00"	2.40"	800	2604	3404	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 9" o/c	
Bottom Edge (Lu)	3' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

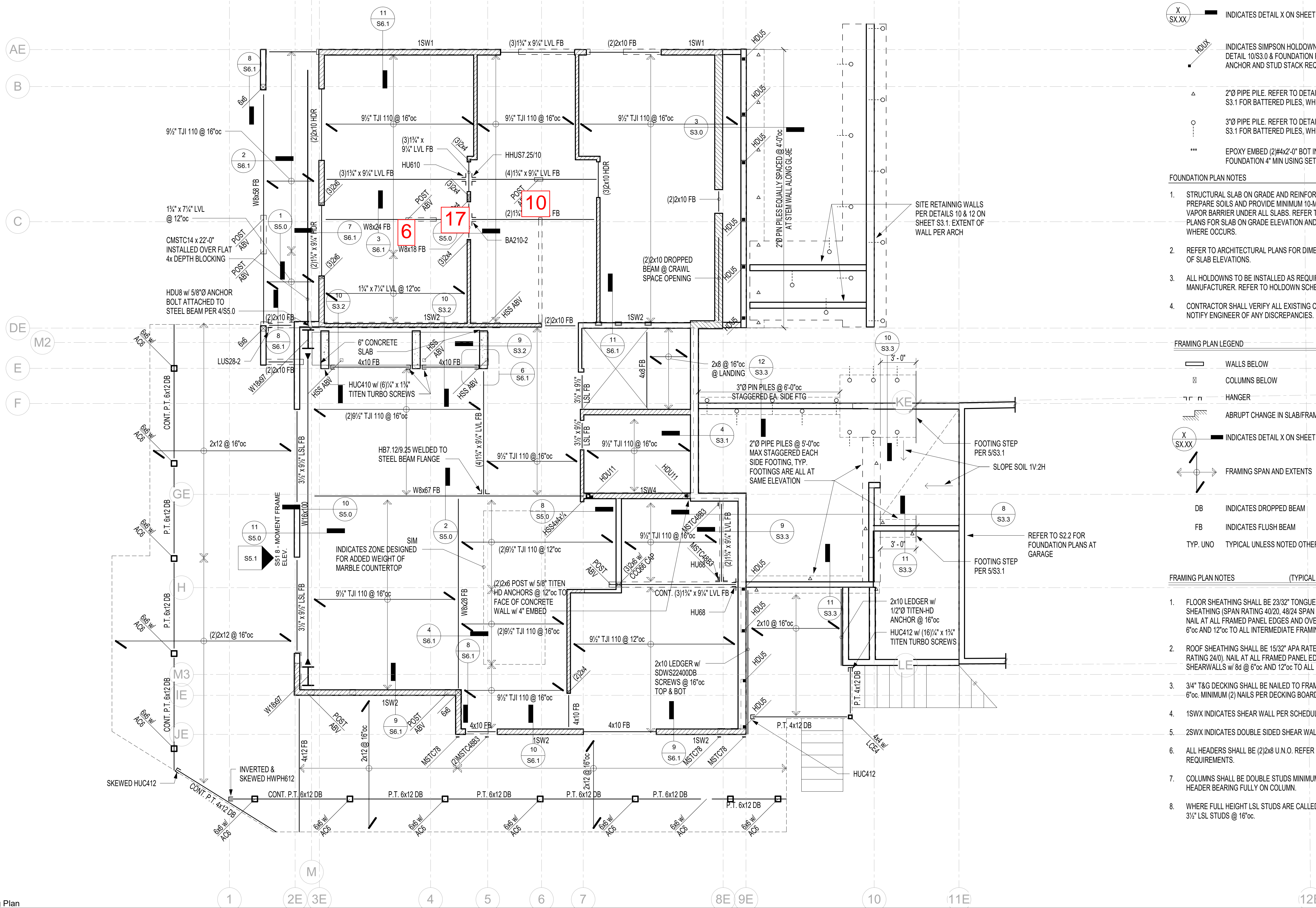
Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 9"	N/A	13.0	--	
1 - Uniform (PSF)	0 to 3' 9" (Front)	4' 6"	15.0	40.0	Default Load
2 - Uniform (PLF)	0 to 3' 9" (Front)	N/A	346.0	1209.0	Linked from: Joist C.1, Support 1

• Side loads are assumed to not induce cross-grain tension.

