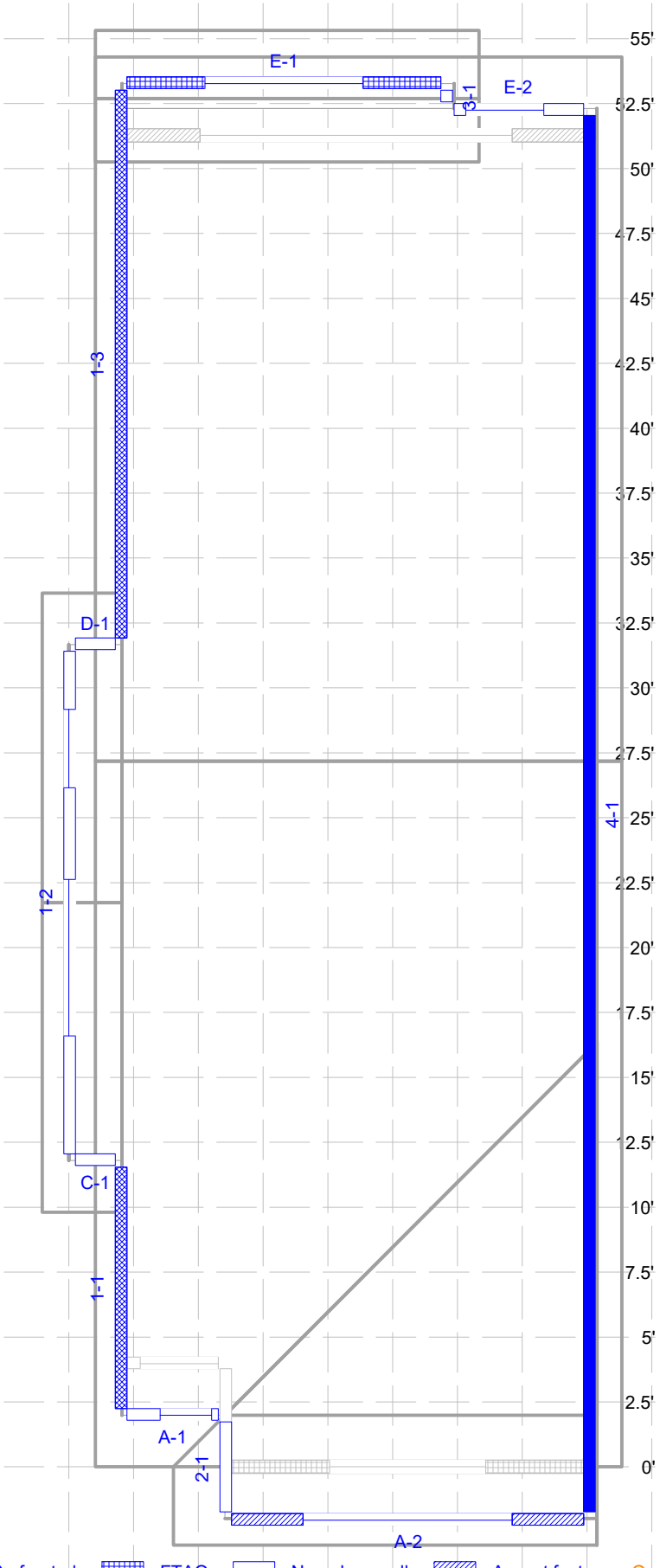
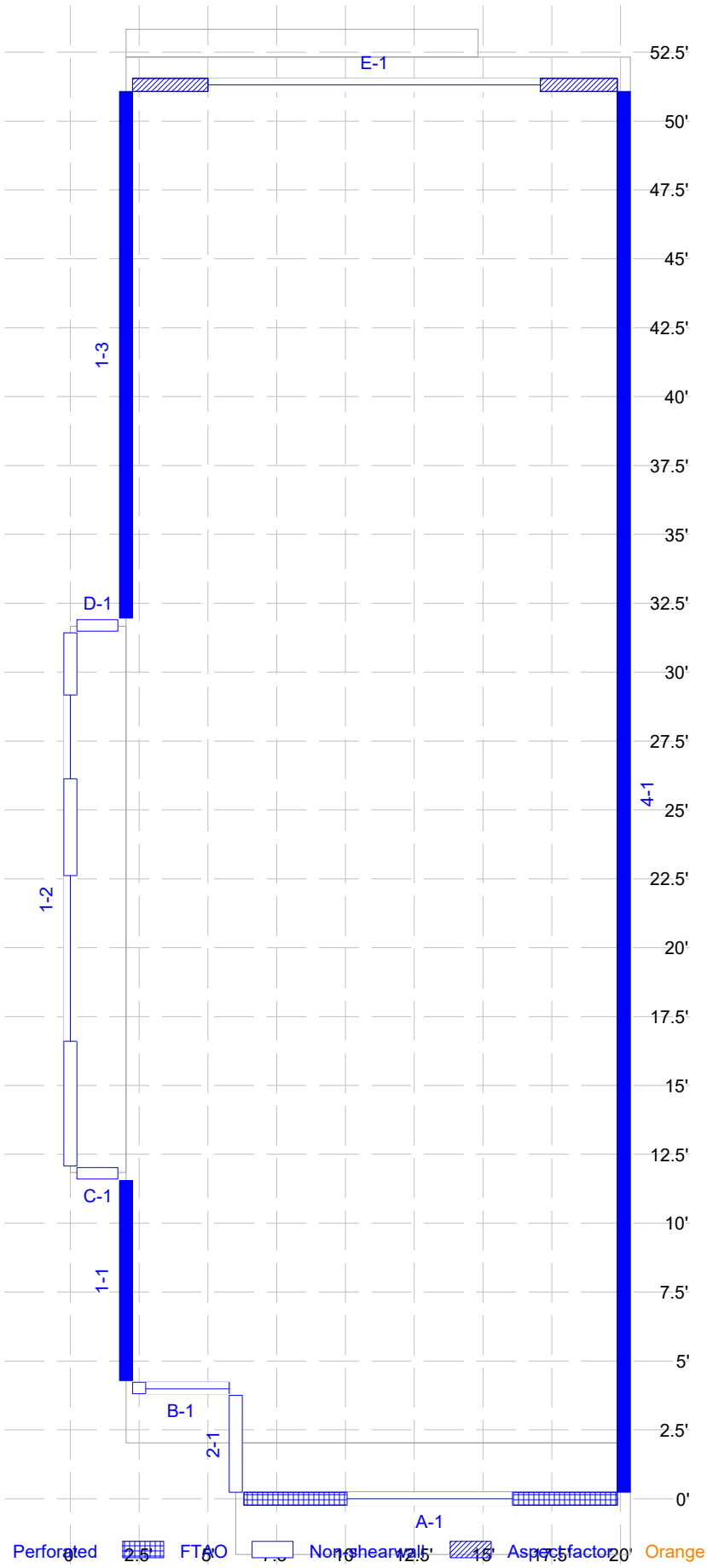
WoodWorks® Shearwalls 2023

Level 2 of 2



WoodWorks® Shearwalls 2023

Level 1 of 2



WoodWorks® Shearwalls

SOFTWARE FOR WOOD DESIGN

WoodWorks® Shearwalls 2023

Project Information

COMPANY AND PROJECT INFORMATION

Company	Project
PLIRIS teampliris@plirisplans.com 833.4PLIRIS	

DESIGN SETTINGS

Design Code	Wind Standard	Seismic Standard
IBC 2021/AWC SDPWS 2021	ASCE 7-16 Directional (All heights)	ASCE 7-16

Load Combinations		Building Code Capacity Modification	
For Design (ASD)	For Deflection (Strength)	Wind	Seismic
0.70 Seismic + 0.60 Dead	1.00 Seismic + 0.90 Dead	1.00	1.00
0.60 Wind + 0.60 Dead	1.00 Wind + 0.90 Dead		

Service Conditions and Load Duration				Max Shearwall Offset [ft]	
Duration Factor	Temperature Range	Moisture Content		Plan (within story)	Elevation (between stories)
		Fabrication	Service		
-	-	15% (<=19%)	10% (<=19%)	4.00	1.67

Maximum Height-to-width Ratio						
Wood panels		Fiberboard	Lumber		Gypsum	
Blocked	Unblocked		Wind	Seismic	Blocked	Unblocked
3.5	2.0	-	-	-	2.0	1.5

Ignore shear resistance contribution of...		Forces based on...	
Wall segments	Seismic	Hold-downs	Applied loads
Don't ignore	Any gypsum, lumber, fiberboard	Drag struts	Applied loads

Shearwall relative rigidity:	Deflection-based stiffness of wall segments
Non-identical materials and construction on the shearline:	Allowed, except for material type
Deflection Equation:	3-term from SDPWS 4.3-1
Drift limit for wind design:	1 / 500 story height
FTAO strap:	Continuous at top of highest opening and bottom of lowest

SITE INFORMATION

Wind		Seismic	
ASCE 7-16 Directional (All heights)		ASCE 7-16 12.8 Equivalent Lateral Force Procedure	
Design Wind Speed	105 mph	**Risk Category**	Category II - All others
Serviceability Wind Speed	85 mph	**Structure Type**	Regular
Exposure	Exposure B	**Building System**	Bearing Wall
Enclosure	Enclosed	**Design Category**	D
Min Wind Loads: Walls	16 psf	**Site Class**	D
Roofs	8 psf		

Topographic Information [ft]		
Shape	Height	Length
-	-	-

Site Location: -

Elev: 384ft

Rigid building - Static analysis

Spectral Response Acceleration

S1: 0.370g **Ss:** 0.840g

Fundamental Period	E-W	N-S
T Used	0.206s	0.206s
Approximate Ta	0.206s	0.206s
Maximum T	0.289s	0.289s
Response Factor R	6.50	6.50

Case 2	E-W loads	N-S loads
Eccentricity (%)	15	15
Loaded at	75%	

Fa: 1.16 **Fv:** 1.93

WoodWorks® Shearwalls

Structural Data

STORY INFORMATION

	Story Elev [ft]	Floor/Ceiling Depth [in]	Wall Height [ft]	Hold-down Length subject to shrinkage [in]	Hold-down Bolt length [in]
Ceiling	21.12	0.0			
Level 2	13.02	1'-1.0	8.10	16.75	17.5
Level 1	2.83	10.0	9.10	13.75	14.5
Foundation	2.00				

BLOCK and ROOF INFORMATION

Block Dimensions [ft]			Roof Panels Face	Type	Slope	Overhang [ft]
Block 1	2 Story	E-W Ridge				
Location X,Y =	2.00	2.00	**North**	Side	18.4	2.00
Extent X,Y =	18.25	50.00	**South**	Side	18.4	2.00
Ridge Y Location, Offset	27.00	0.00	**East**	Gable	90.0	1.00
Ridge Elevation, Height	29.43	8.32	**West**	Gable	90.0	1.00
Block 2	2 Story	N-S Ridge				
Location X,Y =	6.00	-2.00	**North**	Joined	161.6	0.00
Extent X,Y =	14.25	4.00	**South**	Gable	90.0	1.00
Ridge X Location, Offset	20.25	7.13	**East**	Side	90.0	0.00
Ridge Elevation, Height	25.86	4.74	**West**	Side	18.4	2.00
Block 3	2 Story	E-W Ridge				
Location X,Y =	2.00	52.00	**North**	Side	14.0	2.00
Extent X,Y =	12.75	1.00	**South**	Side	18.4	2.00
Ridge Y Location, Offset	52.43	-0.07	**East**	Gable	90.0	1.00
Ridge Elevation, Height	21.26	0.14	**West**	Gable	90.0	1.00
Block 4	2 Story	E-W Ridge				
Location X,Y =	0.00	11.75	**North**	Side	18.4	2.00
Extent X,Y =	2.00	19.75	**South**	Side	18.4	2.00
Ridge Y Location, Offset	21.63	0.00	**East**	Joined	90.0	1.00
Ridge Elevation, Height	24.40	3.28	**West**	Gable	90.0	1.00

SHEATHING MATERIALS by WALL GROUP

Grp	Surf	Material	Sheathing Ratng	Thick in	GU in	Ply	Or	Gvtv lbs/in	Fasteners Size	Type	RS	Eg in	Fd in	Bk	Apply Notes
1	Ext	Struct Sh OSB	32/16	15/32	-	-	Vert	83500	10d	Common	N	2	12	Y	2,7
	Int	Gyp. wallboard	24/16	1/2	-	1	Horz	40000	5d	Cooler	N	4	4	N	
2	Ext	Struct Sh OSB	24/16	7/16	-	-	Vert	83500	8d	Common	N	3	12	Y	2,3
3	Ext	Struct Sh OSB	24/16	7/16	-	-	Vert	83500	8d	Common	N	6	12	N	
	Int	Gyp. wallboard		1/2	-	1	Horz	40000	No. 6	Screw	N	8	12	N	5
4	Ext	Struct Sh OSB	24/16	7/16	-	-	Vert	83500	8d	Common	N	6	12	Y	3
5	Both	Gyp. wallboard	24/16	1/2	-	1	Horz	40000	5d	Cooler	N	7	7	N	5
6	Both	Gyp. wallboard	24/16	1/2	-	1	Horz	40000	5d	Cooler	N	4	7	Y	5

Legend:
Grp – Wall Design Group number, used to reference wall in other tables (created by program)
Surf – Exterior or interior surface when applied to exterior wall
Ratng – Span rating, see SDPWS Table C4.2.3C
Thick – Nominal panel thickness
GU - Gypsum underlay thickness
Ply – Number of plies (or layers) in construction of plywood sheets
Or – Orientation of longer dimension of sheathing panels or lumber planks. Dbl. = Double diagonal.
Gvtv – Shear stiffness in lb/in. of depth from SDPWS Tables C4.2.3A-B
Type – Fastener type from SDPWS Tables 4.3A-D:
Common: common wire nail; Box: galvanized box nail; Casing: casing nail; Roof: galvanized roofing nail; Cooler: cooler nail; WBoard: wallboard nail; Screw: drywall screw; Gauge: nail measured by gauge; Galv: galvanized gauge nail; GWB: Gypsum wallboard blued nail
Size - From Tables 4.3A-D and Table A1; shown in Wall Input fastener dropdown
Common nails: 6d = 0.113 x 2", 8d = 0.131 x 2.5", 10d = 0.148 x 3", 12d = 0.148 x 3.5"
Box or casing nails: 6d = 0.099 x 2", 8d = 0.113 x 2.5", 10d = 0.128 x 3", 12d = 0.126 x 3.5"
Gauge, roofing and GWB nails: 13 ga = 0.92" x 1-1/8"; 11 ga = 0.120" x 1-1/8" (GWB nail for gypsum lath & plaster), 1-1/4" (gyp. L&P), 1-1/2" (wire lath & plaster, 1/2" fiberboard ,1/2" GWB), 1-3/4" (GSB, 5/8" GWB, 25/32" fiberboard, 2-ply GWB base), 2-3/8" (2-ply GWB face)
Cooler or wallboard nail: 5d = .086" x 1-5/8"; 6d = .092" x 1-7/8"; 8d = .113" x 2-3/8"; 6/8d = 6d base ply, 8d face ply for 2-ply GWB.
Drywall screws: No. 6, 1-1/4" long.
RS – Ring-shank nails (non-shearwalls only), with increased withdrawal capacity as per NDS 12.2.3.2.
Eg – Panel edge fastener spacing. For lumber sheathing, no. of nails per board at shear wall boundary. For 2-ply GWB, spacing of all nails in face ply.
Fd – Field spacing interior to panels. For lumber sheathing, no. of nails per board at interior studs. For 2-ply GWB, spacing of all nails in face ply.
Bk – Sheathing is nailed to blocking at all panel edges; Y(es) or N(o)
Apply Notes – Notes below table legend which apply to sheathing side

Notes:
2. Framing at adjoining panel edges must be 3" nominal or wider with staggered nailing according to SDPWS 4.3.7.1 (5)
3. Shear capacity for current design has been increased to the value for 15/32" sheathing with same nailing because stud spacing is 16" max. or panel orientation is horizontal. See SDPWS Table 4.3A Note 2.
7. Capacity has been reduced by a factor of 0.92 because of the use of hold-downs on walls with 10d nailing, as per Table 4.3A Note 10.
5. This material does not contribute to seismic shear resistance because the Design setting for ignoring contribution was set.

FRAMING MATERIALS and STANDARD WALL by WALL GROUP

Wall Grp	Species	Grade	b in	d in	Spcg in	SG	E psi^6	Fcp	Standard Wall
1	D.Fir-L	Stud	1.50	5.50	16	0.50	1.40	625	2/12B_FTAO_OSB_15/32_10D
2	D.Fir-L	Stud	1.50	5.50	16	0.50	1.40	625	3/12B_SEG_OSB_7/16_8D
3	D.Fir-L	Stud	1.50	5.50	16	0.50	1.40	625	
4	D.Fir-L	Stud	1.50	5.50	16	0.50	1.40	625	6/12B_SEG_OSB_7/16_8D
5	D.Fir-L	Stud	1.50	5.50	24	0.50	1.40	625	
6	D.Fir-L	Stud	1.50	5.50	16	0.50	1.40	625	

Legend:
Wall Grp – Wall Design Group
b – Stud breadth (thickness)
d – Stud depth (width)
Spcg – Maximum on-centre spacing of studs for design, actual spacing may be less.
SG – Specific gravity
E – Modulus of elasticity
Standard Wall - Standard wall designed as group.
Fcp - Compressive strength perpendicular to grain

Notes:
Check manufacture requirements for stud size, grade and specific gravity (G) for all shearwall hold-downs.
The following factors are applied to Fcp for compressive design and deformation under wall segment end studs :

Bearing area factor Cb from NDS 3.10.4, under window openings.

SHEARLINE, WALL and OPENING DIMENSIONS

North-south Shearlines	Type	Wall Group	Location X [ft]	Extent [ft] Start	Extent [ft] End	Length [ft]	FHS [ft]	Aspect Ratio	Height [ft]	Studs S	Studs N
Line 1											
Level 2											
Line 1		3	1.23	2.00	53.00	51.00	36.00	–	8.10	–	–
Wall 1-1	Prf	3	2.00	2.00	11.75	9.75	9.75	0.83	–	2	2
Wall 1-2	Prf	3	0.00	11.75	31.50	19.75	4.75	–	–	2	2
Segment 1		–	–	11.75	16.50	4.75	4.75	1.71	–	–	–
Opening 1		–	–	16.50	22.50	6.00	6.00	–	5.00	–	–
Segment 2		–	–	22.50	26.00	3.50	3.50	2.31	–	–	–
Opening 2		–	–	26.00	29.00	3.00	3.00	–	4.00	–	–
Segment 3		–	–	29.00	31.50	2.50	2.50	3.24	–	–	–
Wall 1-3	Prf	3	2.00	31.50	53.00	21.50	21.50	0.38	–	2	2
Level 1											
Line 1		3,4	1.16	4.00	51.00	47.00	32.00	–	9.10	–	–
Wall 1-1	Seg	4	2.00	4.00	11.75	7.75	7.50	1.17	–	2	2
Wall 1-2	Prf	3	0.00	11.75	31.50	19.75	4.75	–	–	2	2
Segment 1		–	–	11.75	16.50	4.75	4.75	1.92	–	–	–
Opening 1		–	–	16.50	22.50	6.00	6.00	–	5.00	–	–
Segment 2		–	–	22.50	26.00	3.50	3.50	2.60	–	–	–
Opening 2		–	–	26.00	29.00	3.00	3.00	–	4.00	–	–
Segment 3		–	–	29.00	31.50	2.50	2.50	3.64	–	–	–
Wall 1-3	Seg	4	2.00	31.50	51.00	19.50	19.25	0.47	–	2	2
Line 2											
Level 2											
Line 2	NSW		6.00	-2.00	4.00	6.00	0.00	–	8.10	–	–
Wall 2-1	NSW		6.00	-2.00	2.00	4.00	0.00	1.00	–	2	2
Level 1											
Line 2	NSW		6.00	-2.00	4.00	6.00	0.00	–	9.10	–	–
Wall 2-1	NSW		6.00	0.00	4.00	4.00	0.00	1.00	–	2	2
Line 3											
Level 2											
Line 3	NSW		14.50	52.00	53.00	1.00	0.00	–	8.10	–	–
Wall 3-1	NSW		14.50	52.00	53.00	1.00	0.00	1.00	–	2	2
Line 4											
Level 2											
Line 4	Seg	6	20.00	-2.00	52.00	54.00	53.75	–	8.10	–	–
Wall 4-1	Seg	6	20.00	-2.00	52.00	54.00	53.75	0.15	–	2	2
Level 1											
Line 4	Seg	5	20.00	0.00	51.00	51.00	50.75	–	9.10	–	–
Wall 4-1	Seg	5	20.00	0.00	51.00	51.00	50.75	0.18	–	2	2

