Calculations required to be provided by the Permittee on site for all Inspections

PRCTI20250375

City of Puyallup
Development & Permitting Services
ISSUED PERMIT
Building | Planning
Engineering | Public Works
Fire | Traffic

ENGINEERING ANALYSIS FOR: COVERED BUS STOP AND MAIL EAST TOWN CROSSING PIONEER AND SHAW, PUYALLUP, WA

City of Puyallup
Building
REVIEWED
FOR
COMPLIANCE
SKinnear
04/15/2025
9:38:36 AM

DESIGN CRITERIA

BUILDING CODE: 2021 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE LOCAL JURISDICTION.

VERTICAL LOADS
ROOF LIVE LOAD: 25 PSF (SNOW)
ROOF DEAD LOAD: 15 PSF

SNOW DESIGN DATA (ASCE 7-16)
FLAT SNOW LOAD: N/A
SNOW EXPOSURE FACTOR, Ce=1.0,
SNOW IMPORTANCE FACTOR, Is=1.0,
THERMAL FACTOR, Ct=1.1

WIND DESIGN DATA (ASCE 7-16)
BASIC WIND SPEED (ASD) V= 85MPH
ULTIMATE WIND SPEED V= 110MPH
RISK CATEGORY: II EXPOSURE: B
IMPORTANCE FACTOR, Iw= 1.0
TOPOGRAPHIC FACTOR, Kzt= 1.0

SEISMIC DESIGN DATA (ASCE7-16)
SEISMIC RESPONSE SYSTEM: WOOD SHEARWALLS
EQUIVALENT LATERAL FORCE PROCEDURE (ASCE 7-16)
RISK CATEGORY: II SEISMIC IMPORTANCE FACTOR, Ie= 1.0
MAPPED SPECTRAL RESPONSE ACCELERATION: Ss=1.42, S1=0.43
DESIGN SPECTRAL RESPONSE ACCELERATION: Sds=1.03, Sd1=0.61
SITE CLASS: D SEISMIC DESIGN CATEGORY: D
SEISMIC RESPONSE COEFFICIENT: Cs= 0.49
DESIGN BASE SHEAR: 19,911#
SOIL PROPERTIES:
BEARING CAPACITY: 2,000 PSF
LATERAL CAPACITY: 250 PSF/FT

01

REVISION 1

ADDED NOTES TO ADDRESS UPLIFT FAILURE COMMENT AT BEAM CONNECTIONS ON GRIDS G AND H. MODIFIED BEAM DESIGNS FROM SAWN TIMBER TO GLULAM BEAMS DO TO MATERIAL AVAILABILITY.

The approved construction plans, documents, and all engineering must be posted on the job at all inspections in a visible and readily accessible location.

Full sized legible color plans are required to be provided by the permitee on site for inspection.

PIERUCCIONI E&C, LLC
CHON PIERUCCIONI, PE
3126 N. BENNETT ST. TACOMA, WA 98407
PIERUCCIONIENGINEERING@GMAIL.COM
206.949.7866

EAST TOWN CROSSING
COVERED BUS STOP & MAIL
PIONEER AND SHAW PUYALLUP WA

REVISIONS	
01	REVISION 1

REVISIONS

ENGINEER:	CP
CHECKED BY:	CP
DATE:	2018.12.11
TITLE:	STRUCTURAL ANALYSIS
PROJECT # :	----

Roof Framing			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
Rafter Beams	Passed (83% M)	1 piece(s) 4 x 12 DF No.2	
Grid A Roof Beam	Passed (8% M-)	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	
Grid B Roof Beam	Passed (35% M+)	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	
Grid C Roof Beam	Passed (39% M+)	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	
Grid D Roof Beam	Passed (49% M+)	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	
Grid E Roof Beam	Passed (6% R)	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	
Grid F Roof Beam	Passed (6% R)	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	
Grid G Roof Beam	~~Failed (26% M-)~~ Passed	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	Multiple Failures/Errors
Grid H Roof Beam	~~Failed (34% M-)~~ Passed	1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam	Multiple Failures/Errors
Columns	Passed (41% B/C)	1 piece(s) 8 x 10 DF No.2	Could not find information based on inputs for ~1.