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 The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

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FOUNDATION PLAN LEGEND

- ABRUPT CHANGE IN SLAB/FRAMING ELEVATION
- INDICATES EXISTING FOUNDATION
- INDICATES NEW FOUNDATION
- INDICATES DETAIL X ON SHEET SX.XX
- INDICATES SIMPSON HOLDOWN. REFER TO DETAIL 10/S3.0 & FOUNDATION PLAN NOTES FOR ANCHOR AND STUD STACK REQUIREMENTS.
- 2"Ø PIPE PILE. REFER TO DETAILS ON SHEETS S3.0 & S3.1 FOR BATTERED PILES, WHERE APPLICABLE
- 3"Ø PIPE PILE. REFER TO DETAILS ON SHEETS S3.0 & S3.1 FOR BATTERED PILES, WHERE APPLICABLE
- EPOXY EMBED (2#4x2'-0" BOT INTO (E) FOUNDATION 4" MIN USING SET-3G EPOXY

FOUNDATION PLAN NOTES

1. STRUCTURAL SLAB ON GRADE AND REINFORCING PER PLAN. PREPARE SOILS AND PROVIDE MINIMUM 10-MIL VISQUEEN VAPOR BARRIER UNDER ALL SLABS. REFER TO ARCHITECTURAL PLANS FOR SLAB ON GRADE ELEVATION AND TOPPING SLAB, WHERE OCCURS.
2. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS AND TOP OF SLAB ELEVATIONS.
3. ALL HOLDOWNS TO BE INSTALLED AS REQUIRED BY MANUFACTURER. REFER TO HOLDOWN SCHEDULE 10/S3.0.
4. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

FRAMING PLAN LEGEND

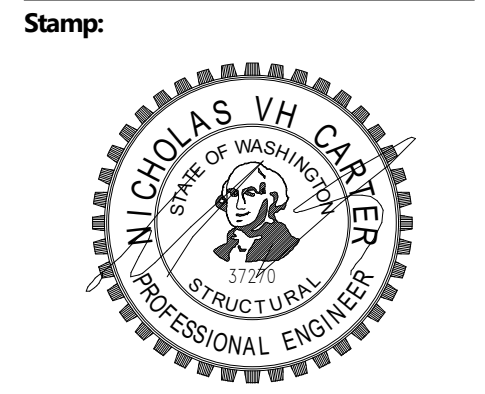
- WALLS BELOW
- COLUMNS BELOW
- HANGER
- ABRUPT CHANGE IN SLAB/FRAMING ELEVATION
- INDICATES DETAIL X ON SHEET SX.XX
- FRAMING SPAN AND EXTENTS
- DB INDICATES DROPPED BEAM
- FB INDICATES FLUSH BEAM
- TYP. UNO TYPICAL UNLESS NOTED OTHERWISE

FRAMING PLAN NOTES (TYPICAL UNLESS NOTED OTHERWISE)

1. FLOOR SHEATHING SHALL BE 23/32" TONGUE AND GROOVE APA RATED SHEATHING (SPAN RATING 40/20, 48/24 SPAN RATING @24"oc FRAMING). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEAR WALLS w/ 10d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING
2. ROOF SHEATHING SHALL BE 15/32" APA RATED SHEATHING (SPAN RATING 24/0). NAIL AT ALL FRAMED PANEL EDGES AND OVER SHEAR WALLS w/ 8d @ 6"oc AND 12"oc TO ALL INTERMEDIATE FRAMING.
3. 3/4" T&G DECKING SHALL BE NAILED TO FRAMING BELOW WITH 10d @ 6"oc. MINIMUM (2) NAILS PER DECKING BOARD.
4. 1SWX INDICATES SHEAR WALL PER SCHEDULE 12/S6.0.
5. 2SWX INDICATES DOUBLE SIDED SHEAR WALL PER SCHEDULE 12/S6.0.
6. ALL HEADERS SHALL BE (2)2x8 U.N.O. REFER TO NOTE 5 FOR SUPPORT REQUIREMENTS.
7. COLUMNS SHALL BE DOUBLE STUDS MINIMUM, U.N.O., WITH BEAM OR HEADER BEARING FULLY ON COLUMN.
8. WHERE FULL HEIGHT LSL STUDS ARE CALLED OUT, INSTALL 1.3E 1 1/2" x 3 1/2" LSL STUDS @ 16"oc.