East-west Shearlines	Type	Wall Group	Location Y [ft]	Extent [ft] Start	Extent [ft] End	Length [ft]	FHS [ft]	Aspect Ratio	Height [ft]	Studs W	Studs E
Line A											
Level 2											
Line A		2,3	-1.11	2.00	20.00	18.00	6.00	–	8.10	–	–
Wall A-1	Prf	3	2.00	2.00	6.00	4.00	0.00	–	–	2	2
Segment 1		–	–	2.00	3.50	1.50	1.50	5.40	–	–	–
Opening 1		–	–	3.50	5.50	2.00	2.00	–	1.50	–	–
Segment 2		–	–	5.50	6.00	0.50	0.50	16.20	–	–	–
Wall A-2	Seg	2	-2.00	6.00	20.00	14.00	6.00	–	–	2	2
Segment 1		–	–	6.00	9.00	3.00	2.75	2.70	–	2	2
Opening 1		–	–	9.00	17.00	8.00	–	–	5.00	2	2
Segment 2		–	–	17.00	20.00	3.00	2.75	2.70	–	2	2
Level 1											
Line A		1	0.00	6.00	20.00	14.00	14.00	–	9.10	–	–
Wall A-1	FT	1	0.00	6.00	20.00	14.00	14.00	–	–	2	2
Segment 1		–	–	6.00	10.00	4.00	3.75	1.25	–	–	–
Opening 1		–	–	10.00	16.00	6.00	–	–	5.00	–	–
Segment 2		–	–	16.00	20.00	4.00	3.75	1.25	–	–	–
Line B											
Level 1											
Line B			4.00	2.00	20.00	18.00	0.00	–	9.10	–	–
Wall B-1	Prf		4.00	2.00	6.00	4.00	0.00	–	–	2	2
Segment 1		–	–	2.00	2.75	0.75	0.75	12.13	–	–	–
Opening 1		–	–	2.75	5.75	3.00	3.00	–	6.75	–	–
Segment 2		–	–	5.75	6.00	0.25	0.25	36.40	–	–	–
Line C											
Level 2											
Line C	Prf		11.75	0.00	20.00	20.00	-0.25	–	8.10	–	–
Wall C-1	Prf		11.75	0.00	2.00	2.00	0.00	4.05	–	2	2

SHEARLINE, WALL and OPENING DIMENSIONS (continued)

Level 1											
Line C	Prf		11.75	0.00	20.00	20.00	-0.25	-	9.10	-	-
Wall C-1	Prf		11.75	0.00	2.00	2.00	0.00	4.55	-	2	2
Line D											
Level 2											
Line D	NSW		31.50	0.00	2.00	2.00	0.00	-	8.10	-	-
Wall D-1	NSW		31.50	0.00	2.00	2.00	0.00	1.00	-	2	2
Level 1											
Line D	NSW		31.50	0.00	2.00	2.00	0.00	-	9.10	-	-
Wall D-1	NSW		31.50	0.00	2.00	2.00	0.00	1.00	-	2	2
Line E											
Level 2											
Line E		3,1	52.69	2.00	20.00	18.00	12.50	-	8.10	-	-
Wall E-1	FT	1	53.00	2.00	14.50	12.50	12.50	-	-	2	2
Segment 1		-	-	2.00	5.25	3.25	3.00	1.54	-	-	-
Opening 1		-	-	5.25	11.25	6.00	-	-	5.00	-	-
Segment 2		-	-	11.25	14.50	3.25	3.00	1.54	-	-	-
Wall E-2	Prf	3	52.00	14.50	20.00	5.50	0.00	-	-	2	2
Segment 1		-	-	14.50	15.25	0.75	0.75	10.80	-	-	-
Opening 1		-	-	15.25	18.25	3.00	3.00	-	1.00	-	-
Segment 2		-	-	18.25	20.00	1.75	1.75	4.63	-	-	-
Level 1											
Line E		2	51.00	2.00	20.00	18.00	6.00	-	9.10	-	-
Wall E-1	Seg	2	51.00	2.00	20.00	18.00	6.00	-	-	2	2
Segment 1		-	-	2.00	5.00	3.00	2.75	3.03	-	2	2
Opening 1		-	-	5.00	17.00	12.00	-	-	7.00	2	2
Segment 2		-	-	17.00	20.00	3.00	2.75	3.03	-	2	2

Legend:
Type – Seg = Segmented, Prf = Perforated, FT = FTAO (force transfer around openings), NSW = non-shearwall
Location – Position in structure perpendicular to wall
Length – Shear line: Distance between exterior perpendicular walls defining the shear line extent
Wall, segment, or opening: End-to-end length of the element
FHS – Depending on element, shows different definitions of full-height sheathing length (FHS):
Shear lines with multiple walls, segmented walls, or FTAO walls: Total shear-resisting FHS
Individual wall segments or walls without openings: Distance between hold-downs beff
Perforated walls: Sum of factored segment lengths bi defined in SDPWS 4.3.5.6
Aspect Ratio – Ratio of wall height to segment length (h/b); for FTAO walls, the aspect ratio of the central pier
Wall Group – Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall
Studs: Number of end studs at the south and north or west and east ends of a wall segment or a perforated or FTAO wall.
If two wall group numbers listed, they are for rigid diaphragm and flexible diaphragm design.

Loads

WIND SHEAR LOADS (as entered or generated)

Level 2 Block	F	Element	Load Case	Wnd Dir	Surf Dir	Prof	Location [ft] Start	Location [ft] End	Magnitude [lbs,plf,psf] Start	Magnitude [lbs,plf,psf] End	Trib Ht [ft]
Block 1	W	Wall	Min	W->E	Wind	Line	-2.00	2.00	32.4		
Block 1	W	Wall	1	W->E	Wind	Line	-2.00	2.00	40.0		
Block 1	W	L Gable	Min	W->E	Wind	Line	2.00	27.00	0.0	66.5	
Block 1	W	Wall	Min	W->E	Wind	Line	2.00	11.75	32.4		
Block 1	W	L Gable	1	W->E	Wind	Line	2.00	27.00	0.0	87.6	
Block 1	W	Wall	1	W->E	Wind	Line	2.00	11.75	40.0		
Block 1	W	Wall	1	W->E	Wind	Line	11.75	31.50	40.0		
Block 1	W	Wall	Min	W->E	Wind	Line	11.75	31.50	32.4		
Block 1	W	R Gable	Min	W->E	Wind	Line	27.00	52.00	66.5	0.0	
Block 1	W	R Gable	1	W->E	Wind	Line	27.00	52.00	87.6	0.0	
Block 1	W	Wall	Min	W->E	Wind	Line	31.50	53.00	32.4		
Block 1	W	Wall	1	W->E	Wind	Line	31.50	53.00	40.0		
Block 1	E	Wall	1	W->E	Lee	Line	-2.00	52.00	27.1		
Block 1	E	Wall	Min	W->E	Lee	Line	-2.00	52.00	32.4		
Block 1	E	L Gable	Min	W->E	Lee	Line	2.00	27.00	0.0	66.5	
Block 1	E	L Gable	1	W->E	Lee	Line	2.00	27.00	0.0	55.7	
Block 1	E	R Gable	1	W->E	Lee	Line	27.00	52.00	55.7	0.0	
Block 1	E	R Gable	Min	W->E	Lee	Line	27.00	52.00	66.5	0.0	
Block 1	E	Wall	Min	W->E	Lee	Line	52.00	53.00	32.4		
Block 1	E	Wall	1	W->E	Lee	Line	52.00	53.00	27.1		
Block 1	W	Wall	1	E->W	Lee	Line	-2.00	2.00	27.1		
Block 1	W	Wall	Min	E->W	Lee	Line	-2.00	2.00	32.4		
Block 1	W	Wall	1	E->W	Lee	Line	2.00	11.75	27.1		
Block 1	W	L Gable	1	E->W	Lee	Line	2.00	27.00	0.0	55.7	
Block 1	W	Wall	Min	E->W	Lee	Line	2.00	11.75	32.4		
Block 1	W	L Gable	Min	E->W	Lee	Line	2.00	27.00	0.0	66.5	
Block 1	W	Wall	Min	E->W	Lee	Line	11.75	31.50	32.4		
Block 1	W	Wall	1	E->W	Lee	Line	11.75	31.50	27.1		
Block 1	W	R Gable	Min	E->W	Lee	Line	27.00	52.00	66.5	0.0	
Block 1	W	R Gable	1	E->W	Lee	Line	27.00	52.00	55.7	0.0	
Block 1	W	Wall	1	E->W	Lee	Line	31.50	53.00	27.1		
Block 1	W	Wall	Min	E->W	Lee	Line	31.50	53.00	32.4		
Block 1	E	Wall	1	E->W	Wind	Line	-2.00	52.00	40.0		
Block 1	E	Wall	Min	E->W	Wind	Line	-2.00	52.00	32.4		
Block 1	E	L Gable	Min	E->W	Wind	Line	2.00	27.00	0.0	66.5	
Block 1	E	L Gable	1	E->W	Wind	Line	2.00	27.00	0.0	87.6	
Block 1	E	R Gable	Min	E->W	Wind	Line	27.00	52.00	66.5	0.0	
Block 1	E	R Gable	1	E->W	Wind	Line	27.00	52.00	87.6	0.0	
Block 1	E	Wall	1	E->W	Wind	Line	52.00	53.00	40.0		
Block 1	E	Wall	Min	E->W	Wind	Line	52.00	53.00	32.4		
Block 1	S	Wall	1	S->N	Wind	Line	0.00	2.00	40.0		
Block 1	S	Wall	Min	S->N	Wind	Line	0.00	2.00	32.4		
Block 1	S	Roof	1	S->N	Wind	Line	1.00	21.25	-7.1		
Block 1	S	Roof	Min	S->N	Wind	Line	1.00	21.25	35.9		
Block 1	S	Wall	Min	S->N	Wind	Line	2.00	6.00	32.4		
Block 1	S	Wall	1	S->N	Wind	Line	2.00	6.00	40.0		
Block 1	S	Wall	Min	S->N	Wind	Line	6.00	20.00	32.4		
Block 1	S	Wall	1	S->N	Wind	Line	6.00	20.00	40.0		
Block 1	N	Wall	Min	S->N	Lee	Line	0.00	2.00	32.4		
Block 1	N	Wall	1	S->N	Lee	Line	0.00	2.00	14.3		
Block 1	N	Roof	Min	S->N	Lee	Line	1.00	21.25	35.9		
Block 1	N	Roof	1	S->N	Lee	Line	1.00	21.25	68.4		
Block 1	N	Wall	Min	S->N	Lee	Line	2.00	14.50	32.4		
Block 1	N	Wall	1	S->N	Lee	Line	2.00	14.50	14.3		
Block 1	N	Wall	1	S->N	Lee	Line	14.50	20.00	14.3		
Block 1	N	Wall	Min	S->N	Lee	Line	14.50	20.00	32.4		
Block 1	S	Wall	1	N->S	Lee	Line	0.00	2.00	14.3		
Block 1	S	Wall	Min	N->S	Lee	Line	0.00	2.00	32.4		
Block 1	S	Roof	1	N->S	Lee	Line	1.00	21.25	68.4		
Block 1	S	Roof	Min	N->S	Lee	Line	1.00	21.25	35.9		
Block 1	S	Wall	1	N->S	Lee	Line	2.00	6.00	14.3		
Block 1	S	Wall	Min	N->S	Lee	Line	2.00	6.00	32.4		
Block 1	S	Wall	Min	N->S	Lee	Line	6.00	20.00	32.4		
Block 1	S	Wall	1	N->S	Lee	Line	6.00	20.00	14.3		
Block 1	N	Wall	Min	N->S	Wind	Line	0.00	2.00	32.4		
Block 1	N	Wall	1	N->S	Wind	Line	0.00	2.00	40.0		
Block 1	N	Roof	Min	N->S	Wind	Line	1.00	21.25	35.9		
Block 1	N	Roof	1	N->S	Wind	Line	1.00	21.25	-7.1		
Block 1	N	Wall	1	N->S	Wind	Line	2.00	14.50	40.0		

WIND SHEAR LOADS (as entered or generated) (continued)

Block 1	N	Wall	Min	N->S	Wind	Line	2.00	14.50	32.4		
Block 1	N	Wall	1	N->S	Wind	Line	14.50	20.00	40.0		
Block 1	N	Wall	Min	N->S	Wind	Line	14.50	20.00	32.4		
Block 2	W	Ctr Roof	Min	W->E	Wind	Line	-3.00	-0.00	137.0		
Block 2	W	R Roof	Min	W->E	Wind	Line	-0.00	16.25	68.5	0.0	
Block 2	E	Ctr Roof	1	W->E	Lee	Line	-3.00	2.00	37.3		
Block 2	E	Ctr Roof	Min	W->E	Lee	Line	-3.00	2.00	19.0		
Block 2	E	R Roof	Min	W->E	Lee	Line	2.00	16.25	19.0	0.0	
Block 2	E	R Roof	1	W->E	Lee	Line	2.00	16.25	37.3	0.0	
Block 2	W	Ctr Roof	Min	E->W	Lee	Line	-3.00	-0.00	137.0		
Block 2	W	R Roof	Min	E->W	Lee	Line	-0.00	16.25	68.5	0.0	
Block 2	E	Ctr Roof	Min	E->W	Wind	Line	-3.00	2.00	19.0		
Block 2	E	Ctr Roof	1	E->W	Wind	Line	-3.00	2.00	49.7		
Block 2	E	R Roof	1	E->W	Wind	Line	2.00	16.25	49.7	0.0	
Block 2	E	R Roof	Min	E->W	Wind	Line	2.00	16.25	19.0	0.0	
Block 2	S	L Gable	Min	S->N	Wind	Line	6.00	20.25	0.0	37.9	
Block 2	S	L Gable	1	S->N	Wind	Line	6.00	20.25	0.0	49.2	
Block 2	S	L Gable	Min	N->S	Lee	Line	6.00	20.25	0.0	37.9	
Block 2	S	L Gable	1	N->S	Lee	Line	6.00	20.25	0.0	31.1	
Block 3	W	L Gable	1	W->E	Wind	Line	52.00	52.43	0.0	1.4	
Block 3	W	L Gable	Min	W->E	Wind	Line	52.00	52.43	0.0	1.1	
Block 3	W	R Gable	1	W->E	Wind	Line	52.43	53.00	1.4	0.0	
Block 3	W	R Gable	Min	W->E	Wind	Line	52.43	53.00	1.1	0.0	
Block 3	E	L Gable	Min	W->E	Lee	Line	52.00	52.43	0.0	1.1	
Block 3	E	L Gable	1	W->E	Lee	Line	52.00	52.43	0.0	0.4	
Block 3	E	R Gable	1	W->E	Lee	Line	52.43	53.00	0.4	0.0	
Block 3	E	R Gable	Min	W->E	Lee	Line	52.43	53.00	1.1	0.0	
Block 3	W	L Gable	1	E->W	Lee	Line	52.00	52.43	0.0	0.4	
Block 3	W	L Gable	Min	E->W	Lee	Line	52.00	52.43	0.0	1.1	
Block 3	W	R Gable	1	E->W	Lee	Line	52.43	53.00	0.4	0.0	
Block 3	W	R Gable	Min	E->W	Lee	Line	52.43	53.00	1.1	0.0	
Block 3	E	L Gable	Min	E->W	Wind	Line	52.00	52.43	0.0	1.1	
Block 3	E	L Gable	1	E->W	Wind	Line	52.00	52.43	0.0	1.4	
Block 3	E	R Gable	1	E->W	Wind	Line	52.43	53.00	1.4	0.0	
Block 3	E	R Gable	Min	E->W	Wind	Line	52.43	53.00	1.1	0.0	
Block 3	S	Roof	Min	S->N	Wind	Line	1.00	15.75	2.5		
Block 3	S	Roof	1	S->N	Wind	Line	1.00	15.75	-1.9		
Block 3	N	Roof	Min	S->N	Lee	Line	1.00	15.75	2.6		
Block 3	N	Roof	1	S->N	Lee	Line	1.00	15.75	5.1		
Block 3	S	Roof	1	N->S	Lee	Line	1.00	15.75	6.2		
Block 3	S	Roof	Min	N->S	Lee	Line	1.00	15.75	2.5		
Block 3	N	Roof	Min	N->S	Wind	Line	1.00	15.75	2.6		
Block 3	N	Roof	1	N->S	Wind	Line	1.00	15.75	-1.5		
Block 4	W	L Gable	Min	W->E	Wind	Line	11.75	21.63	0.0	26.3	
Block 4	W	L Gable	1	W->E	Wind	Line	11.75	21.63	0.0	33.9	
Block 4	W	R Gable	Min	W->E	Wind	Line	21.63	31.50	26.3	0.0	
Block 4	W	R Gable	1	W->E	Wind	Line	21.63	31.50	33.9	0.0	
Block 4	W	L Gable	Min	E->W	Lee	Line	11.75	21.63	0.0	26.3	
Block 4	W	L Gable	1	E->W	Lee	Line	11.75	21.63	0.0	21.4	
Block 4	W	R Gable	1	E->W	Lee	Line	21.63	31.50	21.4	0.0	
Block 4	W	R Gable	Min	E->W	Lee	Line	21.63	31.50	26.3	0.0	
Block 4	S	Roof	Min	S->N	Wind	Line	-1.00	2.00	15.8		
Block 4	S	Roof	1	S->N	Wind	Line	-1.00	2.00	-9.2		
Block 4	N	Roof	1	S->N	Lee	Line	-1.00	2.00	30.8		
Block 4	N	Roof	Min	S->N	Lee	Line	-1.00	2.00	15.8		
Block 4	S	Roof	Min	N->S	Lee	Line	-1.00	2.00	15.8		
Block 4	S	Roof	1	N->S	Lee	Line	-1.00	2.00	30.8		
Block 4	N	Roof	1	N->S	Wind	Line	-1.00	2.00	-9.2		
Block 4	N	Roof	Min	N->S	Wind	Line	-1.00	2.00	15.8		

Level 1 Block	F	Element	Load Case	Wnd Dir	Surf Dir	Prof	Location [ft] Start	Location [ft] End	Magnitude [lbs,plf,psf] Start	Magnitude [lbs,plf,psf] End	Trib Ht [ft]
Block 1	W	Wall	1	W->E	Wind	Line	-2.00	2.00	37.8		
Block 1	W	Wall	Min	W->E	Wind	Line	-2.00	2.00	32.4		
Block 1	W	Wall	Min	W->E	Wind	Line	0.00	4.00	45.1		
Block 1	W	Wall	1	W->E	Wind	Line	0.00	4.00	52.0		
Block 1	W	Wall	Min	W->E	Wind	Line	2.00	11.75	32.4		
Block 1	W	Wall	1	W->E	Wind	Line	2.00	11.75	37.8		
Block 1	W	Wall	1	W->E	Wind	Line	4.00	11.75	52.0		
Block 1	W	Wall	Min	W->E	Wind	Line	4.00	11.75	45.1		
Block 1	W	Wall	Min	W->E	Wind	Line	11.75	31.50	32.4		

WIND SHEAR LOADS (as entered or generated) (continued)

Block 1	W	Wall	1	W->E	Wind	Line	11.75	31.50	37.8
Block 1	W	Wall	1	W->E	Wind	Line	11.75	31.50	52.0
Block 1	W	Wall	Min	W->E	Wind	Line	11.75	31.50	45.1
Block 1	W	Wall	1	W->E	Wind	Line	31.50	53.00	37.8
Block 1	W	Wall	1	W->E	Wind	Line	31.50	51.00	52.0
Block 1	W	Wall	Min	W->E	Wind	Line	31.50	51.00	45.1
Block 1	W	Wall	Min	W->E	Wind	Line	31.50	53.00	32.4
Block 1	E	Wall	1	W->E	Lee	Line	-2.00	52.00	27.1
Block 1	E	Wall	Min	W->E	Lee	Line	-2.00	52.00	32.4
Block 1	E	Wall	1	W->E	Lee	Line	0.00	51.00	37.7
Block 1	E	Wall	Min	W->E	Lee	Line	0.00	51.00	45.1
Block 1	E	Wall	1	W->E	Lee	Line	52.00	53.00	27.1
Block 1	E	Wall	Min	W->E	Lee	Line	52.00	53.00	32.4
Block 1	W	Wall	1	E->W	Lee	Line	-2.00	2.00	27.1
Block 1	W	Wall	Min	E->W	Lee	Line	-2.00	2.00	32.4
Block 1	W	Wall	1	E->W	Lee	Line	0.00	4.00	37.7
Block 1	W	Wall	Min	E->W	Lee	Line	0.00	4.00	45.1
Block 1	W	Wall	Min	E->W	Lee	Line	2.00	11.75	32.4
Block 1	W	Wall	1	E->W	Lee	Line	2.00	11.75	27.1
Block 1	W	Wall	Min	E->W	Lee	Line	4.00	11.75	45.1
Block 1	W	Wall	1	E->W	Lee	Line	4.00	11.75	37.7
Block 1	W	Wall	Min	E->W	Lee	Line	11.75	31.50	45.1
Block 1	W	Wall	1	E->W	Lee	Line	11.75	31.50	27.1
Block 1	W	Wall	Min	E->W	Lee	Line	11.75	31.50	32.4
Block 1	W	Wall	1	E->W	Lee	Line	11.75	31.50	37.7
Block 1	W	Wall	Min	E->W	Lee	Line	31.50	53.00	32.4
Block 1	W	Wall	Min	E->W	Lee	Line	31.50	51.00	45.1
Block 1	W	Wall	1	E->W	Lee	Line	31.50	51.00	37.7
Block 1	W	Wall	1	E->W	Lee	Line	31.50	53.00	27.1
Block 1	E	Wall	1	E->W	Wind	Line	-2.00	52.00	37.8
Block 1	E	Wall	Min	E->W	Wind	Line	-2.00	52.00	32.4
Block 1	E	Wall	1	E->W	Wind	Line	0.00	51.00	52.0
Block 1	E	Wall	Min	E->W	Wind	Line	0.00	51.00	45.1
Block 1	E	Wall	1	E->W	Wind	Line	52.00	53.00	37.8
Block 1	E	Wall	Min	E->W	Wind	Line	52.00	53.00	32.4
Block 1	S	Wall	1	S->N	Wind	Line	0.00	2.00	52.0
Block 1	S	Wall	1	S->N	Wind	Line	0.00	2.00	37.8
Block 1	S	Wall	Min	S->N	Wind	Line	0.00	2.00	45.1
Block 1	S	Wall	Min	S->N	Wind	Line	0.00	2.00	32.4
Block 1	S	Wall	Min	S->N	Wind	Line	2.00	6.00	32.4
Block 1	S	Wall	Min	S->N	Wind	Line	2.00	6.00	45.1
Block 1	S	Wall	1	S->N	Wind	Line	2.00	6.00	52.0
Block 1	S	Wall	1	S->N	Wind	Line	2.00	6.00	37.8
Block 1	S	Wall	1	S->N	Wind	Line	6.00	20.00	37.8
Block 1	S	Wall	1	S->N	Wind	Line	6.00	20.00	52.0
Block 1	S	Wall	Min	S->N	Wind	Line	6.00	20.00	32.4
Block 1	S	Wall	Min	S->N	Wind	Line	6.00	20.00	45.1
Block 1	N	Wall	Min	S->N	Lee	Line	0.00	2.00	45.1
Block 1	N	Wall	1	S->N	Lee	Line	0.00	2.00	14.3
Block 1	N	Wall	Min	S->N	Lee	Line	0.00	2.00	32.4
Block 1	N	Wall	1	S->N	Lee	Line	0.00	2.00	19.8
Block 1	N	Wall	1	S->N	Lee	Line	2.00	20.00	19.8
Block 1	N	Wall	Min	S->N	Lee	Line	2.00	14.50	32.4
Block 1	N	Wall	1	S->N	Lee	Line	2.00	14.50	14.3
Block 1	N	Wall	Min	S->N	Lee	Line	2.00	20.00	45.1
Block 1	N	Wall	Min	S->N	Lee	Line	14.50	20.00	32.4
Block 1	N	Wall	1	S->N	Lee	Line	14.50	20.00	14.3
Block 1	S	Wall	1	N->S	Lee	Line	0.00	2.00	14.3
Block 1	S	Wall	1	N->S	Lee	Line	0.00	2.00	19.8
Block 1	S	Wall	Min	N->S	Lee	Line	0.00	2.00	45.1
Block 1	S	Wall	Min	N->S	Lee	Line	0.00	2.00	32.4
Block 1	S	Wall	1	N->S	Lee	Line	2.00	6.00	14.3
Block 1	S	Wall	Min	N->S	Lee	Line	2.00	6.00	45.1
Block 1	S	Wall	1	N->S	Lee	Line	2.00	6.00	19.8
Block 1	S	Wall	Min	N->S	Lee	Line	2.00	6.00	32.4
Block 1	S	Wall	Min	N->S	Lee	Line	6.00	20.00	45.1
Block 1	S	Wall	Min	N->S	Lee	Line	6.00	20.00	32.4
Block 1	S	Wall	1	N->S	Lee	Line	6.00	20.00	14.3
Block 1	S	Wall	1	N->S	Lee	Line	6.00	20.00	19.8
Block 1	N	Wall	1	N->S	Wind	Line	0.00	2.00	37.8
Block 1	N	Wall	Min	N->S	Wind	Line	0.00	2.00	45.1
Block 1	N	Wall	Min	N->S	Wind	Line	0.00	2.00	32.4
Block 1	N	Wall	1	N->S	Wind	Line	0.00	2.00	52.0