ForteWEB Software Operator	Job Notes
Chon Pieruccioni Pieruccioni Engineering (206) 949-7866 cpieru@hotmail.com	

Weyerhaeuser

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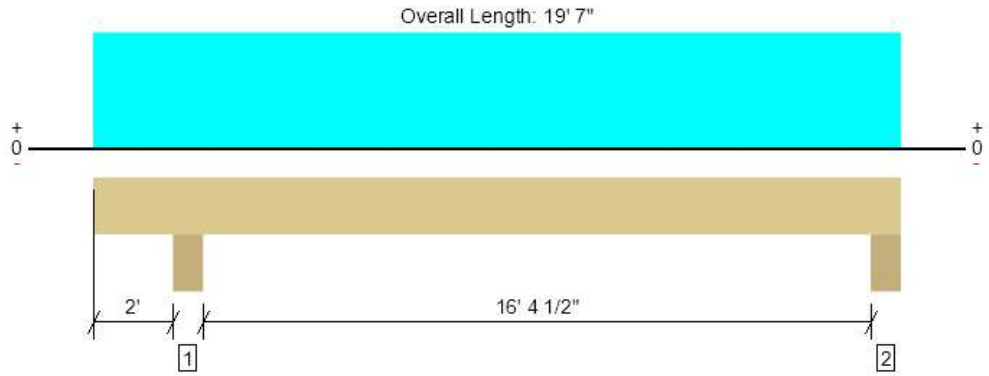
Weyerhaeuser

Roof Framing, Rafter Beams

1 piece(s) 4 x 12 DF 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)	1848 @ 2' 3 5/8"	15859 (7.25")	Passed (12%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1246 @ 3' 6 1/2"	5434	Passed (23%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	5847 @ 10' 9 3/4"	7004	Passed (83%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.264 @ 10' 8 3/4"	0.840	Passed (L/764)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.445 @ 10' 8 7/8"	1.120	Passed (L/453)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 19' 7"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- 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 - Beam - DF	7.25"	7.25"	1.50"	762	1086	1848	None
2 - Beam - DF	7.25"	7.25"	1.50"	612	880	1492	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	19' 7" o/c	
Bottom Edge (Lu)	19' 7" 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 19' 7"	N/A	10.0	--	
1 - Uniform (PSF)	0 to 19' 7" (Front)	4'	15.1	25.0	Default Load

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

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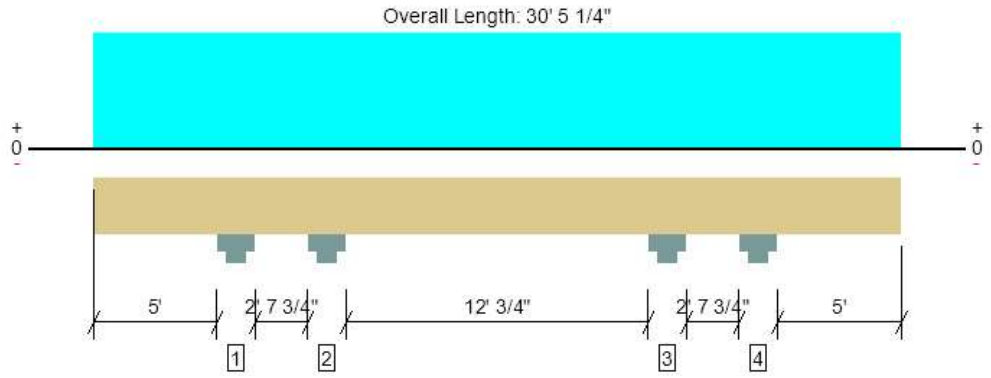
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Chon Pieruccioni Pieruccioni Engineering (206) 949-7866 cpieru@hotmail.com	

Weyerhaeuser

Roof Framing, Grid A Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3961 @ 5' 4 5/8"	52609 (9.25")	Passed (8%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	1977 @ 10' 8 1/4"	31999	Passed (6%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	4242 @ 15' 2 5/8"	107807	Passed (4%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-6235 @ 5' 4 5/8"	81502	Passed (8%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.012 @ 0	0.539	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.021 @ 0	0.718	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 30' 5 1/4"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Moment capacity over cantilever support 1 has been reduced by 2.7% to lessen the effects of buckling.
- Volume factor of 0.99 was calculated for positive bending using length L = 8' 10 5/8".
- Volume factor of 0.97 was calculated for negative bending using length L = 10' 9 1/2".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	1515	2446	3961	None
2 - Column Cap - steel	9.25"	9.25"	1.50"	1303	2341	3644	None
3 - Column Cap - steel	9.25"	9.25"	1.50"	1303	2341	3644	None
4 - Column Cap - steel	9.25"	9.25"	1.50"	1515	2446	3961	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	30' 5" o/c	
Bottom Edge (Lu)	30' 5" 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 30' 5 1/4"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 30' 5 1/4" (Top)	9' 9 1/2"	15.0	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
Chon Pieruccioni Pieruccioni Engineering (206) 949-7866 cpieru@hotmail.com	