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Revision: _____ Date: _____



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Consultants:

Project:
NS Residence
project no. 2401
8265 SE 61st St
Mercer Island, WA 98040

Drawing Title:
Main Floor Framing Plan

Date: February 27, 2026

Issued For: 75% CD Set

Drawn By:

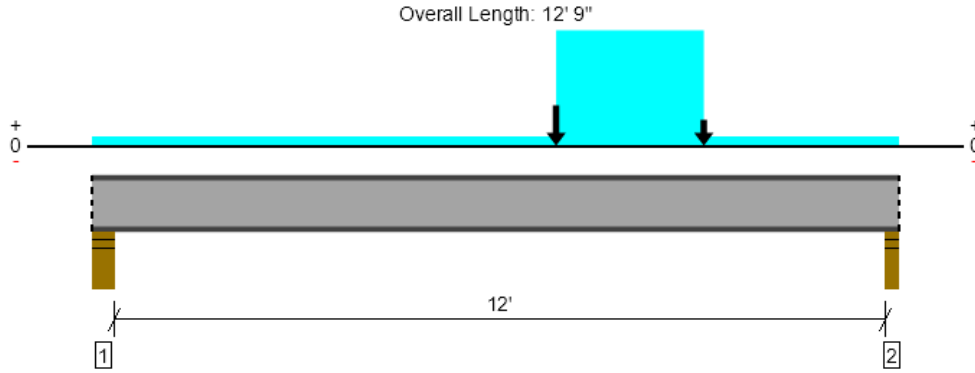
Checked By:

Scale: As indicated

Sheet No.:

S2.1

Main Floor Framing, Beam 6
1 piece(s) W8X24 (A992) ASTM Steel



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	8881 @ 12' 7"	9214 (3.50")	Passed (96%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	8848 @ 12' 5 1/2"	38857	Passed (23%)	--	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	34315 @ 7' 4"	47157	Passed (73%)	--	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.195 @ 6' 9 11/16"	0.306	Passed (L/754)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.330 @ 6' 9 5/16"	0.613	Passed (L/445)	--	1.0 D + 1.0 L (All Spans)

Member Length : 12' 9"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Applicable calculations are based on ANSI/AISC 360-16.
- A lateral-torsional buckling factor (C_b) of 1.0 has been assumed.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Stud wall - HF	5.50"	5.50"	5.50"	2258	3078	120	5337	Blocking
2 - Stud wall - HF	3.50"	3.50"	3.50"	3438	5443	161	8881	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12' 9"	N/A	24.0	--	--	
1 - Uniform (PSF)	0 to 12' 9" (Front)	1' 4"	27.0	40.0	--	Default Load
2 - Uniform (PSF)	7' 4" to 9' 8" (Front)	4'	15.0	40.0	--	Default Load
3 - Uniform (PLF)	7' 4" to 9' 8" (Front)	N/A	346.0	428.0	--	Linked from: Joist C, Support 1
4 - Point (lb)	7' 4" (Front)	N/A	3184	3865	281	Linked from: Beam 4, Support 2
5 - Point (lb)	9' 8" (Front)	N/A	800	2604	--	Linked from: Beam 21, Support 1

• Side loads are assumed to not induce cross-grain tension.

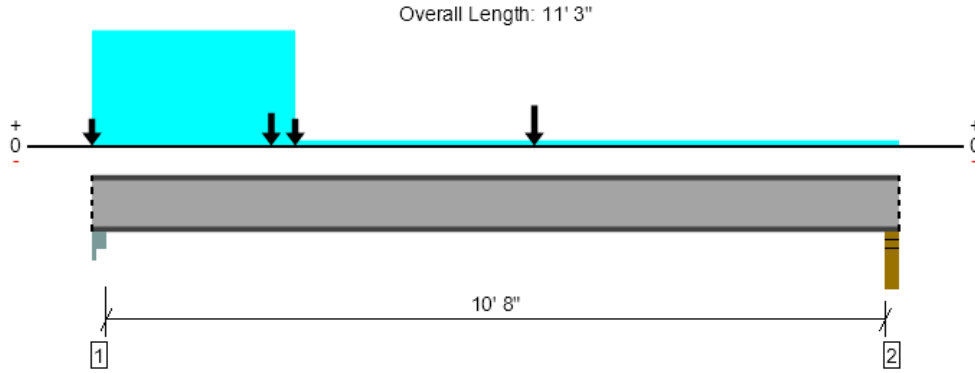
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 The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
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4/8/2026 4:47:30 PM UTC
 ForteWEB v4.0, Engine: V8.4.5.1, Data: V25.26.55.57
 File Name: Nestler-Spare (2025)