WIND SHEAR LOADS (as entered or generated) (continued)

Block 1	N	Wall	Min	N->S	Wind	Line	2.00	20.00	45.1
Block 1	N	Wall	1	N->S	Wind	Line	2.00	20.00	52.0
Block 1	N	Wall	Min	N->S	Wind	Line	2.00	14.50	32.4
Block 1	N	Wall	1	N->S	Wind	Line	2.00	14.50	37.8
Block 1	N	Wall	Min	N->S	Wind	Line	14.50	20.00	32.4
Block 1	N	Wall	1	N->S	Wind	Line	14.50	20.00	37.8

Legend:
Block - Block used in load generation
Accum. = loads from one block combined with another
Manual = user-entered loads (so no block)
F - Building face (north, south, east or west)
Element - Building surface on which loads generated or entered
Load Case - One of the following:
ASCE 7 All Heights: Case 1 or 2 from Fig 27.3-8 or minimum loads from 27.1.5
ASCE 7 Low-rise: Reference corner and Case A or B from Fig 28.3-1 or minimum loads from 28.3.4
Wind Dir - Direction of wind for loads with positive magnitude, also direction of MWFRS.
Surf Dir - Windward or leeward side of the building for loads in given direction
Prof - Profile (distribution)
Location - Start and end points on building element
Magnitude - Start = intensity of uniform and point loads or leftmost intensity of trapezoidal load, End = right intensity of trap load
Trib Ht - Tributary height of area loads only

Notes:
Windward load on the monoslope roof was not generated, to comply with ASCE 7 Figure 27.3-1, Note 7.
All loads entered by the user or generated by program are specified (unfactored) loads.The program applies a load factor of 0.60 to wind loads before distributing them to the shearlines.

DEAD LOADS (for hold-down calculations)

Shear Line	Level	Profile	Tributary Width [ft]	Location [ft] Start	Location [ft] End	Mag [lbs,psf,psi] Start	Mag [lbs,psf,psi] End
A	2	Line		6.00	20.00	97.2*	
B	2	Line		2.00	6.00	97.2*	
C	2	Line		0.00	2.00	97.2*	
D	2	Line		0.00	2.00	97.2*	
E	2	Line		2.00	14.50	97.2*	
E	2	Line		14.50	20.00	97.2*	
1	2	Line		2.00	11.75	97.2*	
1	2	Line		11.75	31.50	97.2*	
1	2	Line		31.50	53.00	97.2*	
2	2	Line		-2.00	2.00	97.2*	
3	2	Line		52.00	53.00	97.2*	
4	2	Line		-2.00	52.00	97.2*	
A	1	Line		6.00	20.00	109.2*	
B	1	Line		2.00	6.00	109.2*	
C	1	Line		0.00	2.00	109.2*	
D	1	Line		0.00	2.00	109.2*	
E	1	Line		2.00	20.00	109.2*	
1	1	Line		4.00	11.75	109.2*	
1	1	Line		11.75	31.50	109.2*	
1	1	Line		31.50	51.00	109.2*	
2	1	Line		0.00	4.00	109.2*	
4	1	Line		0.00	51.00	109.2*	

BUILDING MASSES

Level 2 Force Dir	Building Element	Block	Wall Line	Profile	Location [ft] Start	Location [ft] End	Magnitude [lbs,plf,psf] Start	Magnitude [lbs,plf,psf] End	Trib Width [ft]
E-W	Roof	Block 1		Line	0.00	54.00	192.4	192.4	
E-W	Roof	Block 1		Line	0.00	54.00	192.4	192.4	
E-W	Roof	Block 2	2	Line	-3.00	2.00	173.4	173.4	
E-W	Roof	Block 2		Line	-3.00	2.00	135.4	135.4	
E-W	Roof	Block 3		Line	50.00	55.00	140.1	140.1	
E-W	Roof	Block 3		Line	50.00	55.00	140.1	140.1	
E-W	Roof	Block 4	1	Line	9.75	33.50	38.0	38.0	
E-W	Roof	Block 4		Line	9.75	33.50	19.0	19.0	
E-W	R Gable	Block 1		Line	2.00	27.00	99.8	0.0	
E-W	L Gable	Block 1		Line	27.00	52.00	0.0	99.8	
E-W	L Gable	Block 1		Line	2.00	27.00	99.8	0.0	
E-W	R Gable	Block 1		Line	27.00	52.00	0.0	99.8	
E-W	R Gable	Block 3		Line	52.00	52.43	1.7	0.0	
E-W	L Gable	Block 3		Line	52.43	53.00	0.0	1.7	
E-W	L Gable	Block 3		Line	52.00	52.43	1.7	0.0	
E-W	R Gable	Block 3		Line	52.43	53.00	0.0	1.7	
E-W	R Gable	Block 4	1	Line	11.75	21.63	39.4	0.0	
E-W	L Gable	Block 4	1	Line	21.63	31.50	0.0	39.4	
N-S	Roof	Block 1		Line	1.00	21.25	513.0	513.0	
N-S	Roof	Block 1		Line	1.00	21.25	513.0	513.0	
N-S	Roof	Block 2	A	Line	4.00	20.25	57.0	57.0	
N-S	Roof	Block 2		Line	4.00	20.25	38.0	38.0	
N-S	Roof	Block 3		Line	1.00	15.75	47.5	47.5	
N-S	Roof	Block 3		Line	1.00	15.75	47.5	47.5	
N-S	Roof	Block 4	C	Line	-1.00	2.00	225.6	225.6	
N-S	Roof	Block 4	D	Line	-1.00	2.00	225.6	225.6	
N-S	L Gable	Block 2	A	Line	6.00	20.25	56.9	0.0	
N-S	R Gable	Block 2	A	Line	20.25	20.25	0.0	56.9	
Both	Wall 1-2	n/a	1	Line	11.75	31.50	48.6	48.6	
Both	Wall 1-1	n/a		Line	2.00	11.75	48.6	48.6	
Both	Wall 1-3	n/a		Line	31.50	53.00	48.6	48.6	
Both	Wall 2-1	n/a	2	Line	-2.00	2.00	48.6	48.6	
Both	Wall 3-1	n/a	3	Line	52.00	53.00	48.6	48.6	
Both	Wall 4-1	n/a	4	Line	-2.00	52.00	48.6	48.6	
Both	Wall A-2	n/a	A	Line	6.00	20.00	48.6	48.6	
Both	Wall A-1	n/a		Line	2.00	6.00	48.6	48.6	
Both	Wall C-1	n/a	C	Line	0.00	2.00	48.6	48.6	
Both	Wall D-1	n/a	D	Line	0.00	2.00	48.6	48.6	
Both	Wall E-2	n/a		Line	14.50	20.00	48.6	48.6	
Both	Wall E-1	n/a		Line	2.00	14.50	48.6	48.6	

Level 1 Force Dir	Building Element	Block	Wall Line	Profile	Location [ft] Start	Location [ft] End	Magnitude [lbs,plf,psf] Start	Magnitude [lbs,plf,psf] End	Trib Width [ft]
E-W	Floor F3	n/a	1	Line	11.75	31.50	150.0	150.0	
Both	Wall 1-2	n/a	1	Line	11.75	31.50	48.6	48.6	
Both	Wall 1-1	n/a		Line	2.00	11.75	48.6	48.6	
E-W	Floor F2	n/a		Line	4.00	11.75	135.0	135.0	
Both	Wall 1-3	n/a		Line	31.50	53.00	48.6	48.6	
E-W	Floor F4	n/a		Line	31.50	51.00	135.0	135.0	
Both	Wall 2-1	n/a	2	Line	-2.00	2.00	48.6	48.6	
E-W	Floor F1	n/a	2	Line	0.00	4.00	105.0	105.0	
Both	Wall 3-1	n/a	3	Line	52.00	53.00	48.6	48.6	
Both	Wall 4-1	n/a	4	Line	-2.00	52.00	48.6	48.6	
E-W	Floor F1	n/a	4	Line	0.00	4.00	105.0	105.0	
E-W	Floor F2	n/a	4	Line	4.00	11.75	135.0	135.0	
E-W	Floor F3	n/a	4	Line	11.75	31.50	150.0	150.0	
E-W	Floor F4	n/a	4	Line	31.50	51.00	135.0	135.0	

BUILDING MASSES (continued)

Both	Wall A-2	n/a	A	Line	6.00	20.00	48.6	48.6
N-S	Floor F3	n/a		Line	6.00	20.00	382.5	382.5
Both	Wall A-1	n/a		Line	2.00	6.00	48.6	48.6
N-S	Floor F2	n/a	B	Line	2.00	6.00	352.5	352.5
N-S	Floor F1	n/a	C	Line	0.00	2.00	148.1	148.1
Both	Wall C-1	n/a	C	Line	0.00	2.00	48.6	48.6
Both	Wall D-1	n/a	D	Line	0.00	2.00	48.6	48.6
N-S	Floor F1	n/a	D	Line	0.00	2.00	148.1	148.1
N-S	Floor F2	n/a	E	Line	2.00	6.00	352.5	352.5
N-S	Floor F3	n/a	E	Line	6.00	20.00	382.5	382.5
Both	Wall E-2	n/a		Line	14.50	20.00	48.6	48.6
Both	Wall E-1	n/a		Line	2.00	14.50	48.6	48.6
Both	Wall 1-2	n/a	1	Line	11.75	31.50	54.6	54.6
Both	Wall 1-1	n/a		Line	4.00	11.75	54.6	54.6
Both	Wall 1-3	n/a		Line	31.50	51.00	54.6	54.6
Both	Wall 2-1	n/a	2	Line	0.00	4.00	54.6	54.6
Both	Wall 4-1	n/a	4	Line	0.00	51.00	54.6	54.6
Both	Wall A-1	n/a		Line	6.00	20.00	54.6	54.6
Both	Wall B-1	n/a	B	Line	2.00	6.00	54.6	54.6
Both	Wall C-1	n/a	C	Line	0.00	2.00	54.6	54.6
Both	Wall D-1	n/a	D	Line	0.00	2.00	54.6	54.6
Both	Wall E-1	n/a	E	Line	2.00	20.00	54.6	54.6

Legend:
Force Dir - Direction in which the mass is used for seismic load generation, E-W, N-S, or Both
Building element - Roof, gable end, wall or floor area used to generate mass, wall line for user-applied masses, Floor F# - refer to Plan View for floor area number
Wall line - Shearline that equivalent line load is assigned to
Location - Start and end points of equivalent line load on wall line
Trib Width. - Tributary width; for user applied area loads only

SEISMIC LOADS

Level 2

Force Dir	Profile	Location [ft] Start	Location [ft] End	Mag [lbs,plf,psf] Start	Mag [lbs,plf,psf] End
E-W	Line	-3.00	-2.00	38.2	38.2
E-W	Point	-2.00	-2.00	134	134
E-W	Line	-2.00	0.00	50.2	50.2
E-W	Line	0.00	2.00	97.8	97.8
E-W	Point	2.00	2.00	24	24
E-W	Line	2.00	9.75	59.6	67.3
E-W	Line	9.75	11.75	74.3	76.3
E-W	Point	11.75	11.75	12	12
E-W	Line	11.75	21.63	76.3	90.9
E-W	Line	21.63	27.00	90.9	93.6
E-W	Line	27.00	31.50	93.6	86.9
E-W	Point	31.50	31.50	12	12
E-W	Line	31.50	33.50	86.9	84.9
E-W	Line	33.50	50.00	77.9	61.6
E-W	Line	50.00	52.00	96.2	94.3
E-W	Point	52.00	52.00	33	33
E-W	Line	52.00	52.43	94.3	94.7
E-W	Line	52.43	53.00	94.7	94.3
E-W	Point	53.00	53.00	75	75
E-W	Line	53.00	54.00	82.2	82.2
E-W	Line	54.00	55.00	34.7	34.7
N-S	Line	-1.00	0.00	55.8	55.8
N-S	Point	0.00	0.00	167	167
N-S	Line	0.00	1.00	67.8	67.8
N-S	Line	1.00	2.00	206.5	206.5
N-S	Point	2.00	2.00	496	496
N-S	Line	2.00	4.00	150.6	150.6
N-S	Line	4.00	6.00	162.4	162.4
N-S	Point	6.00	6.00	24	24
N-S	Line	6.00	14.50	162.4	166.6
N-S	Point	14.50	14.50	6	6
N-S	Line	14.50	15.75	166.6	167.2
N-S	Point	14.75	14.75	0	0
N-S	Line	15.75	20.00	155.5	157.6
N-S	Point	20.00	20.00	325	325
N-S	Line	20.00	20.25	145.5	145.7
N-S	Point	20.25	20.25	309	309
N-S	Line	20.25	21.25	133.9	126.9

Level 1

Force Dir	Profile	Location [ft] Start	Location [ft] End	Mag [lbs,plf,psf] Start	Mag [lbs,plf,psf] End
E-W	Point	-2.00	-2.00	47	47
E-W	Line	-2.00	0.00	6.7	6.7
E-W	Point	0.00	0.00	53	53
E-W	Line	0.00	2.00	28.7	28.7
E-W	Point	2.00	2.00	13	13
E-W	Line	2.00	4.00	28.7	28.7
E-W	Point	4.00	4.00	15	15
E-W	Line	4.00	11.75	32.8	32.8
E-W	Point	11.75	11.75	14	14
E-W	Line	11.75	31.50	34.9	34.9
E-W	Point	31.50	31.50	14	14
E-W	Line	31.50	51.00	32.8	32.8
E-W	Point	51.00	51.00	68	68
E-W	Line	51.00	52.00	6.7	6.7
E-W	Point	52.00	52.00	18	18
E-W	Line	52.00	53.00	6.7	6.7
E-W	Point	53.00	53.00	42	42
N-S	Point	0.00	0.00	140	140
N-S	Line	0.00	2.00	34.6	34.6
N-S	Point	2.00	2.00	207	207
N-S	Line	2.00	6.00	62.8	62.8
N-S	Point	6.00	6.00	28	28
N-S	Line	6.00	14.50	66.9	66.9
N-S	Point	14.50	14.50	3	3
N-S	Line	14.50	20.00	66.9	66.9

SEISMIC LOADS (continued)

N-S	Point	20.00	20.00	373	373

Legend:
Loads in table can be accumulation of loads from several building masses, so they do not correspond with a particular building element.
Location - Start and end of load in direction perpendicular to seismic force direction

Notes:
All loads entered by the user or generated by program are specified (unfactored) loads.The program applies a load factor of 0.70 and redundancy factor to seismic loads before distributing them to the shearlines.

Design Summary

SHEARWALL DESIGN

Wind Shear Loads, Flexible Diaphragm
The following under-capacity shear walls were found:
Level 1: E-1

Seismic Loads, Flexible Diaphragm
All shearwalls have sufficient design capacity.

ALL ELEMENTS INDICATED AS "UNDER-CAPACITY" HAVE BEEN REVIEWED AND EITHER APPROVED WITH MINOR OVERSTRESSES AND/OR DESIGN REVISED ON FINAL DOCS

HOLD-DOWN DESIGN

Wind Loads, Flexible Diaphragm
Under-capacity hold-downs were found on the following walls:
Level 1: A-1, E-1

Seismic Loads, Flexible Diaphragm
All hold-downs have sufficient design capacity.

COMPRESSION FORCE DESIGN

Wind Loads, Flexible Diaphragm
Bottom plate has sufficient perpendicular-to-grain compressive capacity under all wall end studs.

Seismic Loads, Flexible Diaphragm
Bottom plate has sufficient perpendicular-to-grain compressive capacity under all wall end studs.

This Design Summary does not include failures that occur due to excessive story drift from ASCE 7 CC.2.2 (wind) or 12.12 (seismic).
Refer to Story Drift table in this report to verify this design criterion.
Refer to the Deflection table for possible issues regarding fastener slippage (SDPWS Table C4.2.3D).