Weyerhaeuser

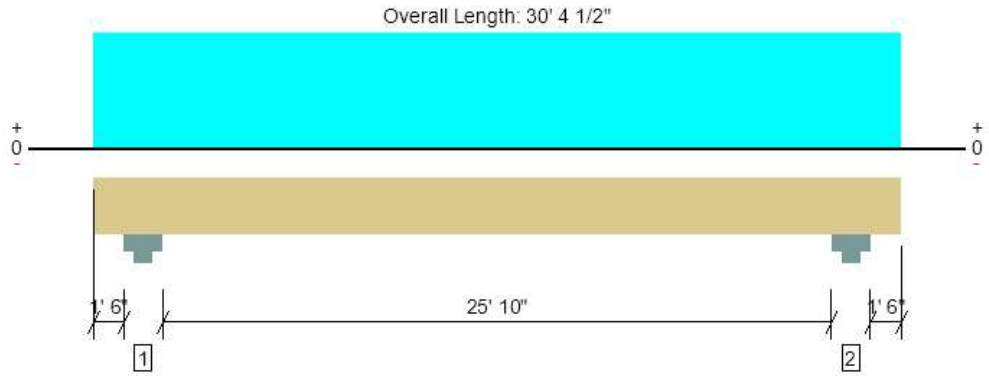
4/10/2025 10:30:26 PM UTC

ForteWEB v3.9, Engine: V8.4.3.94, Data: V8.1.7.3

File Name: East Town Crossing - Bus Stop

Roof Framing, Grid B Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5828 @ 1' 10 5/8"	52609 (9.25")	Passed (11%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	4383 @ 3' 9 1/4"	31999	Passed (14%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	33420 @ 15' 2 1/4"	96679	Passed (35%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-681 @ 1' 10 5/8"	83770	Passed (1%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.314 @ 15' 2 1/4"	1.330	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.555 @ 15' 2 1/4"	1.774	Passed (L/576)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 30' 4 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 0.89 was calculated for positive bending using length L = 26' 4 15/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 2' 1/4".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	2546	3282	5828	None
2 - Column Cap - steel	9.25"	9.25"	1.50"	2546	3282	5828	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	30' 5" o/c	
Bottom Edge (Lu)	30' 5" 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 30' 4 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 30' 4 1/2" (Top)	8' 7 1/2"	15.0	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
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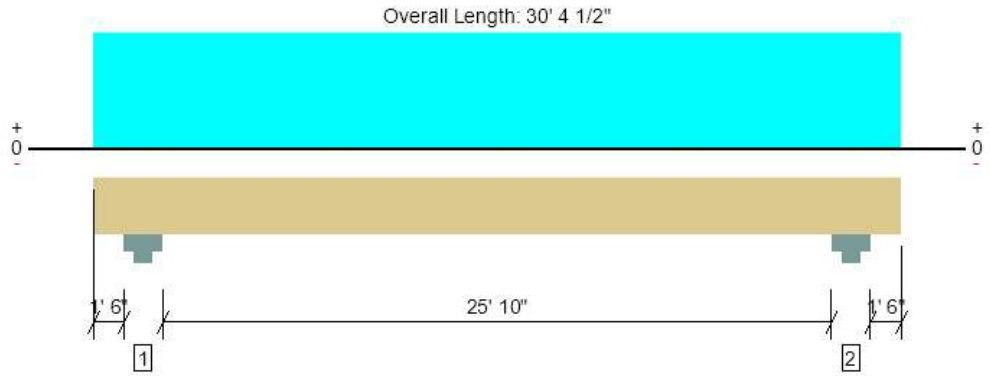
Weyerhaeuser

Roof Framing, Grid C Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	6614 @ 1' 10 5/8"	52609 (9.25")	Passed (13%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	4974 @ 3' 9 1/4"	31999	Passed (16%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	37928 @ 15' 2 1/4"	96679	Passed (39%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-773 @ 1' 10 5/8"	83770	Passed (1%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.361 @ 15' 2 1/4"	1.330	Passed (L/885)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.629 @ 15' 2 1/4"	1.774	Passed (L/507)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 30' 4 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 0.89 was calculated for positive bending using length L = 26' 4 15/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 2' 1/4".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	2841	3774	6614	None
2 - Column Cap - steel	9.25"	9.25"	1.50"	2841	3774	6614	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	30' 5" o/c	
Bottom Edge (Lu)	30' 5" 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 30' 4 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 30' 4 1/2" (Top)	9' 11"	15.0	25.0	Default Load