Main Floor Framing, Beam 10
1 piece(s) W8X18 (A992) ASTM Steel



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5090 @ 11' 1"	7442 (3.50")	Passed (68%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	10812 @ 3 1/2"	37444	Passed (29%)	--	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	23639 @ 6' 2"	31006	Passed (76%)	--	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.172 @ 5' 4 15/16"	0.273	Passed (L/761)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.278 @ 5' 4 3/4"	0.546	Passed (L/471)	--	1.0 D + 1.0 L (All Spans)

Member Length : 11' 3"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Bearing reinforcement may be required for support located at 2".
- Applicable calculations are based on ANSI/AISC 360-16.
- A lateral-torsional buckling factor (C_b) of 1.0 has been assumed.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Factored	
1 - Column Cap - steel	3.50"	3.50"	3.50"	4974	9798	1951	14773	Blocking
2 - Stud wall - HF	3.50"	3.50"	3.50"	1940	3150	689	5090	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

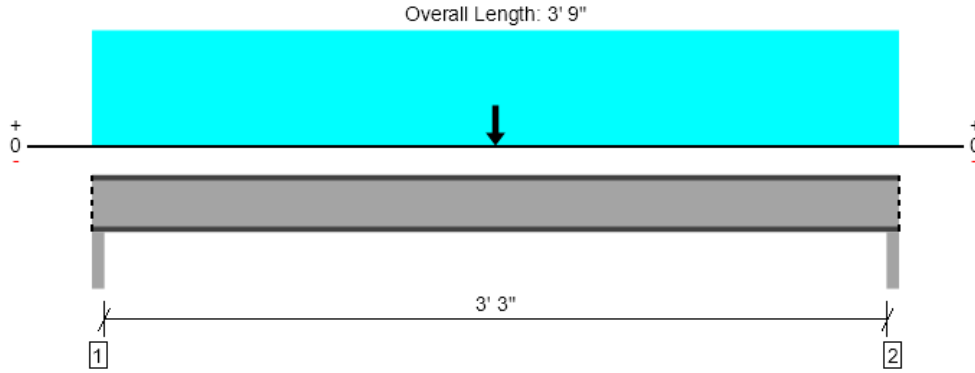
Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 11' 3"	N/A	18.0	--	--	
1 - Uniform (PSF)	0 to 11' 3" (Front)	1' 4"	27.0	40.0	--	Default Load
2 - Point (lb)	6' 2" (Front)	N/A	838	601	371	Linked from: Beam 1, Support 1
3 - Point (lb)	6' 2" (Front)	N/A	800	2604	--	Linked from: Beam 21, Support 1
4 - Point (lb)	2' 10" (Front)	N/A	800	2604	--	Linked from: Beam 21, Support 1
5 - Point (lb)	0 (Front)	N/A	800	2604	--	Linked from: Beam 21, Support 1
6 - Uniform (PSF)	0 to 2' 10" (Front)	4' 6"	15.0	40.0	--	Default Load
7 - Uniform (PLF)	0 to 2' 10" (Front)	N/A	346.0	1209.0	--	Linked from: Joist C.1, Support 1
8 - Point (lb)	2' 6" (Front)	N/A	1897	--	2269	Linked from: Beam 11, Support 2

• Side loads are assumed to not induce cross-grain tension.

FortewEB Software Operator	Job Notes
Steven Nickolas Carter Quinn Norlin (206) 264-7784 ssn@cqn-se.com	



Main Floor Framing, Beam 17
1 piece(s) W8X18 (A992) ASTM Steel



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	13307 @ 1 1/2"	26574 (3.00")	Passed (50%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	13110 @ 3"	37444	Passed (35%)	--	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	21907 @ 1' 10 1/2"	42415	Passed (52%)	--	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.014 @ 1' 10 1/2"	0.087	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.022 @ 1' 10 1/2"	0.175	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 3' 9"
 System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2021
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Bearing reinforcement may be required for support located at 1 1/2".
- Bearing reinforcement may be required for support located at 3' 7 1/2".
- Bearing reinforcement may be required for point load located at 1' 10 1/2".
- Applicable calculations are based on ANSI/AISC 360-16.
- A lateral-torsional buckling factor (C_b) of 1.0 has been assumed.