Flexible Diaphragm Wind Design
ASCE 7 Directional (All Heights) Loads

SHEAR RESULTS

N-S Shearlines	W Gp	For Dir	ASD Shear Force [plf] v	vmax/vft	V [lbs]	Asp-Cub Int	Asp-Cub Ext	Allowable Shear [plf] Int	Ext	Co	C	Cmb	V [lbs]	Resp. Ratio
Line 1														
Level 2														
Ln1, Lev2	-	Both	-	-	950	-	-	-	-	-		-	8156	-
Wall 1-1	3	Both	27.0	27.0	264	1.0	.60	60	201	1.00	A	261	2545	0.10
Wall 1-2	3^	Both	0.0	nan(ind)	0	1.0	1.0	0	0	0.00	A	-	-	-
Wall 1-3	3	Both	31.9	31.9	687	1.0	.60	60	201	1.00	A	261	5612	0.12
Level 1														
Ln1, Lev1	-	Both	-	-	1934	-	-	-	-	-		-	9946	-
Wall 1-1	4	S->N	57.2	-	443	-	1.0	-	365	-		365	2829	0.16
	4	N->S	106.7	-	827	-	1.0	-	365	-		365	2829	0.29
Wall 1-2	3	Both	0.0	nan(ind)	0	1.0	1.0	0	0	0.00	A	-	-	-
Wall 1-3	4	S->N	76.4	-	1490	-	1.0	-	365	-		365	7118	0.21
	4	N->S	56.7	-	1106	-	1.0	-	365	-		365	7118	0.16
Line 4														
Level 2														
Ln4, Lev2	6^	Both	17.9	-	964	1.0	1.0	150	150	-	A	300	16200	0.06
Level 1														
Ln4, Lev1	5^	Both	36.1	-	1840	1.0	1.0	75	75	-	A	150	7650	0.24

E-W Shearlines	W Gp	For Dir	ASD Shear Force [plf] v	vmax/vft	V [lbs]	Asp-Cub Int	Asp-Cub Ext	Allowable Shear [plf] Int	Ext	Co	C	Cmb	V [lbs]	Resp. Ratio
Line A														
Level 2														
LnA, Lev2	-	Both	-	-	2788	-	-	-	-	-		-	3750	-
Wall A-1	3	Both	0.0	nan(ind)	0	1.0	1.0	0	0	0.00	A	-	-	-
Wall A-2	2	Both	-	-	2788	-	1.0	-	685	-		-	3750	-
Seg. 1	-	Both	530.2	-	1591	-	.91	-	625	-		625	1875	0.85
Seg. 2	-	Both	399.0	-	1197	-	.91	-	625	-		625	1875	0.64
Level 1														
LnA, Lev1	-	Both	-	-	5236	-	-	-	-	-		-	13878	-
Wall A-1	1^	Both	-	-	5236	1.0	1.0	0	991	-	A	-	13878	-
Seg. 1	-	Both	654.5	31.9	2618	1.0	1.0	0	991	-		991	3965	0.66
Open. 1	-	Both	-	830.1	4981	-	-	0	991	-		991	5948	0.84
Seg. 2	-	Both	654.5	31.9	2618	1.0	1.0	0	991	-		991	3965	0.66
Line E														
Level 2														
LnE, Lev2	-	W->E	-	-	2330	-	-	-	-	-		-	12391	-
	-	E->W	-	-	2307	-	-	-	-	-		-	12391	-
Wall E-1	1	W->E	-	-	2330	1.0	1.0	0	991	-	A	-	12391	-
	1	E->W	-	-	2307	1.0	1.0	0	991	-	A	-	12391	-
Seg. 1	-	W->E	358.5	-91.1	1165	1.0	1.0	0	991	-		991	3222	0.36
	-	E->W	355.0	-90.2	1154	1.0	1.0	0	991	-		991	3222	0.36
Open. 1	-	W->E	-	487.1	2923	-	-	0	991	-		991	5948	0.49
	-	E->W	-	482.3	2894	-	-	0	991	-		991	5948	0.49
Seg. 2	-	W->E	358.5	-91.1	1165	1.0	1.0	0	991	-		991	3222	0.36
	-	E->W	355.0	-90.2	1154	1.0	1.0	0	991	-		991	3222	0.36
Wall E-2	3	Both	0.0	nan(ind)	0	1.0	1.0	0	0	0.00	A	-	-	-
Level 1														
LnE, Lev1	-	W->E	-	-	4774	-	-	-	-	-		-	3579	-
	-	E->W	-	-	4751	-	-	-	-	-		-	3579	-
Wall E-1	2^	W->E	-	-	4774	-	1.0	-	685	-		-	3579	-
	2	E->W	-	-	4751	-	1.0	-	685	-		-	3579	-
Seg. 1	-	W->E	760.9	-	2283	-	.87	-	597	-		597	1790	1.28*
	-	E->W	774.6	-	2324	-	.87	-	597	-		597	1790	1.30*
Seg. 2	-	W->E	830.3	-	2491	-	.87	-	597	-		597	1790	1.39*
	-	E->W	809.0	-	2427	-	.87	-	597	-		597	1790	1.36*

RESOLVED w/ PORTAL FRAME

Legend:
W Gp - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall. "^" means that this wall is critical for all walls in the Standard Wall group.
For Dir - Direction of wind force along shearline.
v – Design shear force on segment = ASD-factored shear force per unit length of full-height sheathing (FHS)
vmax/vft - Perforated walls: Collector and in-plane anchorage force as per SDPWS eqn. 4.3-9 = V/FHS/Co. FHS is factored for narrow segments as per 4.3.3.4
FTAO walls: Shear force in piers above and below either openings or piers beside opening(s). Aspect ratio factor does not apply to these piers.
V – ASD factored shear force. For shearline: total shearline force. For wall: total of all segments on wall. For segment: force on segment
Asp/Cub – For wall: Unblocked structural wood panel factor Cub from SDPWS 4.3.5.3. For segment or FTAO pier: Aspect Ratio Factor from SDPWS 4.3.3.2. For perforated wall: Either Cub or sum bi / FHS, where bi is segment length adjusted per SDPWS 4.3.3.4.
Int, Ext - Nominal unit shear capacity of interior and exterior sheathing, factored by Table 4.3-1 Note 3 for framing specific gravity and Note 10 for presence of hold-downs. For wall segments, also include unblocked factor Cub and aspect ratio adjustments.
Co - Adjustment factor for perforated walls from SDPWS Equation 4.3-6.
C - Sheathing combination rule, A = Add capacities, S = Strongest side or twice weakest, G = Stiffness-based using Eqns. 4.3-3,-4.
Cmb - Combined interior and exterior unit shear capacity including perforated wall factor Co.
V – Total factored shear capacity of shearline, wall or segment.
Crit Resp – Response ratio = v/Cmb = design shear force/unit shear capacity. "S" indicates that the seismic design criterion was critical in selecting wall.

Notes:
Refer to Elevation View diagrams for individual level for uplift anchorage force t for perforated walls given by SDPWS 4.3.6.4.2,1.
*WARNING - Design capacity has been exceeded.

ALL ELEMENTS INDICATED AS
"UNDER-CAPACITY" HAVE BEEN REVIEWED AND
EITHER APPROVED WITH MINOR OVERSTRESSES
AND/OR DESIGN REVISED ON FINAL DOCS

Hold-Down and Compression Design (flexible wind design)

Level 1 Line-Wall	Posit'n	Location [ft] X	Location [ft] Y	Load Case	Tensile Hold-down or Compressive Stud Force [lbs] Shear	Dead	Uplift	Cmb'd	Hold-down	Cap [lbs]	Crit Resp.
Line 1											
					–	–		–			
	V Elem	0.00	-0.12	Min	4294967	429496		4294967	Compression		
					296	7296		296			
					–	–		–			
	V Elem	0.00	0.12	Min	4294967	429496		4294967	Compression		
					296	7296		296			
	V Elem	0.00	2.13	Min	-270	474		743	Compression		
1-1	L End	2.00	4.13	Min	538	254		284	HDU5-SDS	5645	0.05
1-1	L End	2.00	4.13	Min	-1004	423		1427	Compression	10312	0.14
1-1	R End	2.00	11.63	Min	1273	538		735	HDU5-SDS	5645	0.13
1-1	R End	2.00	11.63	Min	-807	897		1704	Compression	10312	0.17
	V Elem	0.00	22.63	1	0	361		361	Compression		
	V Elem	0.00	25.88	1	0	361		361	Compression		
	V Elem	0.00	29.13	1	0	258		258	Compression		
	V Elem	0.00	31.38	1	0	258		258	Compression		
1-3	L End	2.00	31.63	Min	-890	2110		2999	Compression	10312	0.29
1-3	R End	2.00	50.88	Min	-704	1065		1769	Compression	10312	0.17
	V Elem	0.00	52.88	Min	-367	1045		1412	Compression		
Line 4											
	V Elem	20.00	-1.87	Min	-145	2624		2770	Compression		
4-1	L End	20.00	0.12	Min	-330	2785		3114	Compression	10312	0.30
4-1	R End	20.00	50.88	Min	-330	2785		3114	Compression	10312	0.30
	V Elem	20.00	51.88	Min	-145	2624		2770	Compression		
Line A											
A-1	L End	6.13	0.00	Min	8439	350		8090	HDU5-SDS	5645	1.43*
A-1	L End	6.13	0.00	Min	-8439	583		9022	Compression	10312	0.87
	V Elem	8.88	-2.00	Min	4974	87		4886	Refer to upper level		
	V Elem	8.88	-2.00	Min	-4974	146		5120	Compression		
	V Elem	17.13	-2.00	Min	5336	87		5249	Refer to upper level		
	V Elem	17.13	-2.00	Min	-5336	146		5482	Compression		
A-1	R End	19.88	0.00	Min	8801	350		8452	HDU5-SDS	5645	1.50*
A-1	R End	19.88	0.00	Min	-8801	583		9384	Compression	11601	0.81
Line B											
	V Elem	5.88	4.00	1	0	27		27	Compression		
Line E											
					–	–					
	V Elem	-0.12	52.00	1	4294967	429496		4294967	Compression		
					296	7296		296			
					–	–		–			
	V Elem	0.12	52.00	1	4294967	429496		4294967	Compression		
					296	7296		296			
E-1	L End	2.13	51.00	1	9095	288		8807	HDU5-SDS	5645	1.56*
E-1	L End	2.13	51.00	1	-9215	480		9695	Compression	10312	0.94
E-1	L Op 1	4.88	51.00	1	7689	98		7591	HDU5-SDS	5645	1.34*
E-1	L Op 1	4.88	51.00	1	-7554	164		7718	Compression	10312	0.75
	V Elem	14.38	52.00	1	1526	190		1336	Refer to upper level		
	V Elem	14.38	52.00	1	-1541	316		1857	Compression		
E-1	R Op 1	17.13	51.00	1	8243	98		8144	HDU5-SDS	5645	1.44*
E-1	R Op 1	17.13	51.00	1	-8031	164		8195	Compression	10312	0.79
	V Elem	18.38	52.00	1	0	85		85	Compression		
E-1	R End	19.88	51.00	1	8031	149		7882	HDU5-SDS	5645	1.40*
E-1	R End	19.88	51.00	1	-8243	249		8492	Compression	10312	0.82

RESOLVED w/ PORTAL FRAME

Level 2 Line-Wall	Posit'n	Location [ft] X	Location [ft] Y	Load Case	Tensile Hold-down or Compressive Stud Force [lbs] Shear	Dead	Uplift	Cmb'd	Hold-down	Cap [lbs]	Crit Resp.
Line 1											
					–	–		–			
	V Elem	0.00	-0.12	Min	4294967	429496		4294967	Compression		
					296	7296		296			
					–	–		–			
	V Elem	0.00	0.12	Min	4294967	429496		4294967	Compression		
					296	7296		296			
1-1	L End	2.00	2.13	Min	-270	474		743	Compression	10312	0.07
1-1	R End	2.00	11.63	Min	-270	474		743	Compression	10312	0.07
	V Elem	0.00	22.63	1	0	170		170	Compression		
	V Elem	0.00	25.88	1	0	170		170	Compression		
	V Elem	0.00	29.13	1	0	122		121	Compression		
	V Elem	0.00	31.38	1	0	122		121	Compression		

Hold-Down and Compression Design (flexible wind design, continued)

1-3	L End	2.00	31.63	Min	-367	1045	1412	Compression	10312	0.14
1-3	R End	2.00	52.88	Min	-367	1045	1412	Compression	10312	0.14
Line 4										
4-1	L End	20.00	-1.87	Min	-145	2624	2770	Compression	10312	0.27
4-1	R End	20.00	51.88	Min	-145	2624	2770	Compression	10312	0.27
Line A										
A-2	L End	6.13	-2.00	Min	4974	87	4886	HDU5-SDS	5645	0.87
A-2	L End	6.13	-2.00	Min	-4974	146	5120	Compression	10312	0.50
A-2	L Op 1	8.88	-2.00	Min	4974	87	4886	HDU5-SDS	5645	0.87
A-2	L Op 1	8.88	-2.00	Min	-4974	146	5120	Compression	11601	0.44
A-2	R Op 1	17.13	-2.00	Min	5336	87	5249	HDU5-SDS	5645	0.93
A-2	R Op 1	17.13	-2.00	Min	-5336	146	5482	Compression	11601	0.47
A-2	R End	19.88	-2.00	Min	5336	87	5249	HDU5-SDS	5645	0.93
A-2	R End	19.88	-2.00	Min	-5336	146	5482	Compression	10312	0.53
Line E										
					-	-	-			
	V Elem	-0.12	52.00	1	4294967 296	429496 7296	4294967 296	Compression		
					-	-	-			
	V Elem	0.12	52.00	1	4294967 296	429496 7296	4294967 296	Compression		
E-1	L End	2.13	53.00	1	1541	190	1351	HDU5-SDS	5645	0.24
E-1	L End	2.13	53.00	1	-1526	316	1841	Compression	10312	0.18
E-1	R End	14.38	53.00	1	1526	190	1336	HDU5-SDS	5645	0.24
E-1	R End	14.38	53.00	1	-1541	316	1857	Compression	11601	0.16
	V Elem	18.38	52.00	1	0	85	85	Compression		
	V Elem	19.88	52.00	1	0	85	85	Compression		

Legend:
Line-Wall:
At wall or opening – Shearline and wall number
At vertical element – Shearline
Posit'n – Position of stud pack that hold-down is attached to or which is applying compression force:
V Elem – Vertical element: column or strengthened studs required where not at wall end or opening
L or R End – At left or right wall end
L or R Op n – At left or right side of opening n
t @ Op n – Uplift force t at opening n from offset opening in perforated wall above, from SDPWS 4.3.6.4.2.1
Location – Co-ordinates in Plan View
Load Case – Results are for critical load case:
ASCE 7 All Heights: Case 1 or 2 from Fig. 27.3-8
ASCE 7 Low-rise: Windward corner(s) and Case A or B from Fig. 28.3-1
ASCE 7 Minimum loads (27.1.5 / 28.3.4): "Min"
Tensile Hold-down or Compressive Stud Force – Upwards force on hold-down at one end of the wall or downward force on bottom plate under studs at the other end, for each force direction. Includes forces transferred from upper levels.
Shear – Overturning component = V x h / beff from SDPWS Eqn. 4.3-7; V = force on segment, ASD-factored by 0.60; h = wall height, beff = wall segment length – (tension stud pack width + hold-down anchor bolt offset) – (1/2 compression stud pack width). For perforated walls = V x h / Co sum (bi) from SDPWS Eqn. 4.3-8.
Dead – Dead load resisting component, factored for ASD by 0.60 for tension and 1.0 for compression
Uplift – Uplift wind load component, factored for ASD by 0.60
Cmb'd – Sum of ASD-factored overturning, dead and uplift forces. May also include the uplift force t from perforated walls from SDPWS 4.3.6.4.2.1 when openings are staggered.
Hold-down – Device model number from hold-down database; "Compression" for bearing of end stud pack on bottom plate
Cap – Hold-downs: Allowable ASD tension load from database; Compression: allowable ASD bearing force = Ct CM Cb Fcp A; A = cross sectional area of end studs. Refer to Framing materials table for details
Crit. Resp. – Critical Response = Combined ASD force / Allowable ASD tension load

Notes:
HDU5-SDS2.5 for studs with thickness > 0'-3" and depth > 0'-3.5" : Uses 14 1/4" x 2.5" SDS heavy-duty screws; 5/8" anchor bolt.
Refer to the Shear Line Dimensions table for wall height h, effective segment length beff and perforated wall adjusted sum of bi, to the Story Table for joist depth, and to the Shear Results table for perforated factor Co.
Most severe of wind load cases is used for overturning calculation.
Designer is responsible for design of connection from wall to floor or foundation for shear force shown in Shear Results table. Refer to SDPWS 4.3.6.4.3 for foundation anchor bolt requirements.
*WARNING - Design capacity has been exceeded.

ALL ELEMENTS INDICATED AS "UNDER-CAPACITY" HAVE BEEN REVIEWED AND EITHER APPROVED WITH MINOR OVERSTRESSES AND/OR DESIGN REVISED ON FINAL DOCS

COLLECTOR FORCES (flexible wind design)

Level 1 Line-Wall	Position on Wall or Opening	Location [ft] X	Y	Load Case	Drag Strut Force [lbs] --->	<---	Strap/Blocking Force [lbs] --->	<---
Line 1								
1-1	Right Wall End	2.00	11.75		124	-508		
1-3	Left Wall End	2.00	31.50		-688	304		
Line A								
A-1	Left Opening 1	10.00	0.00		-1368	1368		
A-1	Right Opening 1	16.00	0.00		1368	-1368		
A-1	Left Opening 1	10.00	0.00				2490	2490
A-1	Right Opening 1	16.00	0.00				2490	2490
Line E								
E-1	Left Opening 1	5.00	51.00		1487	-1532		
E-1	Right Opening 1	17.00	51.00		-1695	1635		

Level 2 Line-Wall	Position on Wall or Opening	Location [ft] X	Y	Load Case	Drag Strut Force [lbs] --->	<---	Strap/Blocking Force [lbs] --->	<---
Line 1								
1-1	Right Wall End	2.00	11.75		82	-82		
1-3	Left Wall End	2.00	31.50		-286	286		
Line A								
A-2	Left Wall End	6.00	-2.00		-620	620		
A-2	Left Opening 1	9.00	-2.00		507	-507		
A-2	Right Opening 1	17.00	-2.00		-732	732		
Line E								
E-1	Left Opening 1	5.25	53.00		-717	710		
E-1	Right Opening 1	11.25	53.00		1429	-1415		
E-1	Right Wall End	14.50	53.00		712	-705		
E-1	Left Opening 1	5.25	53.00				1461	1447
E-1	Right Opening 1	11.25	53.00				1461	1447

Legend:
Line-Wall - Shearline and wall number
Position…- Side of opening or wall end that drag strut is attached to
Location - Co-ordinates in Plan View
Load Case - Results are for critical load case:
ASCE 7 All heights Case 1 or 2
ASCE 7 Low-rise corner; Case A or B
Drag strut Force - Axial force in transfer element at openings, gaps, or changes in design shear along shearline. + : tension; - : compression.
Based on ASD-factored shearline force (vmax from 4.3.6.4.1.1 for perforated walls)
Strap/Blocking Force – For FTAO walls, force transferred from above and below opening to shearwall pier.
-> Due to shearline force in the west-to-east or south-to-north direction
<- Due to shearline force in the east-to-west or north-to-south direction

MWFRS HOLD-DOWN DISPLACEMENT (flexible wind design)

These displacements are used to determine deflections for force distribution

Wall, segment	Dir	Hold-down	Tension force lbs	Vert. Displacement Manuf in	Vert. Displacement Add in	Vert. Displacement da in	Slippage Vf lbs	Slippage da in	Shrink +Extra in	Comp. force lbs	Crush da in	Total da in	Horz Defl in
Level 1													
Line 1													
1-1	S->N	HDU5-SDS	284	.006	.000	0.006	-	-	.138	1704	0.00	0.15	0.18
	N->S	HDU5-SDS	735	.015	.001	0.016	-	-	.138	1427	0.00	0.16	0.19
1-3	S->N	HDU5-SDS	-194	.000	.000	0.000	-	-	.000	1769	0.00	0.00	0.00
	N->S	HDU5-SDS	-116	.000	.000	0.000	-	-	.000	2999	0.01	0.01	0.00
Line 4													
4-1	Both	HDU5-SDS	-1341	.000	.000	0.000	-	-	.000	3114	0.01	0.01	0.00
Line A													
A-1,1	W->E	HDU5-SDS	10498	.214	.010	0.224	-	-	.138	5961	0.02	0.38	0.83
	E->W	HDU5-SDS	5611	.114	.005	0.120	-	-	.138	11080	0.05	0.31	0.67
A-1,2	W->E	HDU5-SDS	5611	.114	.005	0.120	-	-	.138	11442	0.05	0.31	0.68
	E->W	HDU5-SDS	10860	.221	.010	0.232	-	-	.138	5961	0.02	0.38	0.84
Line E													
E-1,1	W->E	HDU5-SDS	8807	.179	.008	0.188	-	-	.138	7718	0.02	0.35	1.15
	E->W	HDU5-SDS	7591	.155	.007	0.162	-	-	.138	9695	0.04	0.33	1.11
E-1,2	W->E	HDU5-SDS	8144	.166	.008	0.174	-	-	.138	8492	0.03	0.34	1.12
	E->W	HDU5-SDS	7882	.161	.008	0.168	-	-	.138	8195	0.02	0.33	1.09
Wall, segment	**Dir**	**Hold-down**	**Tension force lbs**	**Vert. Displacement Manuf in**	**Vert. Displacement Add in**	**Vert. Displacement da in**	**Slippage Vf lbs**	**Slippage da in**	**Shrink +Extra in**	**Comp. force lbs**	**Crush da in**	**Total da in**	**Horz Defl in**
Level 2													
Line 1													
1-1	Both	HDU5-SDS	-15	.000	.000	0.000	-	-	.000	744	0.00	0.00	0.00
1-3	Both	HDU5-SDS	-260	.000	.000	0.000	-	-	.000	1412	0.00	0.00	0.00
Line 4													
4-1	Both	HDU5-SDS	-1429	.000	.000	0.000	-	-	.000	2770	0.01	0.01	0.00
Line A													
A-2,1	Both	HDU5-SDS	4886	.199	.003	0.202	-	-	.168	5120	0.01	0.38	1.13
A-2,2	Both	HDU5-SDS	5249	.214	.003	0.217	-	-	.168	5482	0.01	0.40	1.18
Line E													
E-1,1	W->E	HDU5-SDS	2711	.110	.002	0.112	-	-	.168	2964	0.01	0.29	0.69
	E->W	HDU5-SDS	2684	.109	.002	0.111	-	-	.168	2936	0.01	0.29	0.69
E-1,2	W->E	HDU5-SDS	2711	.110	.002	0.112	-	-	.168	2964	0.01	0.29	0.69
	E->W	HDU5-SDS	2684	.109	.002	0.111	-	-	.168	2936	0.01	0.29	0.69

Legend:

Wall, segment – Wall and segment between openings, e.g. B-3,2 = second segment on Wall 3 on Shearline B

Dir – Force direction

Tens., Comp. force – Accumulated ASD hold-down tension force T and end stud compression force C from overturning, dead loads and wind uplift

da – Vertical displacements due to the following components:

Vert. Displacement – Elongation when slippage calculated separately; displacement when combined elongation/slippage used

Manuf – Using manufacturer's value for anchor bolt length, or no bolt contribution for connector-only elongation

*Unless marked with * = (ASD uplift force / ASD hold-down capacity) x max ASD elongation or displacement*

** - Maximum strength-level elongation or displacement is used. May result in higher than actual displacements for lightly loaded hold-downs, causing the segment to draw less force due to lower than actual stiffness.*

Add – Due to longer anchor bolt length than manufacturer's value, or entire bolt length for connector-only elongation = TL / (Ab x Es)

Ab = bolt cross-sectional area

Es = steel modulus = 29000000 psi

L = Lb – Lh

Lb = Total bolt length shown in Storey Information table

Lh = Manufacturer's anchor bolt length for given displacement/elongation from hold-down database

Slippage – Due to vertical slippage of hold-down fasteners attached to stud(s) when not combined with elongation

Nails = en from SDPWS Table C4.2.3D using values for wood structural panels

Bolts = Vf / (270,000 D^1.5) (NDS 11.3.6); D = bolt diameter, Vf = Tension force T / number of fasteners

Shrink + Extra – Wood shrinkage plus extra displacement due to mis-cuts, gaps, etc.