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

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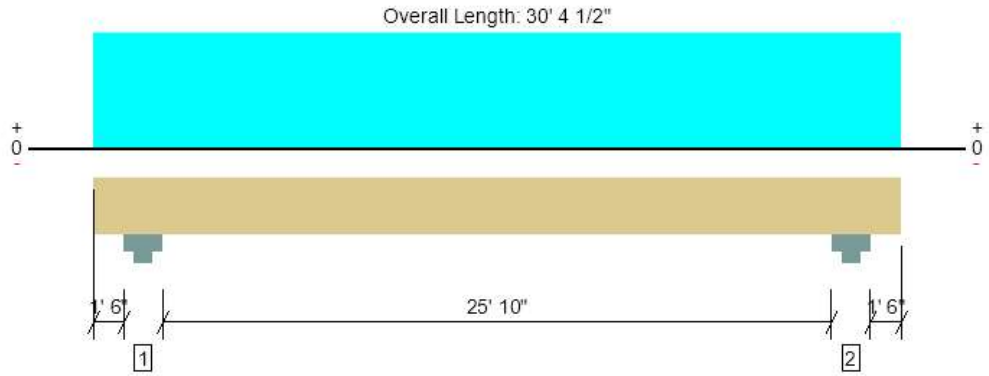
Weyerhaeuser

Roof Framing, Grid D Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	8186 @ 1' 10 5/8"	52609 (9.25")	Passed (16%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	6156 @ 3' 9 1/4"	31999	Passed (19%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	46944 @ 15' 2 1/4"	96678	Passed (49%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-957 @ 1' 10 5/8"	83770	Passed (1%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.455 @ 15' 2 1/4"	1.330	Passed (L/702)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.779 @ 15' 2 1/4"	1.774	Passed (L/410)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 30' 4 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 0.89 was calculated for positive bending using length L = 26' 4 15/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 2' 1/4".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	3429	4757	8186	None
2 - Column Cap - steel	9.25"	9.25"	1.50"	3429	4757	8186	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	30' 5" o/c	
Bottom Edge (Lu)	30' 5" 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 30' 4 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 30' 4 1/2" (Top)	12' 6"	15.0	25.0	Default Load

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

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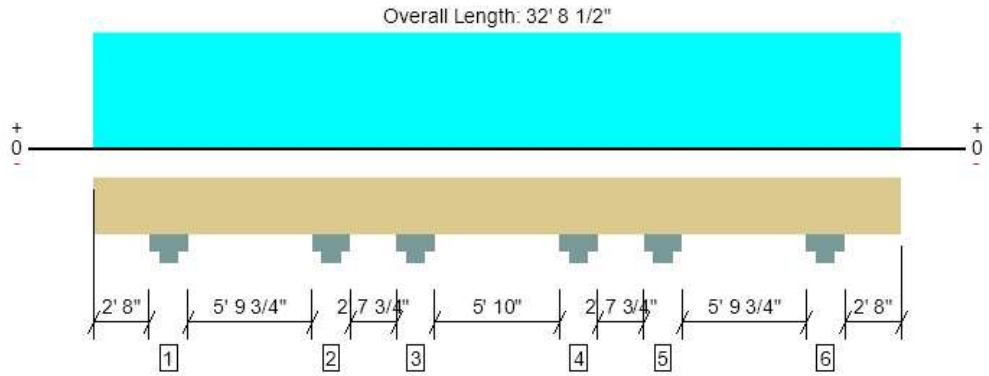
Weyerhaeuser

Roof Framing, Grid E Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam



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)	3233 @ 3' 5/8"	52609 (9.25")	Passed (6%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	872 @ 27' 9 1/4"	31999	Passed (3%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	1333 @ 16' 4 1/4"	108675	Passed (1%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-2228 @ 3' 5/8"	83770	Passed (3%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.002 @ 0	0.305	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.002 @ 0	0.407	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 32' 8 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 1.00 was calculated for positive bending using length L = 4' 8 11/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 4' 8 1/16".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	1370	1863	3233	None
2 - Column Cap - steel	9.25"	9.25"	1.50"	891	1563	2454	None
3 - Column Cap - steel	9.25"	9.25"	1.50"	1064	1670	2734	None
4 - Column Cap - steel	9.25"	9.25"	1.50"	1064	1670	2734	None
5 - Column Cap - steel	9.25"	9.25"	1.50"	891	1563	2454	None
6 - Column Cap - steel	9.25"	9.25"	1.50"	1370	1863	3233	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	32' 9" o/c	
Bottom Edge (Lu)	32' 9" 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 32' 8 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 32' 8 1/2" (Top)	11'	15.0	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
Chon Pieruccioni Pieruccioni Engineering (206) 949-7866 cpieru@hotmail.com	