Supports	Bearing Length			Loads to Supports (lbs)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Column - steel	3.00"	3.00"	3.00"	4824	8483	1059	13307	Blocking
2 - Column - steel	3.00"	3.00"	3.00"	4824	8483	1059	13307	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 9"	N/A	18.0	--	--	
1 - Uniform (PSF)	0 to 3' 9" (Front)	11' 6"	27.0	40.0	--	Default Load
2 - Point (lb)	1' 10 1/2" (Front)	N/A	3442	5443	166	Linked from: Beam 6, Support 2
3 - Point (lb)	1' 10 1/2" (Front)	N/A	4974	9798	1951	Linked from: Beam 10, Support 1

• Side loads are assumed to not induce cross-grain tension.

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
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4/14/2026 8:21:38 PM UTC
 ForteWEB v4.0, Engine: V8.4.5.1, Data: V25.26.55.57
 File Name: Nestler-Spare (2025)

NESTLE SPACE

STEEL SNDS @ FIREPLACE VENT

~55 PSF WT.

$$F_p = \frac{0.4 q_p S_{ps} W_p}{R_p}$$

$$S_{ps} = 0.976$$

$$q_p = 110$$

$$R_p = 1.5$$

$$F_p = 0.26 W_p = 13 \text{ PSF}$$

SNDS = 8'0" MAX

$$M = 1440 \#/\text{in}$$

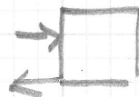
$$3508162 - 33 \quad M_a = 5.5 \text{ k/in}$$

$$D = \frac{5 W_p}{384 E} = 0.09 \text{ in} = \frac{TL}{1023}$$

$\therefore 0.16$

VERT COLUMN SUPPORTING MANTLE/HIMMATH

MANTLE LATERAL LOAD



$$W = 150 \text{ plf}$$

$$P = 200 \#$$

$$M = 75 + 200$$

$$= 275 \#/\text{ft}$$

$$\text{COUPLE} = 550 \#/\text{ft}$$

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: Nestler-Spare (2025).ec6

LIC# : KW-06015393, Build:20.26.01.14

BYKONEN CARTER QUINN

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: Column Supporting GLB

Code References

Governing Code : IBC 2018, CBC 2019
 Referenced Design Standard(s) : AISC 360-16
 Load Combinations Used : ASCE 7-22 / IBC 2024

General Information

Steel Section Name : HSS3x3x3/8	Overall Column Height	8.0 ft
Analysis Method : Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	Brace condition :	
Fy : Steel Yield 36.0 ksi	Unbraced Length for buckling ABOUT X-X Axis = 10 ft, K = 1.0	
E : Elastic Bending Modulus 29,000.0 ksi	Unbraced Length for buckling ABOUT Y-Y Axis = 10 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 97.360 lbs * Dead Load Factor

AXIAL LOADS . . .

Axial Load at 8.0 ft, Xecc = 4.250 in, D = 4.590, L = 2.460, S = 3.950 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.6870** : 1
 Load Combination +D+0.750L+0.5250S
 Location of max.above base 7.946 ft
 At maximum location values are . . .
 Pa : Axial 8.606 k
 Pn / Omega : Allowable 37.220 k
 Ma-x : Applied 0.0 k-ft
 Mn-x / Omega : Allowable 5.838 k-ft
 Ma-y : Applied -2.993 k-ft
 Mn-y / Omega : Allowable 5.838 k-ft

Maximum Load Reactions . .
 Top along X-X 0.3767 k
 Bottom along X-X 0.3767 k
 Top along Y-Y 0.0 k
 Bottom along Y-Y 0.0 k

Maximum Load Deflections . . .
 Along Y-Y 0.0 in at 0.0ft above base
 for load combination :
 Along X-X -0.1967 in at 4.671ft above base
 for load combination : +D+0.750L+0.5250S