Shrinkage = 0.002 x (15% fabrication – 10% in-service moisture contents) x Ls

Ls = Length between anchor bolt fasteners subject to perp-to-grain shrinkage; see Story Information table

Crush – Deformation of bottom plate at compression end of wall segment

= 0.02" x [r / 0.73, r < 0.73; (1 + (r - 0.73) / 0.27), 0.73 < r < 1; 2 r^3, r > 1]

r = fcp / Fcp'; Fcp' = Ct CM Fcp; fcp = C / A, A = cross sectional area of end studs

Total da – Vert. Displacement + Slippage + Shrink + Crush + Extra

Horz Defl – Anchorage deflection term in SDPWS Eqn. C.4.3.4-1 = h / beff x da

h = Wall height. For end segments in FTAO walls, h is the average of the wall height and the distance from the bottom of opening to top of wall

beff = Effective wall segment length = b - (tension stud pack width + hold-down anchor bolt offset) - (1/2 compression stud pack width)

h and b are shown in Deflection table, beff in the Shear Wall Dimensions table

Flexible Diaphragm Seismic Design

SEISMIC INFORMATION

Level	Mass [lbs]	Area [sq.ft]	Story Shear Fx [lbs] E-W	Story Shear Fx [lbs] N-S	Shear Resistance [lbs] E-W	Shear Resistance [lbs] N-S	Diaphragm Force [lbs] E-W Fpx	Diaphragm Force [lbs] E-W Design	Diaphragm Force [lbs] N-S Fpx	Diaphragm Force [lbs] N-S Design
2	38180	1008.0	3305	3305	11530	5169	3472	3472	3472	3472
1	29166	941.5	1406	1406	12470	7786	2652	2652	2652	2652
All	**67346**	–	**6730**	**6730**	–	–	–	–	–	–

Legend:
Mass – Sum of all generated and input building masses on level = wx in ASCE 7 Eqn. 12.8-12.
Story Shear – Total ASD-factored shear force induced at level x from Eqn. 12.8-11.
Shear Resistance – Lateral design strength of all shear-resisting elements on story, for use in weak story evaluation (4.1.8).
Diaphragm Force – used by Shearwalls only for drag strut forces, as per Exception to 12.10.2.1.
Fpx - Minimum ASD-factored force for diaphragm design from Eqns. 12.10-1, -2, and -3.
Design = The greater of the story shear and Fpx + transfer forces from discontinuous shearlines, factored by overstrength (omega) as per 12.10.1.1. Omega = 2.5 as per 12.2-1.

Redundancy Factor p (rho):
E-W 1.00, N-S 1.00
Automatically calculated according to ASCE 7 12.3.4.2.

Vertical Earthquake Load Ev
Ev = 0.2 Sds D; Sds = 0.65; Ev = 0.130 D unfactored; 0.091 D factored; total dead load factor: 0.6 - 0.091 = 0.509 tension, 1.0 + 0.091 = 1.091 compression.

Weak Story (SDPWS 4.1.8)
The lateral resistance of each story is greater than or equal to that of the story above. This vertical distribution of SFRS is permitted.

SHEAR RESULTS (flexible seismic design)

N-S Shearlines	W Gp	For Dir	ASD Shear Force [plf] v	vmax/vft	V [lbs]	Asp-Cub Int	Asp-Cub Ext	Allowable Shear [plf] Int	Ext	Co	C	Cmb	V [lbs]	Resp. Ratio
Line 1														
Level 2														
Ln1, Lev2	-	Both	-	-	3305	-	-	-	-	-		-	5169	-
Wall 1-1	3	Both	58.7	58.7	572	1.0	.60	0	144	1.00	S	144	1400	0.41
Wall 1-2	3	Both	19.8	19.8	94	1.0	.60	0	144	1.00	S	144	682	0.14
Wall 1-3	3	Both	122.7	122.7	2639	1.0	.60	0	144	1.00	S	144	3087	0.85
Level 1														
Ln1, Lev1	-	Both	-	-	4711	-	-	-	-	-		-	7786	-
Wall 1-1	4	S->N	95.5	-	740	-	1.0	-	261	-		261	2021	0.37
	4	N->S	87.9	-	681	-	1.0	-	261	-		261	2021	0.34
Wall 1-2	3	Both	11.0	11.0	52	1.0	.60	0	144	1.00	S	144	682	0.08
Wall 1-3	4	S->N	201.0	-	3919	-	1.0	-	261	-		261	5084	0.77
	4^	N->S	204.0	-	3978	-	1.0	-	261	-		261	5084	0.78

E-W Shearlines	W Gp	For Dir	ASD Shear Force [plf] v	vmax/vft	V [lbs]	Asp-Cub Int	Asp-Cub Ext	Allowable Shear [plf] Int	Ext	Co	C	Cmb	V [lbs]	Resp. Ratio
Line A														
Level 2														
LnA, Lev2	-	Both	-	-	1639	-	-	-	-	-		-	2679	-
Wall A-1	3	Both	0.0	nan(ind)	0	1.0	1.0	0	0	0.00	S	-	-	-
Wall A-2	2	Both	-	-	1639	-	1.0	-	489	-		-	2679	-
Seg. 1	-	Both	311.4	-	934	-	.91	-	446	-		446	1339	0.70
Seg. 2	-	Both	235.1	-	705	-	.91	-	446	-		446	1339	0.53
Level 1														
LnA, Lev1	-	Both	-	-	2340	-	-	-	-	-		-	9913	-
Wall A-1	1	Both	-	-	2340	1.0	1.0	0	708	-	S	-	9913	-
Seg. 1	-	Both	292.5	14.3	1170	1.0	1.0	0	708	-		708	2832	0.41
Open. 1	-	Both	-	370.9	2226	-	-	0	708	-		708	4248	0.52
Seg. 2	-	Both	292.5	14.3	1170	1.0	1.0	0	708	-		708	2832	0.41
Line E														
Level 2														
LnE, Lev2	-	Both	-	-	1663	-	-	-	-	-		-	8851	-
Wall E-1	1	Both	-	-	1663	1.0	1.0	0	708	-	S	-	8851	-
Seg. 1	-	Both	255.9	-65.0	832	1.0	1.0	0	708	-		708	2301	0.36
Open. 1	-	Both	-	347.7	2086	-	-	0	708	-		708	4248	0.49
Seg. 2	-	Both	255.9	-65.0	832	1.0	1.0	0	708	-		708	2301	0.36
Wall E-2	3	Both	0.0	nan(ind)	0	1.0	1.0	0	0	0.00	S	-	-	-
Level 1														
LnE, Lev1	-	Both	-	-	2369	-	-	-	-	-		-	2557	-
Wall E-1	2	Both	-	-	2369	-	1.0	-	489	-		-	2557	-
Seg. 1	-	W->E	369.2	-	1107	-	.87	-	426	-		426	1278	0.87
	-	E->W	387.6	-	1163	-	.87	-	426	-		426	1278	0.91
Seg. 2	-	W->E	420.6	-	1262	-	.87	-	426	-		426	1278	0.99
	-	E->W	402.1	-	1206	-	.87	-	426	-		426	1278	0.94

Legend:
W Gp - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall. "^" means that this wall is critical for all walls in the Standard Wall group.
For Dir – Direction of seismic force along shearline.
v – Design shear force on segment = ASD-factored shear force per unit length of full-height sheathing (FHS)
vmax/vft - Perforated walls: Collector and in-plane anchorage force as per SDPWS eqn. 4.3-9 = V/FHS/Co. FHS is factored for narrow segments as per 4.3.3.4
FTAO walls: Shear force in piers above and below either openings or piers beside opening(s). Aspect ratio factor does not apply to these piers.
V – ASD factored shear force. For shearline: total shearline force. For wall: total of all segments on wall. For segment: force on segment
Asp/Cub – For wall: Unblocked structural wood panel factor Cub from SDPWS 4.3.5.3. For segment or FTAO pier: Aspect Ratio Factor from SDPWS 4.3.3.2. For perforated wall: Either Cub or sum bi / FHS, where bi is segment length adjusted per SDPWS 4.3.3.4.
Int, Ext - Nominal unit shear capacity of interior and exterior sheathing, factored by Table 4.3-1 Note 3 for framing specific gravity and Note 10 for presence of hold-downs. For wall segments, also include unblocked factor Cub and aspect ratio adjustments.
Co - Adjustment factor for perforated walls from SDPWS Equation 4.3-6.
C - Sheathing combination rule, A = Add capacities, S = Strongest side or twice weakest, G = Stiffness-based using Eqns. 4.3-3,-4.
Cmb - Combined interior and exterior unit shear capacity including perforated wall factor Co.
V – Total factored shear capacity of shearline, wall or segment.
Crit Resp – Response ratio = v/Cmb = design shear force/unit shear capacity. "W" indicates that the wind design criterion was critical in selecting wall.

Notes:
Refer to Elevation View diagrams for individual level for uplift anchorage force t for perforated walls given by SDPWS 4.3.6.4.2,1.
The contribution to shear resistance from gypsum, fiberboard, or lumber sheathing is taken as zero because of the Design setting for ignoring contribution was set. Refer to the Sheathing Materials table for the wall groups affected.

Hold-Down and Compression Design (flexible seismic design)

Level 1 Line-Wall	Posit'n	Location [ft] X	Location [ft] Y	Tensile Hold-down or Compressive Stud Force [lbs] Shear	Dead	Ev	Cmb'd	Hold-down	Cap [lbs]	Crit Resp.
Line 1										
	V Elem	0.00	2.13	586	284	43	345	Refer to upper level		
	V Elem	0.00	2.13	-586	474	43	1103	Compression		
1-1	L End	2.00	4.13	898	254	38	682	HDU5-SDS	5645	0.12
1-1	L End	2.00	4.13	-826	423	38	1288	Compression	10312	0.12
1-1	R End	2.00	11.63	1412	538	82	955	HDU5-SDS	5645	0.17
1-1	R End	2.00	11.63	-1483	897	82	2462	Compression	10312	0.24
1-2	L End	0.00	11.88	309	294	45	60	HDU5-SDS	5645	0.01
1-2	L End	0.00	11.88	-309	490	45	844	Compression	10312	0.08
1-2	R End	0.00	16.38	309	294	45	60	HDU5-SDS	5645	0.01
1-2	R End	0.00	16.38	-309	490	45	844	Compression	10312	0.08
1-2	R Op 1	0.00	22.63	0	361	33	394	Compression	10312	0.04
1-2	L Op 2	0.00	25.88	0	361	33	394	Compression	10312	0.04
1-2	R Op 2	0.00	29.13	0	258	23	281	Compression	10312	0.03
1-2	R End	0.00	31.38	0	258	23	281	Compression	10312	0.03
1-3	L End	2.00	31.63	3262	1266	192	2188	HDU5-SDS	5645	0.39
1-3	L End	2.00	31.63	-3290	2110	192	5591	Compression	10312	0.54
1-3	R End	2.00	50.88	1881	639	97	1339	HDU5-SDS	5645	0.24
1-3	R End	2.00	50.88	-1853	1065	97	3014	Compression	10312	0.29
	V Elem	0.00	52.88	1409	627	95	877	Refer to upper level		
	V Elem	0.00	52.88	-1409	1045	95	2549	Compression		
Line 4										
	V Elem	20.00	-1.87	0	2624	239	2863	Compression		
4-1	L End	20.00	0.12	0	2785	253	3038	Compression	10312	0.29
4-1	R End	20.00	50.88	0	2785	253	3038	Compression	10312	0.29
	V Elem	20.00	51.88	0	2624	239	2863	Compression		
Line A										
A-1	L End	6.13	0.00	4469	350	53	4173	HDU5-SDS	5645	0.74
A-1	L End	6.13	0.00	-4469	583	53	5105	Compression	10312	0.50
	V Elem	8.88	-2.00	2921	87	13	2847	Refer to upper level		
	V Elem	8.88	-2.00	-2921	146	13	3080	Compression		
	V Elem	17.13	-2.00	3144	87	13	3069	Refer to upper level		
	V Elem	17.13	-2.00	-3143	146	13	3302	Compression		
A-1	R End	19.88	0.00	4692	350	53	4395	HDU5-SDS	5645	0.78
A-1	R End	19.88	0.00	-4692	583	53	5327	Compression	11601	0.46
Line B										
	V Elem	5.88	4.00	0	27	2	30	Compression		
Line E										
				-	-	-	-			
	V Elem	-0.12	52.00	42949672	42949672	42949672	42949672	Compression		
				96	96	96	96			
				-	-	-	-			
	V Elem	0.12	52.00	42949672	42949672	42949672	42949672	Compression		
				96	96	96	96			
E-1	L End	2.13	51.00	4765	288	44	4520	HDU5-SDS	5645	0.80
E-1	L End	2.13	51.00	-4948	480	44	5471	Compression	10312	0.53
E-1	L Op 1	4.88	51.00	3848	98	15	3765	HDU5-SDS	5645	0.67
E-1	L Op 1	4.88	51.00	-3665	164	15	3843	Compression	10312	0.37
	V Elem	14.38	52.00	1100	190	29	939	Refer to upper level		
	V Elem	14.38	52.00	-1100	316	29	1444	Compression		
E-1	R Op 1	17.13	51.00	4175	98	15	4092	HDU5-SDS	5645	0.72
E-1	R Op 1	17.13	51.00	-3992	164	15	4170	Compression	10312	0.40
	V Elem	18.38	52.00	0	85	8	93	Compression		
E-1	R End	19.88	51.00	3992	149	23	3865	HDU5-SDS	5645	0.68
E-1	R End	19.88	51.00	-4175	249	23	4446	Compression	10312	0.43

Level 2 Line-Wall	Posit'n	Location [ft] X	Location [ft] Y	Tensile Hold-down or Compressive Stud Force [lbs] Shear	Dead	Ev	Cmb'd	Hold-down	Cap [lbs]	Crit Resp.
Line 1										
1-1	L End	2.00	2.13	586	284	43	345	HDU5-SDS	5645	0.06
1-1	L End	2.00	2.13	-586	474	43	1103	Compression	10312	0.11
1-1	R End	2.00	11.63	586	284	43	345	HDU5-SDS	5645	0.06
1-1	R End	2.00	11.63	-586	474	43	1103	Compression	10312	0.11
1-2	L End	0.00	11.88	204	139	21	86	HDU5-SDS	5645	0.02
1-2	L End	0.00	11.88	-204	231	21	455	Compression	10312	0.04
1-2	R End	0.00	16.38	204	139	21	86	HDU5-SDS	5645	0.02
1-2	R End	0.00	16.38	-204	231	21	455	Compression	10312	0.04
1-2	R Op 1	0.00	22.63	0	170	15	185	Compression	10312	0.02
1-2	L Op 2	0.00	25.88	0	170	15	185	Compression	10312	0.02

Hold-Down and Compression Design (flexible seismic design, continued)

1-2	R Op 2	0.00	29.13	0	122	11	132	Compression	10312	0.01
1-2	R End	0.00	31.38	0	122	11	132	Compression	10312	0.01
1-3	L End	2.00	31.63	1409	627	95	877	HDU5-SDS	5645	0.16
1-3	L End	2.00	31.63	-1409	1045	95	2549	Compression	10312	0.25
1-3	R End	2.00	52.88	1409	627	95	877	HDU5-SDS	5645	0.16
1-3	R End	2.00	52.88	-1409	1045	95	2549	Compression	10312	0.25
Line 4										
4-1	L End	20.00	-1.87	0	2624	239	2863	Compression	10312	0.28
4-1	R End	20.00	51.88	0	2624	239	2863	Compression	10312	0.28
Line A										
A-2	L End	6.13	-2.00	2921	87	13	2847	HDU5-SDS	5645	0.50
A-2	L End	6.13	-2.00	-2921	146	13	3080	Compression	10312	0.30
A-2	L Op 1	8.88	-2.00	2921	87	13	2847	HDU5-SDS	5645	0.50
A-2	L Op 1	8.88	-2.00	-2921	146	13	3080	Compression	11601	0.27
A-2	R Op 1	17.13	-2.00	3144	87	13	3069	HDU5-SDS	5645	0.54
A-2	R Op 1	17.13	-2.00	-3143	146	13	3302	Compression	11601	0.28
A-2	R End	19.88	-2.00	3144	87	13	3069	HDU5-SDS	5645	0.54
A-2	R End	19.88	-2.00	-3143	146	13	3302	Compression	10312	0.32
Line E										
				–	–	–	–			
	V Elem	-0.12	52.00	42949672 96	42949672 96	42949672 96	42949672 96	Compression		
				–	–	–	–			
	V Elem	0.12	52.00	42949672 96	42949672 96	42949672 96	42949672 96	Compression		
E-1	L End	2.13	53.00	1100	190	29	939	HDU5-SDS	5645	0.17
E-1	L End	2.13	53.00	-1100	316	29	1444	Compression	10312	0.14
E-1	R End	14.38	53.00	1100	190	29	939	HDU5-SDS	5645	0.17
E-1	R End	14.38	53.00	-1100	316	29	1444	Compression	11601	0.12
	V Elem	18.38	52.00	0	85	8	93	Compression		
	V Elem	19.88	52.00	0	85	8	93	Compression		

Legend:
Line-Wall:
At wall or opening – Shearline and wall number
At vertical element – Shearline
Posit'n – Position of stud pack that hold-down is attached to:
V Elem – Vertical element: column or strengthened studs required where not at wall end or opening
L or R End – At left or right wall end
L or R Op n – At left or right side of opening n
t @ Op n – Uplift force t at opening n from offset opening in perforated wall above, from SDPWS 4.3.6.4.2.1
Location – Co-ordinates in Plan View
Tensile Hold-down or Compressive Stud Force – Upwards force on hold-down at one end of the wall or downward force on bottom plate under studs at the other end, for each force direction. Includes forces transferred from upper levels.
Shear – Overturning component = V x h / beff from SDPWS Eqn. 4.3-7; V = force on segment, ASD-factored by 0.70; h = wall height , beff = wall segment length – (tension stud pack width + hold-down anchor bolt offset) – (1/2 compression stud pack width). For perforated walls = V x h / Co sum (bi) from SDPWS Eqn. 4.3-8.
Dead – Dead load resisting component, factored for ASD by 0.60 for tension and 1.0 for compression
Ev – Vertical seismic load effect from ASCE 7 12.4.2.2 = -0.2 Sds x ASD factor x unfactored D = 0.152 SDS x factored D. Refer to Seismic Information table for more details.
Cmb'd – Sum of ASD-factored overturning, dead and vertical seismic forces. May also include the uplift force t from perforated walls from SDPWS 4.3.6.4.2.1 when openings are staggered.
Hold-down – Device model number from hold-down database; "Compression" for bearing of end stud pack on bottom plate
Cap – Hold-downs: Allowable ASD tension load from database; Compression: Allowable ASD bearing force = Ct CM Cb Fcp A; A = cross sectional area of end studs. Refer to Framing materials table for details.
Crit. Resp. – Critical Response = Combined ASD force/Allowable ASD tension load

Notes:
HDU5-SDS2.5 for studs with thickness > 0'-3" and depth > 0'-3.5" : Uses 14 1/4" x 2.5" SDS heavy-duty screws; 5/8" anchor bolt.
Combined force from ASCE 7 2.4.1 load combination 10 = - (0.6D - 0.7Ev + 0.7Eh); Eh (from 12.4.2.1) = - shear overturning force
Refer to the Shear Line Dimensions table for wall height h, effective segment length beff and perforated wall adjusted sum of bi, to the Story Table for joist depth, and to the Shear Results table for perforated factor Co.
Designer is responsible for design of connection from wall to floor or foundation for shear force shown in Shear Results table. Refer to SDPWS 4.3.6.4.3 for foundation anchor bolt requirements.