Weyerhaeuser

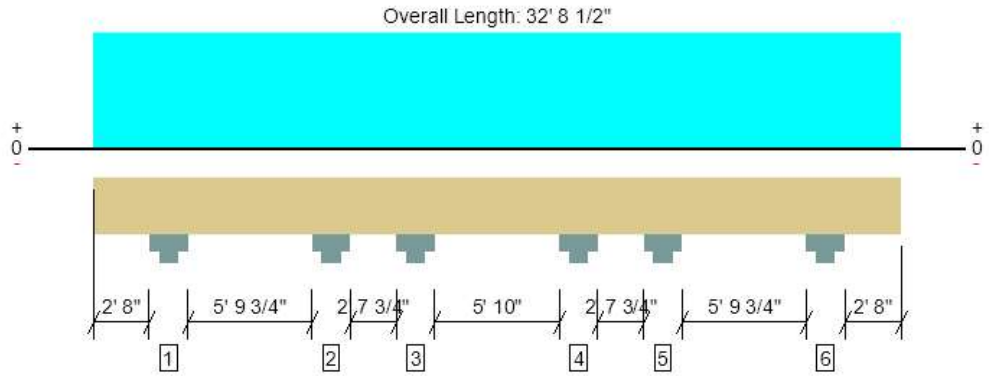
4/10/2025 10:30:26 PM UTC

ForteWEB v3.9, Engine: V8.4.3.94, Data: V8.1.7.3

File Name: East Town Crossing - Bus Stop

Roof Framing, Grid F Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam



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)	3120 @ 3' 5/8"	52609 (9.25")	Passed (6%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	841 @ 4' 11 1/4"	31999	Passed (3%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	1286 @ 16' 4 1/4"	108675	Passed (1%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-2150 @ 3' 5/8"	83770	Passed (3%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.002 @ 32' 8 1/2"	0.305	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.002 @ 0	0.407	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 32' 8 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 1.00 was calculated for positive bending using length L = 4' 8 11/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 4' 8 1/16".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	1328	1792	3120	None
2 - Column Cap - steel	9.25"	9.25"	1.50"	863	1504	2367	None
3 - Column Cap - steel	9.25"	9.25"	1.50"	1031	1607	2638	None
4 - Column Cap - steel	9.25"	9.25"	1.50"	1031	1607	2638	None
5 - Column Cap - steel	9.25"	9.25"	1.50"	863	1504	2367	None
6 - Column Cap - steel	9.25"	9.25"	1.50"	1328	1792	3120	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	32' 9" o/c	
Bottom Edge (Lu)	32' 9" 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 32' 8 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 32' 8 1/2" (Top)	10' 7"	15.0	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
Chon Pieruccioni Pieruccioni Engineering (206) 949-7866 cpieru@hotmail.com	

Weyerhaeuser

4/10/2025 10:30:26 PM UTC

ForteWEB v3.9, Engine: V8.4.3.94, Data: V8.1.7.3

File Name: East Town Crossing - Bus Stop

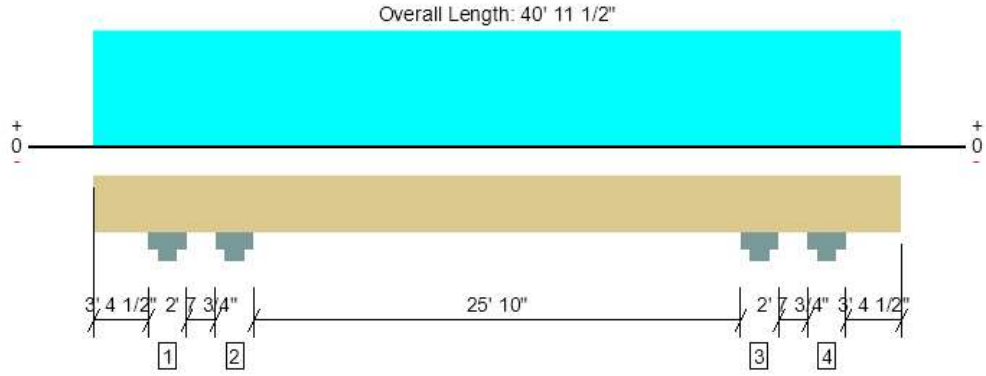
Roof Framing, Grid G Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam

An excessive uplift of -4225 lbs at support located at 3' 9 1/8" failed this product.