PASS Maximum Shear Stress Ratio = **0.02136** : 1
 Load Combination +D+0.750L+0.5250S
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Va : Applied 0.3767 k
 Vn / Omega : Allowable 17.632 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios				Cbx	Cby	KxLx/Rx	KyLy/Ry	Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio					Status	Location	
D Only	0.340	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.012	PASS	0.00 ft	
+D+L	0.521	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.018	PASS	0.00 ft	
+D+0.70S	0.594	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.018	PASS	0.00 ft	
+D+0.750L	0.475	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.016	PASS	0.00 ft	
+D+0.750L+0.5250S	0.687	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.021	PASS	0.00 ft	
+0.60D	0.204	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.007	PASS	0.00 ft	
+D+0.750L+0.10S	0.505	PASS	7.95 ft	1.00	1.66	113.21	113.21	0.017	PASS	0.00 ft	

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)	Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
D Only	4.687	0.203	-0.203						
+D+L	7.147	0.312	-0.312						
+D+0.70S	7.452	0.326	-0.326						
+D+0.750L	6.532	0.285	-0.285						
+D+0.750L+0.5250S	8.606	0.377	-0.377						
+0.60D	2.812	0.122	-0.122						
+D+0.750L+0.10S	6.927	0.302	-0.302						
L Only	2.460	0.109	-0.109						

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: Nestler-Spare (2025).ec6

LIC# : KW-06015393, Build:20.26.01.14

BYKONEN CARTER QUINN

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: Column Supporting GLB

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Axial (k)	Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
S Only	3.950	0.175	-0.175						

Extreme Reactions

Item	Extreme Value	Axial (k)	Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
		@ Base	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
Axial, Base Max		8.606								
Axial, Base Min		2.460								
Rx, Base Max			0.377							
Rx, Base Min			0.109							
Rx, Top Max				-0.109						
Rx, Top Min				-0.377						
Ry, Base Max										
Ry, Base Min										
Ry, Top Max										
Ry, Top Min										

Maximum Deflections for Load Combinations

Load Combination	Max. Deflection in X dir	Distance	Max. Deflection in Y dir	Distance
D Only	-0.1061 in	4.671 ft	0.000 in	0.000 ft
+D+L	-0.1630 in	4.671 ft	0.000 in	0.000 ft
+D+0.70S	-0.1701 in	4.671 ft	0.000 in	0.000 ft
+D+0.750L	-0.1488 in	4.671 ft	0.000 in	0.000 ft
+D+0.750L+0.5250S	-0.1967 in	4.671 ft	0.000 in	0.000 ft
+0.60D	-0.0637 in	4.671 ft	0.000 in	0.000 ft
+D+0.750L+0.10S	-0.1579 in	4.671 ft	0.000 in	0.000 ft
L Only	-0.0569 in	4.671 ft	0.000 in	0.000 ft
S Only	-0.0913 in	4.671 ft	0.000 in	0.000 ft

Steel Section Properties : HSS3x3x3/8

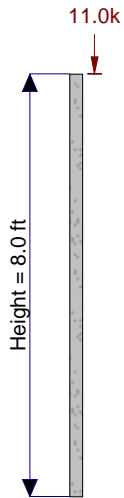
Depth	=	3.000 in	I xx	=	3.78 in ⁴	J	=	6.640 in ⁴
Design Thick	=	0.349 in	S xx	=	2.52 in ³			
Width	=	3.000 in	R xx	=	1.060 in			
Wall Thick	=	0.375 in	Zx	=	3.250 in ³			
Area	=	3.390 in ²	I yy	=	3.780 in ⁴	C	=	4.740 in ³
Weight	=	12.170 plf	S yy	=	2.520 in ³			
			R yy	=	1.060 in			
Ycg	=	0.000 in						

Steel Column

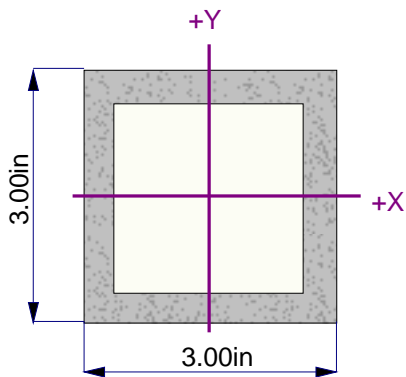
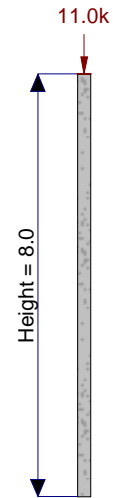
DESCRIPTION: Column Supporting GLB