COLLECTOR FORCES (flexible seismic design)

Level 1 Line-Wall	Position on Wall or Opening	Location [ft] X	Y	Drag Strut Force [lbs] --->	<---	Strap/Blocking Force [lbs] --->	<---
Line 1							
	Shearline force			5958	5958		
1-2	Left Opening 1	0.00	16.50	-583	657		
1-3	Left Wall End	2.00	31.50	-2484	2559		
Line A							
	Shearline force			2960	2960		
A-1	Left Opening 1	10.00	0.00	-774	774		
A-1	Right Opening 1	16.00	0.00	183	-183		
A-1	Left Opening 1	10.00	0.00			1113	1113
A-1	Right Opening 1	16.00	0.00			1113	1113
Line E							
	Shearline force			2995	2995		
E-1	Left Opening 1	5.00	51.00	901	-971		
E-1	Right Opening 1	17.00	51.00	-1096	1026		

Level 2 Line-Wall	Position on Wall or Opening	Location [ft] X	Y	Drag Strut Force [lbs] --->	<---	Strap/Blocking Force [lbs] --->	<---
Line 1							
	Shearline force			3472	3472		
1-2	Left Opening 1	0.00	16.50	-287	287		
1-3	Left Wall End	2.00	31.50	-1308	1308		
Line A							
	Shearline force			1724	1724		
A-2	Left Wall End	6.00	-2.00	-383	383		
A-2	Left Opening 1	9.00	-2.00	312	-312		
A-2	Right Opening 1	17.00	-2.00	-454	454		
Line E							
	Shearline force			1749	1749		
E-1	Left Opening 1	5.25	53.00	-538	538		
E-1	Right Opening 1	11.25	53.00	965	-965		
E-1	Right Wall End	14.50	53.00	427	-427		
E-1	Left Opening 1	5.25	53.00			1043	1043
E-1	Right Opening 1	11.25	53.00			1043	1043

Legend:
Line-Wall - Shearline and wall number
Position…- Side of opening or wall end that drag strut is attached to
Location - Co-ordinates in Plan View
Drag strut Force - Axial force in transfer element at openings, gaps, or changes in design shear along shearline. + : tension; - : compression.
Based on ASD-factored shearline force shown. For SDC C-F, it is the greater of the design shearline force and the diaphragm force Fpx, added to shearline force from story above and to forces transferred from discontinuous shearlines factored by overstrength (omega) as per 12.10.1.1. Refer to Seismic Information table for diaphragm forces and omega factor.
For SDC D-F, if horizontal torsional irregularities 2, 3, or 4 are input, or vertical irregularity 4 detected or input, 25% increase from 12.3.3.4 applied. For perforated walls, this force is converted to vmax using 4.3.6.4.1.1.
Strap/Blocking Force – For FTAO walls, force transferred from above and below opening to shearwall pier.
-> Due to shearline force in the west-to-east or south-to-north direction
<- Due to shearline force in the east-to-west or north-to-south direction

HOLD-DOWN DISPLACEMENT (flexible seismic design)

Wall, segment	Dir	Hold-down	Tension force lbs	Vert. Displacement Manuf in	Add in	da in	Slippage Vf lbs	da in	Shrink +Extra in	Comp. force lbs	Crush da in	Total da in	Horz Defl in
Level 1													
Line 1													
1-1	S->N	HDU5-SDS	957	.019	.001	0.020	-	-	.138	3492	0.01	0.17	0.20
	N->S	HDU5-SDS	1327	.027	.001	0.028	-	-	.138	1828	0.00	0.17	0.21
1-2	S->N	HDU5-SDS	65	.002	.000	0.002	-	-	.138	1192	0.00	0.14	0.29
	N->S	HDU5-SDS	64	.002	.000	0.002	-	-	.138	1192	0.00	0.14	0.29
1-3	S->N	HDU5-SDS	3035	.061	.003	0.064	-	-	.138	4276	0.01	0.21	0.10
	N->S	HDU5-SDS	1867	.037	.002	0.039	-	-	.138	7927	0.02	0.20	0.09
Line A													
A-1,1	W->E	HDU5-SDS	7558	.148	.007	0.156	-	-	.138	4000	0.01	0.30	0.67
	E->W	HDU5-SDS	3497	.069	.003	0.072	-	-	.138	8396	0.03	0.24	0.52
A-1,2	W->E	HDU5-SDS	3497	.069	.003	0.072	-	-	.138	8713	0.03	0.24	0.52
	E->W	HDU5-SDS	7876	.155	.008	0.162	-	-	.138	4000	0.01	0.31	0.68
Line E													
E-1,1	W->E	HDU5-SDS	6437	.127	.006	0.133	-	-	.138	5486	0.01	0.28	0.94
	E->W	HDU5-SDS	5371	.105	.005	0.111	-	-	.138	7802	0.02	0.27	0.89
E-1,2	W->E	HDU5-SDS	5838	.115	.006	0.120	-	-	.138	6345	0.02	0.27	0.91
	E->W	HDU5-SDS	5511	.108	.005	0.113	-	-	.138	5953	0.02	0.27	0.88

Wall, segment	Dir	Hold-down	Tension force lbs	Vert. Displacement Manuf in	Add in	da in	Slippage Vf lbs	da in	Shrink +Extra in	Comp. force lbs	Crush da in	Total da in	Horz Defl in
Level 2													
Line 1													
1-1	Both	HDU5-SDS	472	.019	.000	0.020	-	-	.168	1562	0.00	0.19	0.16
1-2	Both	HDU5-SDS	113	.005	.000	0.005	-	-	.168	644	0.00	0.17	0.31
1-3	Both	HDU5-SDS	1209	.049	.001	0.050	-	-	.168	3612	0.01	0.23	0.09
Line A													
A-2,1	W->E	HDU5-SDS	4946	.159	.003	0.162	-	-	.168	5281	0.01	0.34	1.00
	E->W	HDU5-SDS	4061	.159	.003	0.162	-	-	.168	4396	0.01	0.34	1.00
A-2,2	W->E	HDU5-SDS	3117	.172	.003	0.175	-	-	.168	3452	0.01	0.35	1.04
	E->W	HDU5-SDS	4378	.172	.003	0.175	-	-	.168	4714	0.01	0.35	1.04
Line E													
E-1,1	Both	HDU5-SDS	2740	.108	.002	0.109	-	-	.168	3103	0.01	0.29	0.69
E-1,2	Both	HDU5-SDS	2740	.108	.002	0.109	-	-	.168	3103	0.01	0.29	0.69

Legend:
Wall, segment – Wall and segment between openings, e.g. B-3,2 = second segment on Wall 3 on Shearline B
Dir – Force direction
Tens., Comp. force – Accumulated strength-level hold-down tension force T and end compression force C from overturning, dead loads and vertical earthquake loads
da – Vertical displacements due to the following components:
Vert. Displacement – Elongation when slippage calculated separately; displacement when combined elongation/slippage used
Manuf – Using manufacturer's value for anchor bolt length, or no bolt contribution for connector-only elongation
*Unless marked with * = (ASD uplift force / ASD hold-down capacity) x max strength-level elongation or displacement*
** - Maximum strength-level elongation or displacement is used. May result in higher than actual displacements for lightly loaded hold-downs, causing the segment to draw less force due to lower than actual stiffness.*
Add – Due to longer anchor bolt length than manufacturer's value, or entire bolt length for connector-only elongation = TL / (Ab x Es)
Ab = bolt cross-sectional area
Es = steel modulus = 29000000 psi
L = Lb – Lh
Lb = Total bolt length shown in Storey Information table
Lh = Manufacturer's anchor bolt length for given displacement/elongation from hold-down database
Slippage – Due to vertical slippage of hold-down fasteners attached to stud(s) when not combined with elongation
Nails = en from SDPWS Table C4.2.3D using values for wood structural panels
Bolts = Vf / (270,000 D^1.5) (NDS 11.3.6); D = bolt diameter, Vf = Tension force T / number of fasteners
Shrink + Extra – Wood shrinkage plus extra displacement due to mis-cuts, gaps, etc.
Shrinkage = 0.002 x (15% fabrication – 10% in-service moisture contents) x Ls
Ls = Length between anchor bolt fasteners subject to perp-to-grain shrinkage; see Story Information table
Crush – Deformation of bottom plate at compression end of wall segment
= 0.02" x [r / 0.73, r < 0.73; (1 + (r - 0.73) / 0.27), 0.73 < r < 1; 2 r^3, r > 1]
r = fcp / Fcp'; Fcp' = Ct CM Fcp; fcp = C / A, A = cross sectional area of end studs
Total da – Vert. Displacement + Slippage + Shrink + Crush + Extra
Horz Defl – Anchorage deflection term in SDPWS Eqn. C.4.3.4-1 = h / beff x da
h = Wall height. For end segments in FTAO walls, h is the average of the wall height and the distance from the bottom of opening to top of wall
beff = Effective wall segment length = b - (tension stud pack width + hold-down anchor bolt offset) - (1/2 compression stud pack width)
h and b are shown in Deflection table, beff in the Shear Wall Dimensions table

Force Transfer Around Openings Calculator

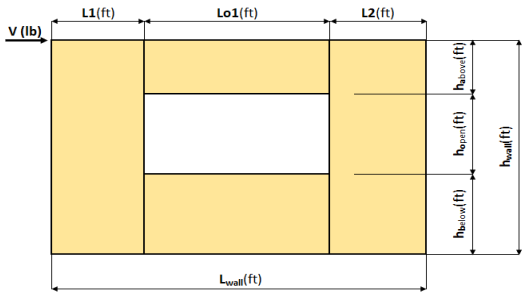
ONE OPENING

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach lends certain advantages over segmented shear walls: more versatility, because it allows for narrower wall segments while still meeting the height-to-width ratios and, often, fewer required hold-downs.

Project Information

Code:	2018/21 IRC
Designer:	ROYAL MORTIER
Client:	
Project:	1547 DUPLEX
Wall Line:	E-1, UPPER FLOOR

Date: 1/22/2024



Shear Wall Calculation Variables

V	2330 lbf	Opening 1	
L1	3.25 ft	ha1	1.25 ft
L2	3.25 ft	ho1	5.00 ft
h_{wall}	8.00 ft	hb1	1.75 ft
L_{wall}	12.50 ft	Lo1	6.00 ft

Wall Pier Aspect Ratio		Adj. Factor
P1=ho1/L1=	1.54	N/A
P2=ho1/L2=	1.54	N/A

1. Hold-down forces: H = Vh_{wall}/L_{wall} 1491 lbf

2. Unit shear above + below opening

First opening: va1 = vb1 = H/(ha1+hb1) = 497 plf

3. Total boundary force above + below openings

First opening: O1 = va1 x (Lo1) = 2982 lbf

4. Corner forces

F1 = O1(L1)/(L1+L2) = 1491 lbf

F2 = O1(L2)/(L1+L2) = 1491 lbf

5. Tributary length of openings

T1 = (L1*Lo1)/(L1+L2) = 3.00 ft

T2 = (L2*Lo1)/(L1+L2) = 3.00 ft

6. Unit shear beside opening

V1 = (V/L)(L1+T1)/L1 = 358 plf

V2 = (V/L)(T2+L2)/L2 = 358 plf

Check V1*L1+V2*L2=V? 2330 lbf **OK**

7. Resistance to corner forces

R1 = V1*L1 = 1165 lbf

R2 = V2*L2 = 1165 lbf

8. Difference corner force + resistance

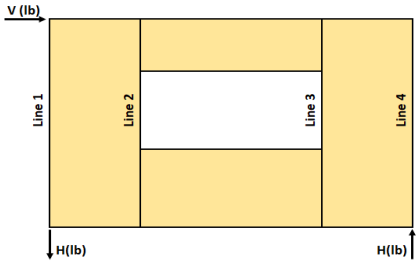
R1-F1 = -326 lbf

R2-F2 = -326 lbf

9. Unit shear in corner zones

vc1 = (R1-F1)/L1 = -100 plf

vc2 = (R2-F2)/L2 = -100 plf



Check Summary of Shear Values for One Opening

Line 1: vc1(ha1+hb1)+V1(ho1)=H?		-301	1792	1491 lbf
Line 2: va1(ha1+hb1)-vc1(ha1+hb1)-V1(ho1)=0?	1491	-301	1792	0
Line 3: vc2(ha1+hb1)+V2(ho1)=H?		-301	1792	1491 lbf

Design Summary

Req. Sheathing Capacity	497 plf	**4-Term Deflection**	0.199 in.	**3-Term Deflection**	0.232 in.
Req. Strap Force	1491 lbf	**4-Term Story Drift %**	0.008 %	**3-Term Story Drift %**	0.010 %
Req. HD Force (H)	1491 lbf		See Page 2		See Page 3

Project Information

Code:	2018/21 IRC	**Date:**	1/22/2024
Designer:	ROYAL MORTIER		
Client:			
Project:	1547 DUPLEX		
Wall Line:	E-1, UPPER FLOOR		

Shear Wall Deflection Calculation Variables

Sheathing:

Plywood	Sheathing Material
15/32	Performance Category
APA Rated Sheathing	Grade
	Gt Override
	Ga Overide

Wood End Post Values:

Species:			
E:	1.60E+06	(psi)	
	Qty	Stud Size	
Dimensions:	2	2x6	
A:	16.5	(in.^{2})	
A Override:		(in.^{2})	

Nail Type: 8d common (penny weight)

	Pier 1	Pier 2	
Nail Spacing:	2	2	(in.)
HD Capacity:	5635	5635	(lbf)
HD Deflection:	0.022	0.022	(in.)

Four-Term Equation Deflection Check

$$\Delta = \frac{8vh^3}{EAb} + \frac{vh}{Gt} + 0.75he_a + d_a\frac{h}{b} \qquad \text{(Equation 23-2)}$$

	Pier 1-L	Pier 1-R	Pier 2-L	Pier 2-R	
Sheathing:	15/32	15/32	15/32	15/32	
Nail:	8d common	8d common	8d common	8d common	
v_{asd}:	358	358	358	358	(plf)
$v_{strength}$:	512	512	512	512	(plf)
E:	1.60E+06	1.60E+06	1.60E+06	1.60E+06	(psi)
h:	8.00	6.25	6.25	8.00	(ft)
A:	16.5	16.5	16.5	16.5	(in.^{2})
Gt:	27,000	27,000	27,000	27,000	(lbf/in.)
Nail Spacing:	2	2	2	2	(in.)
Vn:	85	85	85	85	(plf)
e:	0.0026	0.0026	0.0026	0.0026	(in.)
b:	3.25	3.25	3.25	3.25	(ft)
HD Capacity:	5635	5635	5635	5635	(lbf)
HD Defl:	0.022	0.022	0.022	0.022	(in.)

Check Total Deflection of Wall System

Pier 1 (left)				Pier 1 (right)			
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-1	Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-2
0.024	0.152	0.015	0.039	0.012	0.119	0.012	0.024
		Sum	0.231			Sum	0.166
Pier 2 (left)				**Pier 2 (right)**			
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-1	Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-2
0.012	0.119	0.012	0.024	0.024	0.152	0.015	0.039
		Sum	0.166			Sum	0.231

Total Defl.	
0.199	(in.)
0.0083	%drift

Project Information

Code:	2018/21 IRC	**Date:**	1/22/2024
Designer:	ROYAL MORTIER		
Client:			
Project:	1547 DUPLEX		
Wall Line:	E-1, UPPER FLOOR		

Three-Term Equation Deflection Check

$$\delta_{sw} = \frac{8vh^3}{EAb} + \frac{vh}{1000G_a} + \frac{h\Delta_a}{b} \qquad (4.3\text{-}1)$$

	Pier 1-L	Pier 1-R	Pier 2-L	Pier 2-R	
Sheathing:	15/32	15/32	15/32	15/32	
Nail:	8d common	8d common	8d common	8d common	
v_{asd}:	358	358	358	358	(plf)
$v_{strength}$:	512	512	512	512	(plf)
E:	1.60E+06	1.60E+06	1.60E+06	1.60E+06	(psi)
h:	8.00	6.25	6.25	8.00	(ft)
A:	16.5	16.5	16.5	16.5	($in.^2$)
Ga:	20.0	20.0	20.0	20.0	(kips/in.)
b:	3.25	3.25	3.25	3.25	(ft)
HD Capacity:	5635	5635	5635	5635	(lbf)
HD Defl:	0.022	0.022	0.022	0.022	(in.)

Check Total Deflection of Wall System

Pier 1 (left)			Pier 1 (right)		
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 1 Bending	Term 2 Shear	Term 3 Fastener
0.024	0.205	0.039	0.012	0.160	0.024
	Sum	0.269		Sum	0.196
Pier 2 (left)			Pier 2 (right)		
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 1 Bending	Term 2 Shear	Term 3 Fastener
0.012	0.160	0.024	0.024	0.205	0.039
	Sum	0.196		Sum	0.269

Total Defl.	
0.232	(in.)
0.0097	%drift

Comment: The 3-term equation is calibrated to be approximately equal to 4-term equation at 1.4*ASD capacity.

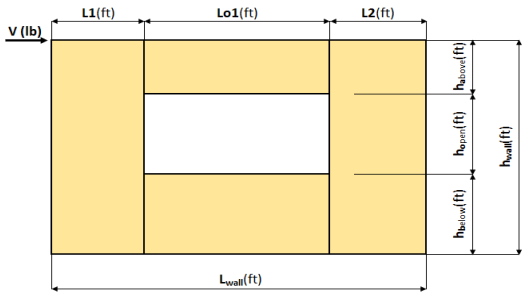
Force Transfer Around Openings Calculator

ONE OPENING

The force transfer around openings (FTAO) method of shear wall analysis is an approach that aims to reinforce the wall such that it performs as if there was no opening. This approach lends certain advantages over segmented shear walls: more versatility, because it allows for narrower wall segments while still meeting the height-to-width ratios and, often, fewer required hold-downs.

Project Information

Code:	2018/21 IRC	**Date:**	1/22/2024
Designer:	ROYAL MORTIER		
Client:			
Project:	1547 DUPLEX		
Wall Line:	A-1, MAIN FLOOR		



Shear Wall Calculation Variables

			Opening 1			Adj. Factor
V	5236 lbf	ha1	2.25 ft	P1=ho1/L1=	1.25	N/A
L1	4.00 ft	ho1	5.00 ft	P2=ho1/L2=	1.25	N/A
h_{wall}	9.00 ft	hb1	1.75 ft			
L_{wall}	14.00 ft	Lo1	6.00 ft			

1. Hold-down forces: $H = Vh_{wall}/L_{wall}$ 3366 lbf

2. Unit shear above + below opening

First opening: va1 = vb1 = H/(ha1+hb1) = 842 plf

3. Total boundary force above + below openings

First opening: O1 = va1 x (Lo1) = 5049 lbf

4. Corner forces

F1 = O1(L1)/(L1+L2) = 2525 lbf

F2 = O1(L2)/(L1+L2) = 2525 lbf

5. Tributary length of openings

T1 = (L1*Lo1)/(L1+L2) = 3.00 ft

T2 = (L2*Lo1)/(L1+L2) = 3.00 ft

6. Unit shear beside opening

V1 = (V/L)(L1+T1)/L1 = 655 plf

V2 = (V/L)(T2+L2)/L2 = 655 plf

Check V1*L1+V2*L2=V? 5236 lbf **OK**

7. Resistance to corner forces

R1 = V1*L1 = 2618 lbf

R2 = V2*L2 = 2618 lbf

8. Difference corner force + resistance

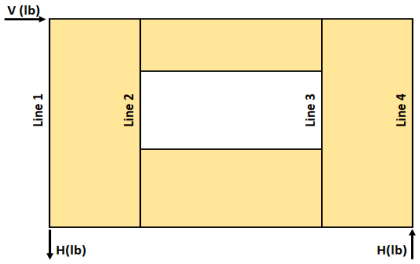
R1-F1 = 94 lbf

R2-F2 = 94 lbf

9. Unit shear in corner zones

vc1 = (R1-F1)/L1 = 23 plf

vc2 = (R2-F2)/L2 = 23 plf



Check Summary of Shear Values for One Opening

Line 1: vc1(ha1+hb1)+V1(ho1)=H?		94	3273	3366 lbf
Line 2: va1(ha1+hb1)-vc1(ha1+hb1)-V1(ho1)=0?	3366	94	3273	0
Line 3: vc2(ha1+hb1)+V2(ho1)=H?		94	3273	3366 lbf

Design Summary

Req. Sheathing Capacity	842 plf	**4-Term Deflection**	0.478 in.	**3-Term Deflection**	0.480 in.
Req. Strap Force	2525 lbf	**4-Term Story Drift %**	0.018 %	**3-Term Story Drift %**	0.018 %
Req. HD Force (H)	3366 lbf		See Page 2		See Page 3

Project Information

Code:	2018/21 IRC	**Date:**	1/22/2024
Designer:	ROYAL MORTIER		
Client:			
Project:	1547 DUPLEX		
Wall Line:	A-1, MAIN FLOOR		

Shear Wall Deflection Calculation Variables

Sheathing:		Wood End Post Values:			Nail Type:	8d common	(penny weight)
Plywood	Sheathing Material	Species:					
15/32	Performance Category	E:	1.60E+06	(psi)			
APA Rated Sheathing	Grade		Qty	Stud Size		Pier 1	Pier 2
		Dimensions:	2	2x6	Nail Spacing:	2	2 (in.)
	Gt Override	A:	16.5	(in.^{2})	HD Capacity:	5635	5635 (lbf)
	Ga Overide	A Override:		(in.^{2})	HD Deflection:	0.022	0.022 (in.)

Four-Term Equation Deflection Check

$$\Delta = \frac{8vh^3}{EAb} + \frac{vh}{Gt} + 0.75he_a + d_a\frac{h}{b} \qquad \text{(Equation 23-2)}$$

	Pier 1-L	Pier 1-R	Pier 2-L	Pier 2-R	
Sheathing:	15/32	15/32	15/32	15/32	
Nail:	8d common	8d common	8d common	8d common	
v_{asd}:	655	655	655	655	(plf)
$v_{strength}$:	935	935	935	935	(plf)
E:	1.60E+06	1.60E+06	1.60E+06	1.60E+06	(psi)
h:	9.00	7.25	7.25	9.00	(ft)
A:	16.5	16.5	16.5	16.5	(in.^{2})
Gt:	27,000	27,000	27,000	27,000	(lbf/in.)
Nail Spacing:	2	2	2	2	(in.)
Vn:	156	156	156	156	(plf)
e:	0.0158	0.0158	0.0158	0.0158	(in.)
b:	4.00	4.00	4.00	4.00	(ft)
HD Capacity:	5635	5635	5635	5635	(lbf)
HD Defl:	0.022	0.022	0.022	0.022	(in.)

Check Total Deflection of Wall System

Pier 1 (left)				Pier 1 (right)			
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-1	Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-2
0.052	0.312	0.107	0.074	0.027	0.251	0.086	0.048
		Sum	0.544			Sum	0.412
Pier 2 (left)				**Pier 2 (right)**			
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-1	Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 4 HD-2
0.027	0.251	0.086	0.048	0.052	0.312	0.107	0.074
		Sum	0.412			Sum	0.544

Total Defl.	
0.478	(in.)
0.0177	%drift

APA Disclaimer

Project Information

Code:	2018/21 IRC	**Date:**	1/22/2024
Designer:	ROYAL MORTIER		
Client:			
Project:	1547 DUPLEX		
Wall Line:	A-1, MAIN FLOOR		

Three-Term Equation Deflection Check

$$\delta_{sw} = \frac{8vh^3}{EAb} + \frac{vh}{1000G_a} + \frac{h\Delta_a}{b} \qquad (4.3\text{-}1)$$

	Pier 1-L	Pier 1-R	Pier 2-L	Pier 2-R	
Sheathing:	15/32	15/32	15/32	15/32	
Nail:	8d common	8d common	8d common	8d common	
v_{asd}:	655	655	655	655	(plf)
$v_{strength}$:	935	935	935	935	(plf)
E:	1.60E+06	1.60E+06	1.60E+06	1.60E+06	(psi)
h:	9.00	7.25	7.25	9.00	(ft)
A:	16.5	16.5	16.5	16.5	($in.^2$)
Ga:	20.0	20.0	20.0	20.0	(kips/in.)
b:	4.00	4.00	4.00	4.00	(ft)
HD Capacity:	5635	5635	5635	5635	(lbf)
HD Defl:	0.022	0.022	0.022	0.022	(in.)