An excessive uplift of -4225 lbs at support located at 37' 2 3/8" failed this product.

Uplift is resisted by bolted kerf plate connections.



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)	12413 @ 7' 2 1/8"	52609 (9.25")	Passed (24%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	6155 @ 5' 7 3/4"	31999	Passed (19%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	14478 @ 20' 5 3/4"	101290	Passed (14%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-22908 @ 7' 2 1/8"	80501	Passed (28%)	1.15	1.0 D + 1.0 S (Adj Spans)
Live Load Defl. (in)	0.094 @ 20' 5 3/4"	1.330	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.165 @ 20' 5 3/4"	1.774	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 40' 11 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 0.93 was calculated for positive bending using length L = 16' 6 7/8".
- Volume factor of 0.96 was calculated for negative bending using length L = 12' 2 1/2".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	-1514	-2711	-4225	None
2 - Column Cap - steel	9.25"	9.25"	2.18"	5242	7172	12413	None
3 - Column Cap - steel	9.25"	9.25"	2.18"	5242	7172	12413	None
4 - Column Cap - steel	9.25"	9.25"	1.50"	-1514	-2711	-4225	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	41' o/c	
Bottom Edge (Lu)	41' 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 40' 11 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 40' 11 1/2" (Top)	9' 7"	15.0	25.0	Default Load

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

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ForteWEB Software Operator	Job Notes
Chon Pieruccioni Pieruccioni Engineering (206) 949-7866 cpieru@hotmail.com	

Weyerhaeuser

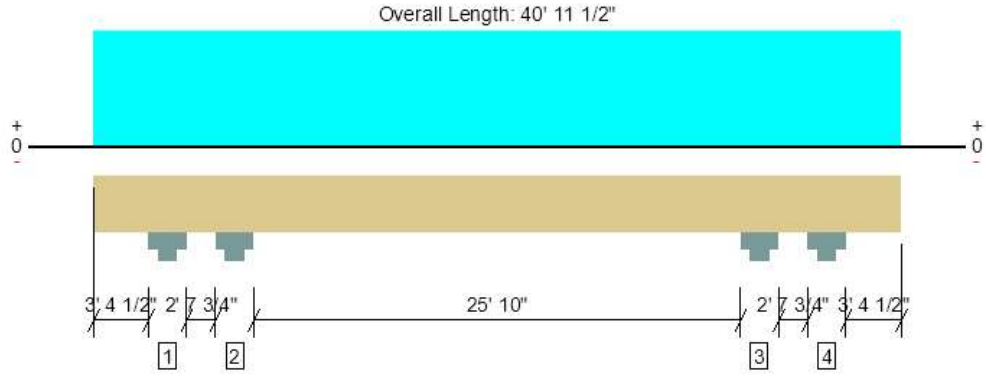
Roof Framing, Grid H Roof Beam

1 piece(s) 8 3/4" x 18" 24F-V4 DF Glulam

An excessive uplift of -5040 lbs at support located at 3' 9 1/8" failed this product.

An excessive uplift of -5040 lbs at support located at 37' 2 3/8" failed this product.

Uplift resisted by bolted kerf plate connections



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)	14774 @ 7' 2 1/8"	52609 (9.25")	Passed (28%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	7328 @ 5' 7 3/4"	31999	Passed (23%)	1.15	1.0 D + 1.0 S (Adj Spans)
Pos Moment (Ft-lbs)	17225 @ 20' 5 3/4"	101290	Passed (17%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-27256 @ 7' 2 1/8"	80501	Passed (34%)	1.15	1.0 D + 1.0 S (Adj Spans)
Live Load Defl. (in)	0.113 @ 20' 5 3/4"	1.330	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.196 @ 20' 5 3/4"	1.774	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 40' 11 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 0.93 was calculated for positive bending using length L = 16' 6 7/8".
- Volume factor of 0.96 was calculated for negative bending using length L = 12' 2 1/2".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column Cap - steel	9.25"	9.25"	1.50"	-1763	-3277	-5040	None
2 - Column Cap - steel	9.25"	9.25"	2.60"	6105	8669	14774	None
3 - Column Cap - steel	9.25"	9.25"	2.60"	6105	8669	14774	None
4 - Column Cap - steel	9.25"	9.25"	1.50"	-1763	-3277	-5040	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	41' o/c	
Bottom Edge (Lu)	41' 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 40' 11 1/2"	N/A	38.3	--	
1 - Uniform (PSF)	0 to 40' 11 1/2" (Top)	11' 7"	15.0	25.0	Default Load