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis



Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: Nestler-Spare (2025).ec6

LIC# : KW-06015393, Build:20.26.01.14

BYKONEN CARTER QUINN

(c) ENERCALC, LLC 1982-2026

DESCRIPTION: Column Supporting Mantel/Hearth

Code References

Governing Code : IBC 2018, CBC 2019
 Referenced Design Standard(s) : AISC 360-16
 Load Combinations Used : ASCE 7-22 / IBC 2024

General Information

Steel Section Name : HSS3x3x3/8	Overall Column Height	8.0 ft
Analysis Method : Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	Brace condition :	
Fy : Steel Yield 36.0 ksi	Unbraced Length for buckling ABOUT X-X Axis = 10 ft, K = 1.0	
E : Elastic Bending Modulus 29,000.0 ksi	Unbraced Length for buckling ABOUT Y-Y Axis = 10 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 97.360 lbs * Dead Load Factor
 AXIAL LOADS . . .
 Axial Load at 8.0 ft, Xecc = 1.50 in, D = 0.5250, L = 2.460, S = 3.950 k
 Hearth: Axial Load at 8.0 ft, D = 0.70 k
 BENDING LOADS . . .
 Mantel: Lat. Point Load at 3.750 ft creating Mx-x, D = 1.930 k
 Hearth: Lat. Point Load at 0.0 ft creating Mx-x, D = 3.10 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.7724** : 1
 Load Combination +D+0.750L+0.5250S
 Location of max.above base 3.758 ft
 At maximum location values are . . .
 Pa : Axial 5.241 k
 Pn / Omega : Allowabl 37.220 k
 Ma-x : Applied 3.837 k-ft
 Mn-x / Omega : Allowable 5.838 k-ft
 Ma-y : Applied -0.2610 k-ft
 Mn-y / Omega : Allowable 5.838 k-ft

Maximum Load Reactions . .
 Top along X-X 0.06943 k
 Bottom along X-X 0.06943 k
 Top along Y-Y 0.9047 k
 Bottom along Y-Y 4.125 k

Maximum Load Deflections . . .
 Along Y-Y 0.3262 in at 3.973ft above base
 for load combination : D Only
 Along X-X -0.03626 in at 4.671ft above base
 for load combination : +D+0.750L+0.5250S

PASS Maximum Shear Stress Ratio = **0.05815** : 1
 Load Combination D Only
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Va : Applied 1.025 k
 Vn / Omega : Allowable 17.632 k

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios				Maximum Shear Ratios					
	Stress Ratio	Status	Location	Cbx	Cby	KxLx/Rx	KyLy/Ry	Stress Ratio	Status	Location
D Only	0.680	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.058	PASS	0.00 ft
+D+L	0.738	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.058	PASS	0.00 ft
+D+0.70S	0.745	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.058	PASS	0.00 ft
+D+0.750L	0.724	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.058	PASS	0.00 ft
+D+0.750L+0.5250S	0.772	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.058	PASS	0.00 ft
+0.60D	0.408	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.035	PASS	0.00 ft
+D+0.750L+0.10S	0.733	PASS	3.76 ft	1.35	1.66	113.21	113.21	0.058	PASS	0.00 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

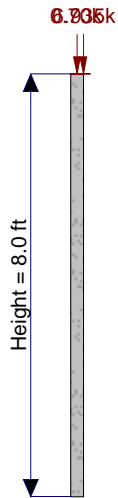
Load Combination	Axial (k)	Rx (k)		Ry (k)		Mx (k-ft)		My (k-ft)	
	@ Base	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top	@ Base	@ Top
D Only	1.322	0.008	-0.008	-4.125	-0.905				
+D+L	3.782	0.047	-0.047	-4.125	-0.905				
+D+0.70S	4.087	0.051	-0.051	-4.125	-0.905				
+D+0.750L	3.167	0.037	-0.037	-4.125	-0.905				

Steel Column

DESCRIPTION: Column Supporting Mantel/Hearth

Sketches

My Loads - Looking along Y-Y Axis



Mx Loads - Looking along X-X Axis