Check Total Deflection of Wall System

Pier 1 (left)			Pier 1 (right)		
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 1 Bending	Term 2 Shear	Term 3 Fastener
0.052	0.421	0.074	0.027	0.339	0.048
	Sum	0.546		Sum	0.414
Pier 2 (left)			Pier 2 (right)		
Term 1 Bending	Term 2 Shear	Term 3 Fastener	Term 1 Bending	Term 2 Shear	Term 3 Fastener
0.027	0.339	0.048	0.052	0.421	0.074
	Sum	0.414		Sum	0.546

Total Defl.	
0.480	(in.)
0.0178	%drift

Comment: The 3-term equation is calibrated to be approximately equal to 4-term equation at 1.4*ASD capacity.

Table 1. Recommended Allowable Design Values for APA Portal Frame Used on a Rigid-Base

Minimum Width (in.)	Maximum Height (ft)	Allowable Design (ASD) Values per Frame Segment		
		Shear[e,f] (lbf)	Deflection (in.)	Load Factor
16	8	850	0.33	3.09
	10	625	0.44	2.97
24	8	1,675	0.38	2.88
	10	1,125	0.51	3.42

Foundation for Wind or Seismic Loading[a,b,c,d]

(a) Design values are based on the use of Douglas-fir or Southern pine framing. For other species of framing, multiply the above shear design value by the specific gravity adjustment factor = (1 – (0.5 – SG)), where SG = specific gravity of the actual framing. This adjustment shall not be greater than 1.0.

(b) For construction as shown in Figure 1.

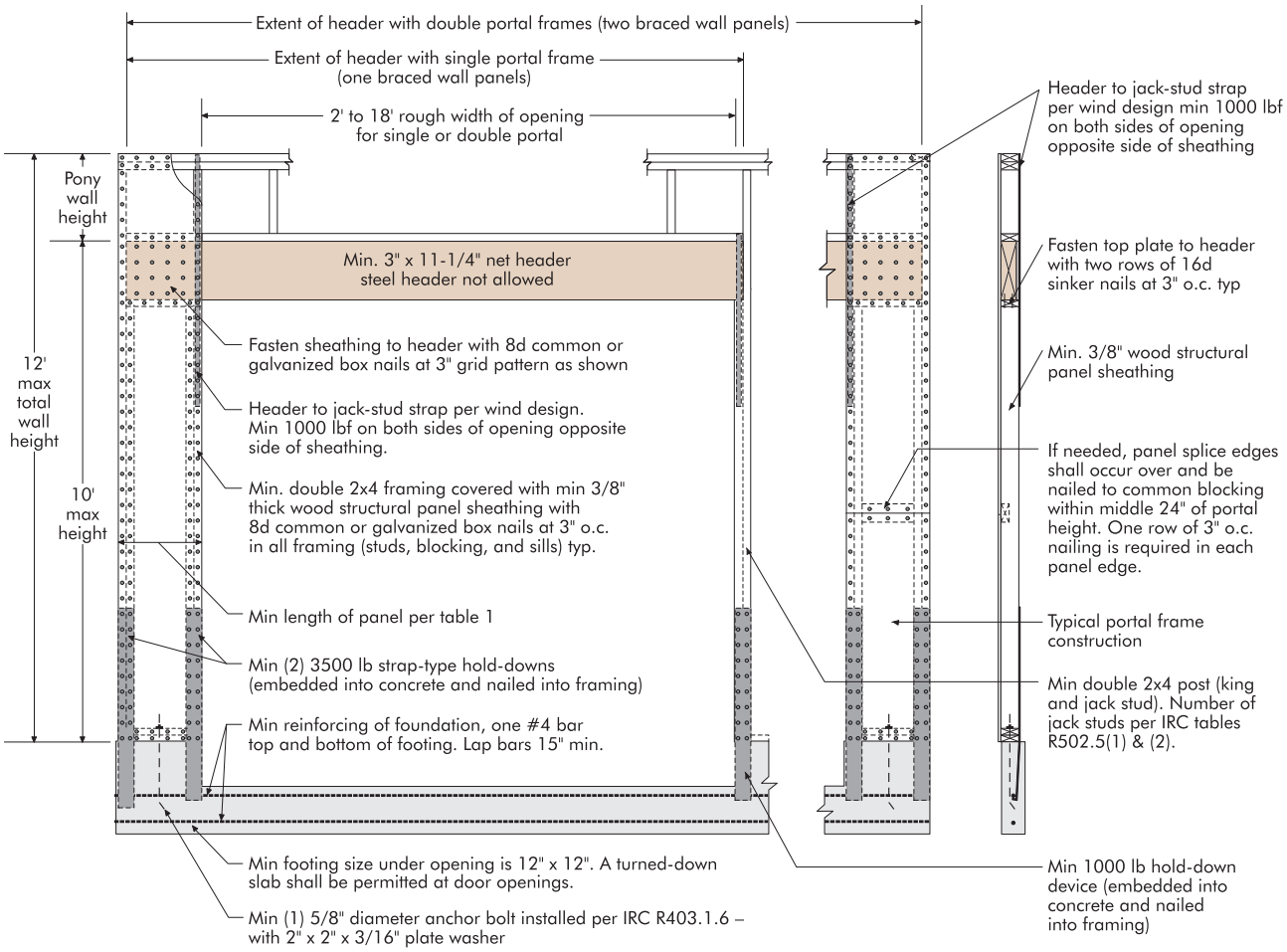
(c) Values are for a single portal-frame segment (one vertical leg and a portion of the header). For multiple portal-frame segments, the allowable shear design values are permitted to be multiplied by the number of frame segments (e.g., two = 2x, three = 3x, etc.).

(d) Interpolation of design values for heights between 8 and 10 feet, and for portal widths between 16 and 24 inches, is permitted.

(e) The allowable shear design value is permitted to be multiplied by a factor of 1.4 for wind design.

(f) If story drift is not a design consideration, the tabulated design shear values are permitted to be multiplied by a factor of 1.15. This factor is permitted to be used cumulatively with the wind-design adjustment factor in Footnote (e) above.

Figure 1. Construction Details for APA Portal-Frame Design with Hold Downs



ROOF			
Member Name	Results	Current Solution	Comments
Roof: RAFTERS	Passed	1 piece(s) 2 x 12 DF No.2 @ 16" OC	
UPPER			
Member Name	Results	Current Solution	Comments
8'-FRONT WINDOW	Passed	1 piece(s) 4 x 8 DF No.2	
6'-REAR WINDOW	Passed	1 piece(s) 4 x 8 DF No.2	
3'-REAR WINDOW	Passed	1 piece(s) 4 x 8 DF No.2	
6'-SIDE WINDOW (GABLE END)	Passed	1 piece(s) 4 x 8 DF No.2	
3'-SIDE WINDOW (GABLE END)	Passed	1 piece(s) 4 x 8 DF No.2	
UPPER FLOOR			
Member Name	Results	Current Solution	Comments
13'-FLOOR BEAM	Passed	1 piece(s) 5 1/2" x 14" 24F-V4 DF Glulam	
3.25'-FLOOR BEAM	Passed	1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL	
9'-FLOOR BEAM	Passed	1 piece(s) 3 1/2" x 14" 24F-V4 DF Glulam	
17'-GARAGE BEAM	Passed	1 piece(s) 5 1/2" x 15" 24F-V4 DF Glulam	
MAIN			
Member Name	Results	Current Solution	Comments
3'-FRONT ENTRY	Passed	1 piece(s) 4 x 8 DF No.2	
6'-FRONT WINDOW	Passed	1 piece(s) 4 x 10 DF No.2	
2.75'-INTERIOR HEADER	Passed	2 piece(s) 2 x 6 DF No.2	
6'-SIDE WINDOW (GABLE END)	Passed	1 piece(s) 4 x 8 DF No.2	
3'-SIDE WINDOW (GABLE END)	Passed	1 piece(s) 4 x 8 DF No.2	
14'-GARAGE	Passed	1 piece(s) 5 1/2" x 11 7/8" 24F-V4 DF Glulam	
6'-FRONT PORCH	Passed	1 piece(s) 6 x 8 DF No.2	
MAIN FLOOR			
Member Name	Results	Current Solution	Comments
Floor: Drop Beam	Passed	1 piece(s) 4 x 8 DF No.2	

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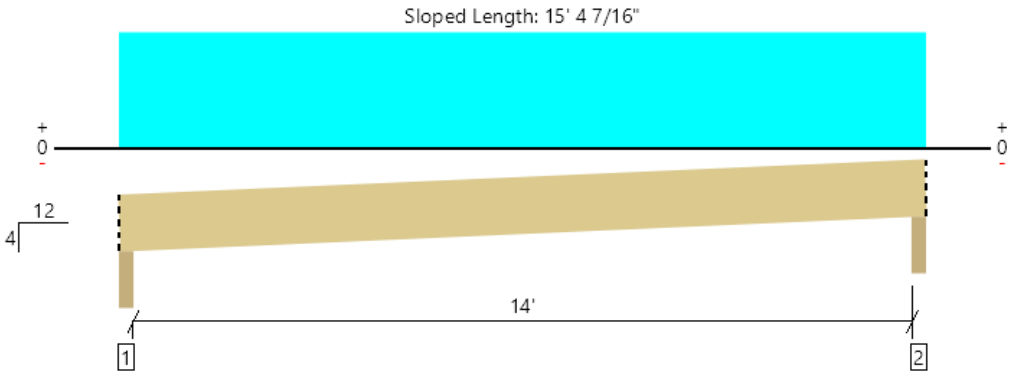
ROOF, Roof: RAFTERS

1 piece(s) 2 x 12 DF No.2 @ 16" OC



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

Member Length : 15' 8 3/16"

System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 4/12

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	499 @ 2 1/2"	3281 (3.50")	Passed (15%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	418 @ 1' 2 3/16"	2329	Passed (18%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1718 @ 7' 3 1/2"	3138	Passed (55%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.118 @ 7' 3 1/2"	0.747	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.242 @ 7' 3 1/2"	0.996	Passed (L/740)	--	1.0 D + 1.0 S (All Spans)

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Roof Live	Snow	Factored	
1 - Beveled Plate - DF	3.50"	3.50"	1.50"	256	194	243	499	Blocking
2 - Beveled Plate - DF	3.50"	3.50"	1.50"	256	194	243	499	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' 7" o/c	
Bottom Edge (Lu)	15' 4" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 14' 7"	16"	25.0	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
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

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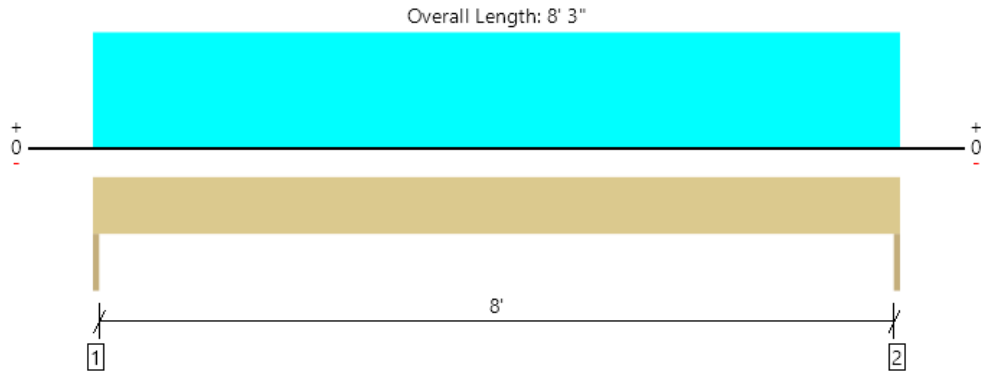
UPPER, 8'-FRONT WINDOW

1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	852 @ 0	3281 (1.50")	Passed (26%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	701 @ 8 3/4"	3502	Passed (20%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1756 @ 4' 1 1/2"	3438	Passed (51%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.117 @ 4' 1 1/2"	0.275	Passed (L/845)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.121 @ 4' 1 1/2"	0.313	Passed (L/818)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (5/16").
- 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 - Trimmer - DF	1.50"	1.50"	1.50"	27	825	852	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	27	825	852	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	8' 3" o/c	
Bottom Edge (Lu)	8' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 8' 3"	N/A	6.4	--	
1 - Uniform (PLF)	0 to 8' 3"	N/A	-	200.0	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
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

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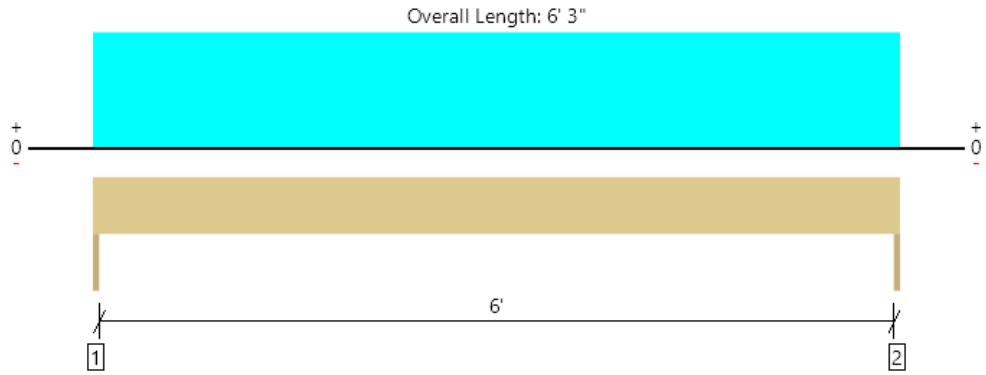
UPPER, 6'-REAR WINDOW
1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	518 @ 0	3281 (1.50")	Passed (16%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	397 @ 8 3/4"	3502	Passed (11%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	810 @ 3' 1 1/2"	3438	Passed (24%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.031 @ 3' 1 1/2"	0.208	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.032 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Roof Live	Snow	Factored	
1 - Trimmer - DF	1.50"	1.50"	1.50"	20	398	498	518	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	20	398	498	518	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	6.4	--	--	
1 - Uniform (PSF)	0 to 6' 3"	6' 4 1/2"	-	20.0	25.0	Default Load

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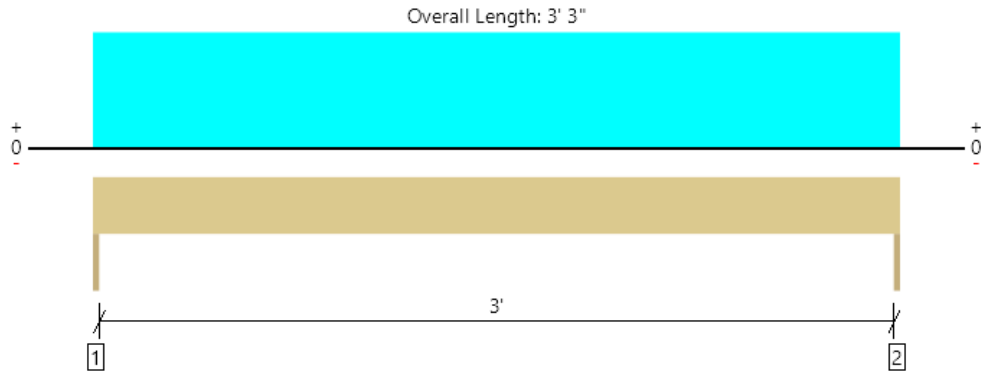
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER, 3'-REAR WINDOW
1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	459 @ 0	3281 (1.50")	Passed (14%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	253 @ 8 3/4"	3502	Passed (7%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	373 @ 1' 7 1/2"	3438	Passed (11%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.002 @ 1' 7 1/2"	0.108	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.004 @ 1' 7 1/2"	0.162	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Roof Live	Snow	Factored	
1 - Trimmer - DF	1.50"	1.50"	1.50"	241	175	218	459	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	241	175	218	459	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 3"	N/A	6.4	--	--	
1 - Uniform (PSF)	0 to 3' 3"	5' 4 1/2"	26.4	20.0	25.0	Default Load

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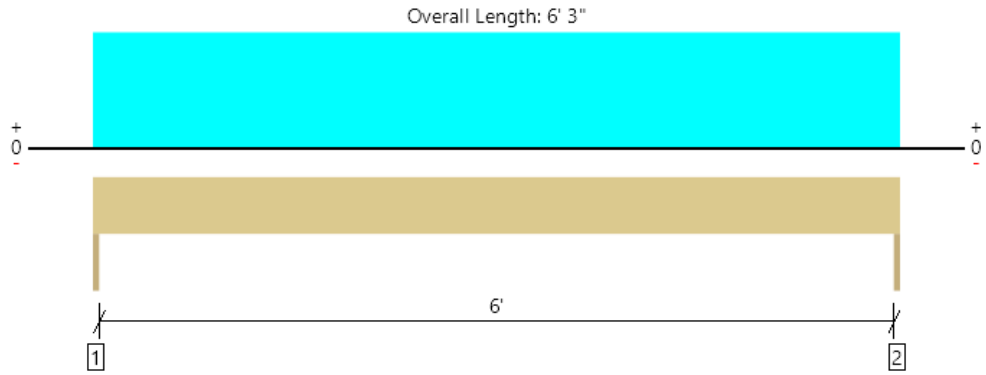
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER, 6'-SIDE WINDOW (GABLE END)

1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	645 @ 0	3281 (1.50")	Passed (20%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	495 @ 8 3/4"	3502	Passed (14%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1008 @ 3' 1 1/2"	3438	Passed (29%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.039 @ 3' 1 1/2"	0.208	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.040 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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 - Trimmer - DF	1.50"	1.50"	1.50"	20	625	645	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	20	625	645	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	6.4	--	
1 - Uniform (PLF)	0 to 6' 3"	N/A	-	200.0	Default Load

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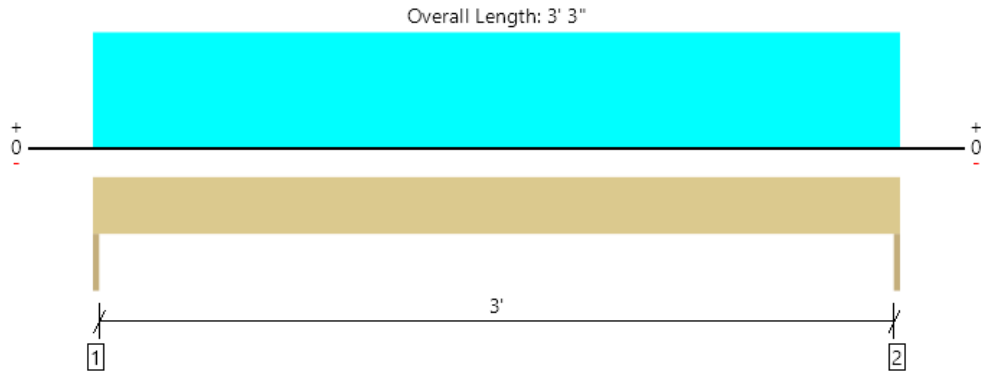
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER, 3'-SIDE WINDOW (GABLE END)
1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	335 @ 0	3281 (1.50")	Passed (10%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	185 @ 8 3/4"	3502	Passed (5%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	273 @ 1' 7 1/2"	3438	Passed (8%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.003 @ 1' 7 1/2"	0.108	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.003 @ 1' 7 1/2"	0.162	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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 - Trimmer - DF	1.50"	1.50"	1.50"	10	325	335	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	10	325	335	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 3"	N/A	6.4	--	
1 - Uniform (PLF)	0 to 3' 3"	N/A	-	200.0	Default Load

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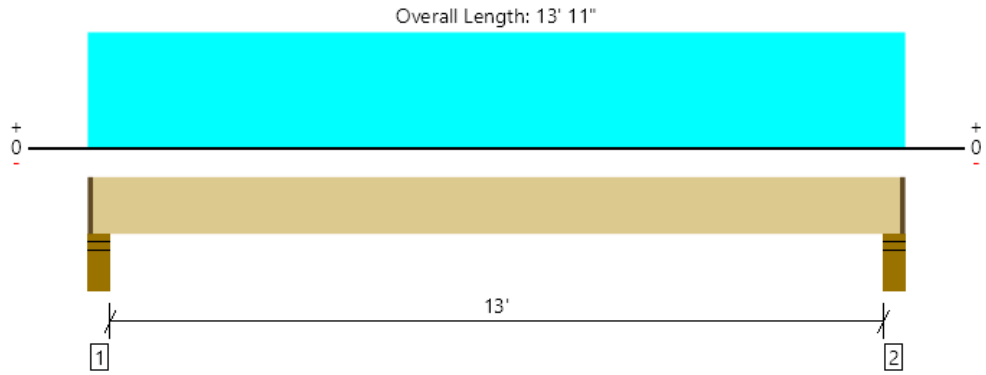
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER FLOOR, 13'-FLOOR BEAM

1 piece(s) 5 1/2" x 14" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5166 @ 4"	14609 (4.25")	Passed (35%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	4020 @ 1' 7 1/2"	13603	Passed (30%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	16541 @ 6' 11 1/2"	35933	Passed (46%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.150 @ 6' 11 1/2"	0.442	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.231 @ 6' 11 1/2"	0.663	Passed (L/689)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume/size factor of 1.00 that was calculated using length L = 13' 3".
- 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	Floor Live	Factored	
1 - Stud wall - DF	5.50"	4.25"	1.50"	1833	3410	5243	1 1/4" Rim Board
2 - Stud wall - DF	5.50"	4.25"	1.50"	1833	3410	5243	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	13' 9" o/c	
Bottom Edge (Lu)	13' 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)	1 1/4" to 13' 9 3/4"	N/A	18.7	--	
1 - Uniform (PSF)	0 to 13' 11" (Back)	5' 9"	20.0	40.0	Default Load
2 - Uniform (PSF)	0 to 13' 11" (Front)	6' 6"	20.0	40.0	