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

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Weyerhaeuser

4/10/2025 10:30:26 PM UTC

ForteWEB v3.9, Engine: V8.4.3.94, Data: V8.1.7.3

File Name: East Town Crossing - Bus Stop

Roof Framing, Columns

1 piece(s) 8 x 10 DF No.2

Post Height: 11' 6"

Drawing is Conceptual

Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	18	50	Passed (37%)	--	--
Compression (lbs)	14774	45660	Passed (32%)	1.15	1.0 D + 1.0 S
Base Bearing (lbs)	14774	2116125	Passed (1%)	--	1.0 D + 1.0 S
Bending/Compression	0.41	1	Passed (41%)	1.15	1.0 D + 1.0 S

- Input axial load eccentricity for this design is 16.67% of applicable member side dimension.
- Applicable calculations are based on NDS.

Supports	Type	Material
Base	Plate	Steel

Max Unbraced Length	Comments
Full Member Length	No bracing assumed.

Member Type : Free Standing Post
Building Code : IBC 2021
Design Methodology : ASD

Vertical Load	Dead (0.90)	Snow (1.15)	Comments
1 - Point (lb)	6105	8669	Linked from: Grid H Roof Beam, Support 2

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

WIND $V_{ASD}=85$MPH $V_{ULT}=110$MPH EXP. B $K_{zt}=1.0$ SLOPE=5°

$P=q_h G C_N$ $C_N=1.2$ $G=0.85$

$q_h=0.00256\times0.85\times1.0\times1.0\times0.85\times(85)^2=13.36$PSF

$P=q_h=13.36\text{PSF}\times0.85\times1.2=13.6$PSF

SEISMIC $S_{DS}=1.03$ $R=1.5$ $I_e=1.0$

$C_S=(1.03/(1.5/1.0))/1.4=0.49$

$W_{ROOF}=(15\text{PSF}\times2709\text{SF})=40,635$#

$V_S=40,635\#\times0.49=19,911$#

GRIDS 2&4

$F_W = (13.6 psf \times 169 sf) = 2,298\#$

$F_E = 19,911\# \times (1354.5 sf / 2,709 sf) = 9,956\#$

GRID A

$F_W = (13.6 psf \times 18 sf) = 245\#$

$F_E = 19,911\# \times (355 sf / 2,709 sf) = 2609\#$

GRID C

$F_W = (13.6 psf \times 57 sf) = 775\#$

$F_E = 19,911\# \times (819 sf / 2,709 sf) = 6,020\#$

GRID E

$F_W = (13.6 psf \times 16 sf) = 218\#$

$F_E = 19,911\# \times (358 sf / 2,709 sf) = 2,631\#$

GRID F

$F_W = (13.6 psf \times 15 sf) = 204\#$

$F_E = 19,911\# \times (316 sf / 2,709 sf) = 2,323\#$

GRID G

$F_W = (13.6 psf \times 16 sf) = 218\#$

$F_E = 19,911\# \times (390 sf / 2,709 sf) = 2,866\#$

GRID H

$F_W = (13.6 psf \times 19 sf) = 258\#$

$F_E = 19,911\# \times (471 sf / 2,709 sf) = 3,461\#$

GRIDS 2&4 3 BRACES FE = 9,956#/3 = 3,319# / BRACE ← CONTROLS

GRID A 2 BRACES FE = 2,609#/2 = 1,305# / BRACE

GRID C 13'-9" SHEAR WALL FE = 6,020# h = 10'

VE = 6,020#/13.75' = 438 PLF

USE 4@3 VERIFY = 456 PLF

HOLD DOWNS

TE = 438 PLF x 10' x 1.25 = 5,473#

USE HDU8 w/ 3 STUDS TERIFY = 6,580# x 1.4/1.6 = 5,758#

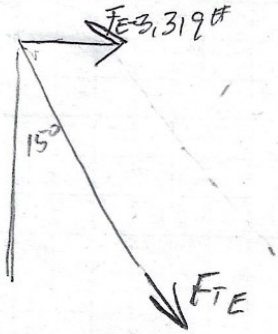
GRID E 2 BRACES FE = 2,631#/2 = 1,316# / BRACE

GRID F 2 BRACES FE = 2,323#/2 = 1,162# / BRACE

GRID G 2 BRACES FE = 2,866#/2 = 1,433# / BRACE

GRID H 2 BRACES FE = 3,461#/2 = 1,731# / BRACE

MAX BRACE DESIGN



$F_{TE} = 3,319\#/\cos 15° = 3,436\#$

USE CLEVIS PIN & CABLE BRACING

WIND $V_{ASD}=85$MPH $V_{ULT}=110$MPH EXP. B $K_{zt}=1.0$ SLOPE=5°

$P = q_h G C_N$ $C_N = 1.2$ $G = 0.85$

$q_h = 0.00256 \times 0.85 \times 1.0 \times 1.0 \times 0.85 \times (85)^2 = 13.36$ PSF

$P = q_h = 13.36\text{PSF} \times 0.85 \times 1.2 = 13.6$ PSF

SEISMIC $S_{DS}=1.03$ $R=1.5$ $I_e=1.0$

$C_S = (1.03/(1.5/1.0))/1.4 = 0.49$

$W_{ROOF} = (15\text{PSF} \times 2709\text{SF}) = 40,635\#$

$V_S = 40,635\# \times 0.49 = 19,911\#$

GRIDS 2&4

$F_W = (13.6 psf \times 169 sf) = 2,298\#$

$F_E = 19,911\# \times (1,354.5 sf / 2,709 sf) = 9,956\#$

GRID A

$F_W = (13.6 psf \times 18 sf) = 245\#$

$F_E = 19,911\# \times (355 sf / 2,709 sf) = 2,609\#$

GRID C

$F_W = (13.6 psf \times 57 sf) = 775\#$

$F_E = 19,911\# \times (819 sf / 2,709 sf) = 6,020\#$

GRID E

$F_W = (13.6 psf \times 16 sf) = 218\#$

$F_E = 19,911\# \times (358 sf / 2,709 sf) = 2,631\#$

GRID F

$F_W = (13.6 psf \times 15 sf) = 204\#$

$F_E = 19,911\# \times (316 sf / 2,709 sf) = 2,323\#$

GRID G

$F_W = (13.6 psf \times 16 sf) = 218\#$

$F_E = 19,911\# \times (390 sf / 2,709 sf) = 2,866\#$

GRID H

$F_W = (13.6 psf \times 19 sf) = 258\#$

$F_E = 19,911\# \times (471 sf / 2,709 sf) = 3,461\#$

GRIDS 2 & 4 3 BRACES $F_E = 9,956\#/3 = 3,319\#$/BRACE ★ CONTROLS

GRID A 2 BRACES $F_E = 2,609\#/2 = 1,305\#$/BRACE

GRID C 13'-9" SHEAR WALL $F_E = 6,020\#$ $h = 10'$

$V_E = 6020\#/13.75' = 438$ PLF

USE 4@3" $V_{ERIC} = 456$ PLF

HOLD DOWNS

$T_E = 438$ PLF $\times 10' \times 1.25 = 5,475\#$

USE HDUB w/ 3 STUDS $T_{ERIC} = 6,580\# \times 1.4/1.6 = 5,758\#$

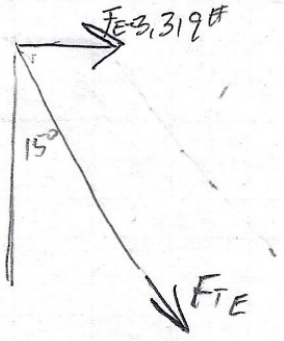
GRID E 2 BRACES $F_E = 2,631\#/2 = 1,316\#$/BRACE

GRID F 2 BRACES $F_E = 2,323\#/2 = 1,162\#$/BRACE

GRID G 2 BRACES $F_E = 2,866\#/2 = 1,433\#$/BRACE

GRID H 2 BRACES $F_E = 3,461\#/2 = 1,731\#$/BRACE

MAX BRACE DESIGN



$F_{TE} = 3,319\#/\cos 15° = 3,436\#$

USE CLEVIS PIN & CABLE BRACING

ROOF DIAPHRAGM

GRIDS 2&4 $V_E = 9{,}956^{\#} / 80.33' = 124$ PLF

GRID A $V_E = 2{,}609^{\#} / 30.33' = 86$ PLF

GRID C $V_E = 6{,}020^{\#} / 30.33' = 198$ PLF ⚠ CONTROLS

GRID E $V_E = 2{,}631^{\#} / 32.67' = 81$ PLF

GRID F $V_E = 2{,}323^{\#} / 32.67' = 71$ PLF

GRID G $V_E = 2{,}866^{\#} / 40.67' = 70$ PLF

GRID H $V_E = 3{,}461^{\#} / 40.67' = 85$ PLF

USE 2x6 T&G (ARDECKING DIAGONAL) $V_{ALLOW} = 420$ PLF