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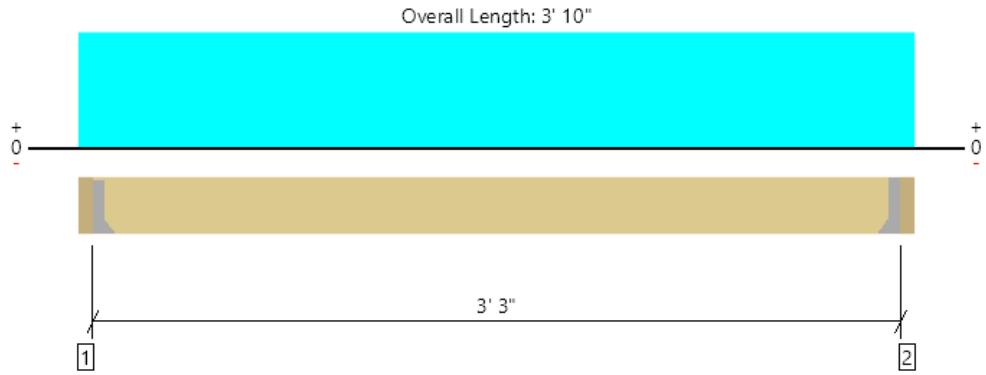
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER FLOOR, 3.25'-FLOOR BEAM

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



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	595 @ 3 1/2"	1969 (1.50")	Passed (30%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	233 @ 1' 3 3/8"	3948	Passed (6%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	483 @ 1' 11"	8924	Passed (5%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.003 @ 1' 11"	0.081	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.005 @ 1' 11"	0.162	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
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	Factored	
1 - Hanger on 11 7/8" DF beam	3.50"	Hanger[1]	1.50"	240	460	700	See note [1]
2 - Hanger on 11 7/8" DF beam	3.50"	Hanger[1]	1.50"	240	460	700	See note [1]

- 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)	3' 3" o/c	
Bottom Edge (Lu)	3' 3" 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	IUS1.81/9.5	2.00"	N/A	8-10dx1.5	2-10dx1.5	
2 - Face Mount Hanger	IUS1.81/9.5	2.00"	N/A	8-10dx1.5	2-10dx1.5	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 3' 6 1/2"	N/A	6.1	--	
1 - Uniform (PSF)	0 to 3' 10" (Back)	6'	20.0	40.0	Default Load

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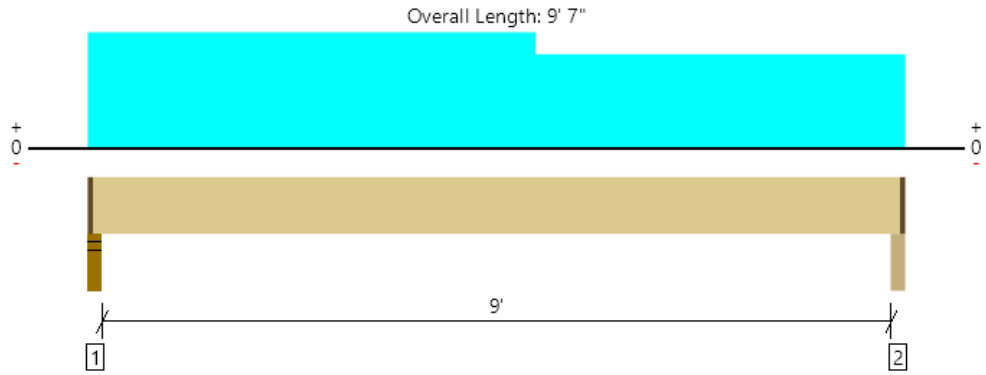
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER FLOOR, 9'-FLOOR BEAM

1 piece(s) 3 1/2" x 14" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2524 @ 2"	4922 (2.25")	Passed (51%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1766 @ 1' 5 1/2"	8657	Passed (20%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	5536 @ 4' 7 3/8"	22867	Passed (24%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.038 @ 4' 9 1/16"	0.231	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.059 @ 4' 9 1/16"	0.463	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume/size factor of 1.00 that was calculated using length L = 9' 3".
- 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	Floor Live	Factored	
1 - Stud wall - DF	3.50"	2.25"	1.50"	897	1683	2581	1 1/4" Rim Board
2 - Column - DF	3.50"	2.25"	1.50"	811	1511	2323	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	9' 5" o/c	
Bottom Edge (Lu)	9' 5" 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)	1 1/4" to 9' 5 3/4"	N/A	11.9	--	
1 - Uniform (PSF)	0 to 5' 3" (Front)	2' 7 1/2"	20.0	40.0	Default Load
2 - Uniform (PSF)	5' 3" to 9' 7" (Front)	10 1/2"	20.0	40.0	
3 - Uniform (PSF)	0 to 9' 7" (Back)	6' 6"	20.0	40.0	

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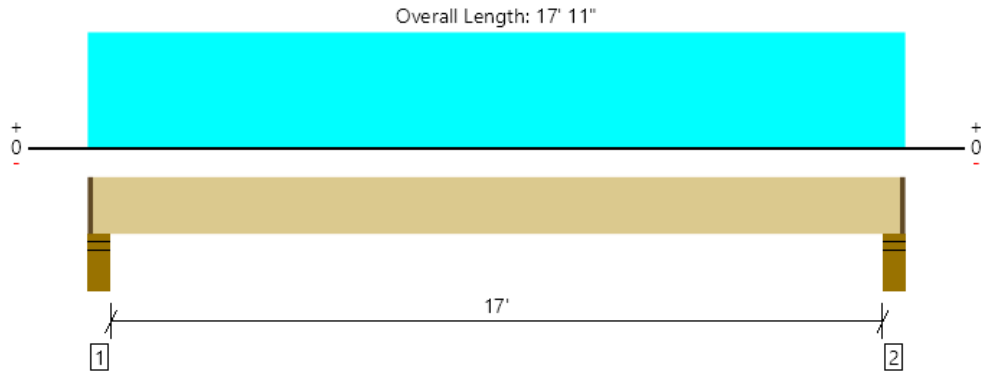
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

UPPER FLOOR, 17'-GARAGE BEAM

1 piece(s) 5 1/2" x 15" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5092 @ 4"	14609 (4.25")	Passed (35%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	4169 @ 1' 8 1/2"	14575	Passed (29%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	21389 @ 8' 11 1/2"	40852	Passed (52%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.265 @ 8' 11 1/2"	0.431	Passed (L/782)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.411 @ 8' 11 1/2"	0.863	Passed (L/503)	--	1.0 D + 1.0 L (All Spans)

System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume/size factor of 0.99 that was calculated using length L = 17' 3".
- 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	Floor Live	Factored	
1 - Stud wall - DF	5.50"	4.25"	1.50"	1835	3315	5149	1 1/4" Rim Board
2 - Stud wall - DF	5.50"	4.25"	1.50"	1835	3315	5149	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	17' 9" o/c	
Bottom Edge (Lu)	17' 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)	1 1/4" to 17' 9 3/4"	N/A	20.0	--	
1 - Uniform (PSF)	0 to 17' 11" (Back)	3' 1 1/2"	20.0	40.0	Default Load
2 - Uniform (PSF)	0 to 17' 11" (Front)	6' 1 1/2"	20.0	40.0	

Weyerhaeuser Notes

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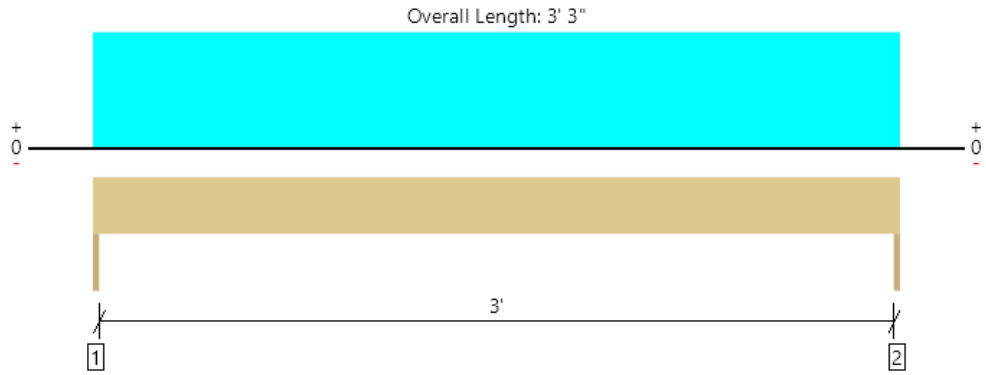
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 3'-FRONT ENTRY

1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	921 @ 0	3281 (1.50")	Passed (28%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	473 @ 8 3/4"	3045	Passed (16%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	697 @ 1' 7 1/2"	2989	Passed (23%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.003 @ 1' 7 1/2"	0.108	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.008 @ 1' 7 1/2"	0.162	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Floor Live	Roof Live	Snow	Factored	
1 - Trimmer - DF	1.50"	1.50"	1.50"	532	325	154	193	921	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	532	325	154	193	921	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 3"	N/A	6.4	--	--	--	
1 - Uniform (PSF)	0 to 3' 3"	5'	20.0	40.0	-	-	Default Load
2 - Uniform (PSF)	0 to 3' 3"	8'	12.0	-	-	-	
3 - Uniform (PSF)	0 to 3' 3"	4' 9"	26.4	-	20.0	25.0	

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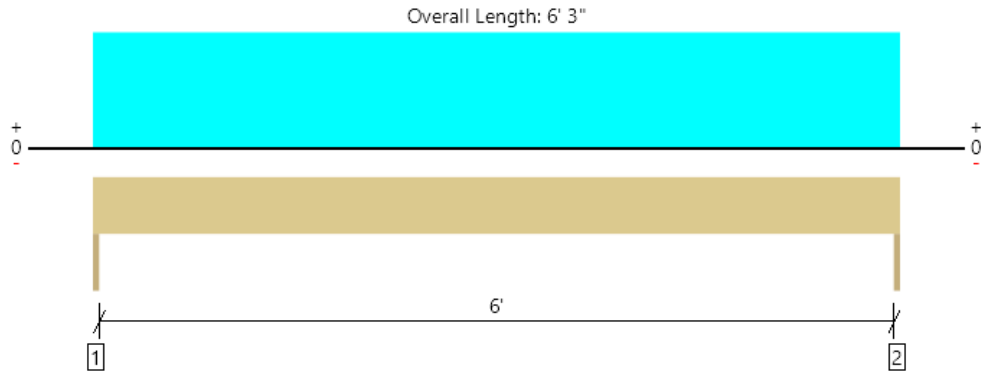
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 6'-FRONT WINDOW
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2476 @ 0	3281 (1.50")	Passed (75%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1609 @ 10 3/4"	3885	Passed (41%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3525 @ 3' 1 1/2"	4492	Passed (78%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.033 @ 3' 1 1/2"	0.208	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.074 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Floor Live	Roof Live	Snow	Factored	
1 - Trimmer - DF	1.50"	1.50"	1.50"	1381	875	469	586	2476	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	1381	875	469	586	2476	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	8.2	--	--	--	
1 - Uniform (PSF)	0 to 6' 3"	7'	20.0	40.0	-	-	Default Load
2 - Uniform (PSF)	0 to 6' 3"	8'	12.0	-	-	-	
3 - Uniform (PSF)	0 to 6' 3"	7' 6"	26.4	-	20.0	25.0	

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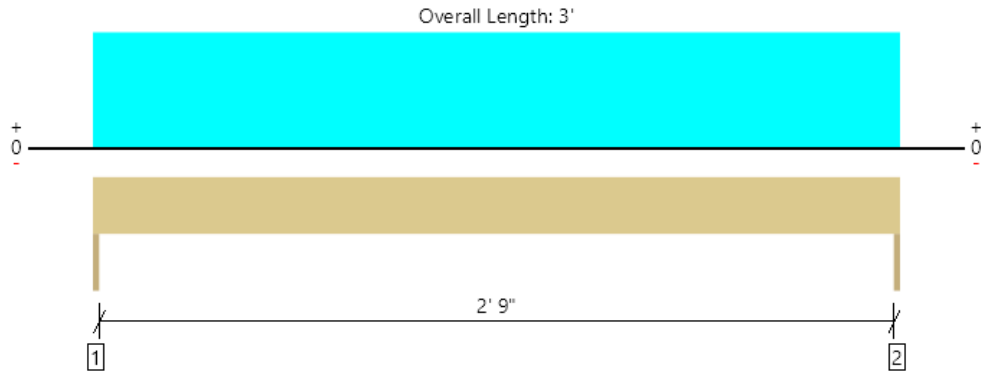
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 2.75'-INTERIOR HEADER
2 piece(s) 2 x 6 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	569 @ 0	2813 (1.50")	Passed (20%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	348 @ 7"	1980	Passed (18%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	427 @ 1' 6"	1475	Passed (29%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.007 @ 1' 6"	0.100	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.010 @ 1' 6"	0.150	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Floor Live	Factored	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	194	375	569	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	194	375	569	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 3'	N/A	4.2	--	
1 - Uniform (PSF)	0 to 3'	6' 3"	20.0	40.0	Default Load

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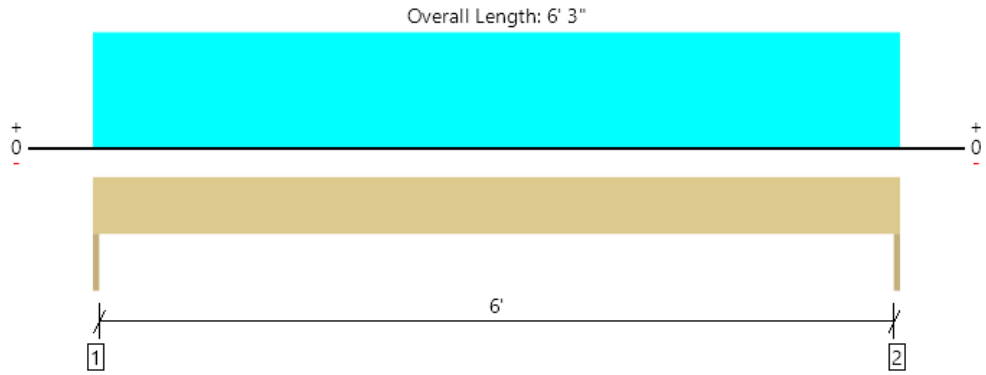
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 6'-SIDE WINDOW (GABLE END)

1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	945 @ 0	3281 (1.50")	Passed (29%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	725 @ 8 3/4"	3502	Passed (21%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1477 @ 3' 1 1/2"	3438	Passed (43%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.039 @ 3' 1 1/2"	0.208	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.058 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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 - Trimmer - DF	1.50"	1.50"	1.50"	320	625	945	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	320	625	945	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	6.4	--	
1 - Uniform (PLF)	0 to 6' 3"	N/A	-	200.0	Default Load
2 - Uniform (PSF)	0 to 6' 3"	8'	12.0	-	

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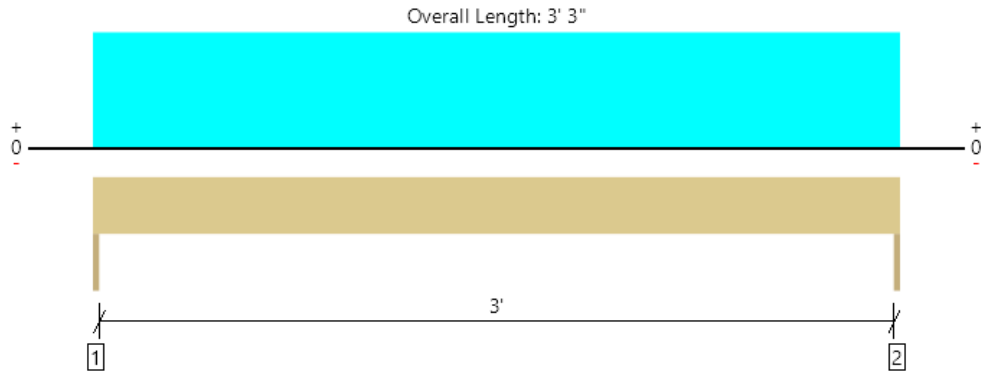
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 3'-SIDE WINDOW (GABLE END)

1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	491 @ 0	3281 (1.50")	Passed (15%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	271 @ 8 3/4"	3502	Passed (8%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	399 @ 1' 7 1/2"	3438	Passed (12%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.003 @ 1' 7 1/2"	0.108	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.004 @ 1' 7 1/2"	0.162	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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 - Trimmer - DF	1.50"	1.50"	1.50"	166	325	491	None
2 - Trimmer - DF	1.50"	1.50"	1.50"	166	325	491	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 3"	N/A	6.4	--	
1 - Uniform (PLF)	0 to 3' 3"	N/A	-	200.0	Default Load
2 - Uniform (PSF)	0 to 3' 3"	8'	12.0	-	

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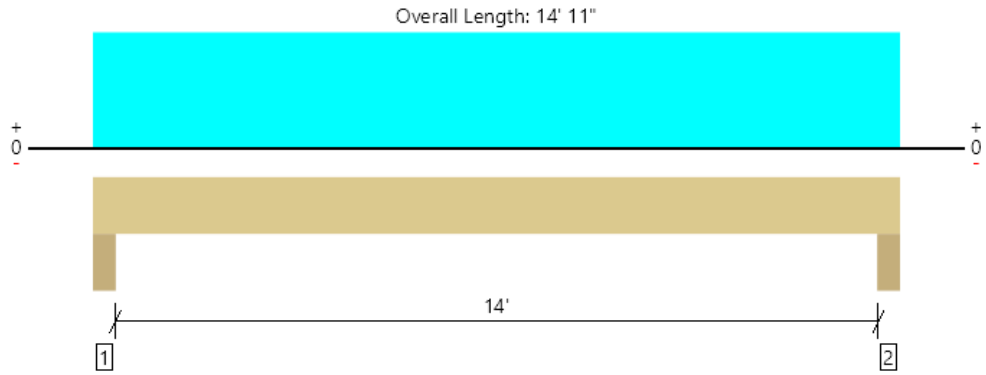
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 14'-GARAGE

1 piece(s) 5 1/2" x 11 7/8" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5010 @ 4"	19663 (5.50")	Passed (25%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	3980 @ 1' 5 3/8"	11539	Passed (34%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	16808 @ 7' 5 1/2"	25853	Passed (65%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.201 @ 7' 5 1/2"	0.475	Passed (L/850)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.451 @ 7' 5 1/2"	0.712	Passed (L/379)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume/size factor of 1.00 that was calculated using length L = 14' 3".
- 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	Floor Live	Roof Live	Snow	Factored	
1 - Trimmer - DF	5.50"	5.50"	1.50"	2776	2163	653	816	5010	None
2 - Trimmer - DF	5.50"	5.50"	1.50"	2776	2163	653	816	5010	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	14' 11" o/c	
Bottom Edge (Lu)	14' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 14' 11"	N/A	15.9	--	--	--	
1 - Uniform (PSF)	0 to 14' 11"	7' 3"	20.0	40.0	-	-	Default Load
2 - Uniform (PSF)	0 to 14' 11"	8'	12.0	-	-	-	
3 - Uniform (PSF)	0 to 14' 11"	4' 4 1/2"	26.4	-	20.0	25.0	

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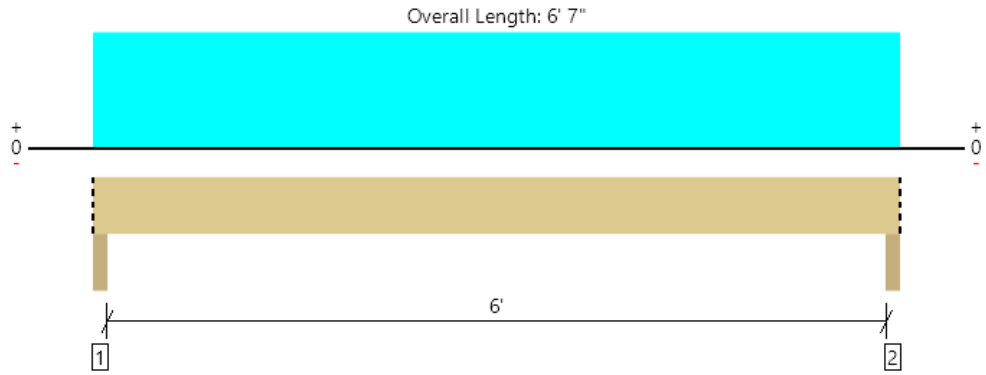
ForteWEB Software Operator	Job Notes
Torin Kubo Pliris Plans (808) 937-9754 torink@plirisplans.com	

Weyerhaeuser

MAIN, 6'-FRONT PORCH
1 piece(s) 6 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	880 @ 2"	12031 (3.50")	Passed (7%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	635 @ 11"	5376	Passed (12%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1305 @ 3' 3 1/2"	3706	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.017 @ 3' 3 1/2"	0.208	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.036 @ 3' 3 1/2"	0.313	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Roof Live	Snow	Factored	
1 - Column - SPF	3.50"	3.50"	1.50"	468	329	411	880	Blocking
2 - Column - SPF	3.50"	3.50"	1.50"	468	329	411	880	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' 7" o/c	
Bottom Edge (Lu)	6' 7" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Roof Live (non-snow: 1.25)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 7"	N/A	10.4	--	--	
1 - Uniform (PSF)	0 to 6' 7" (Top)	5'	26.4	20.0	25.0	Default Load

Weyerhaeuser Notes

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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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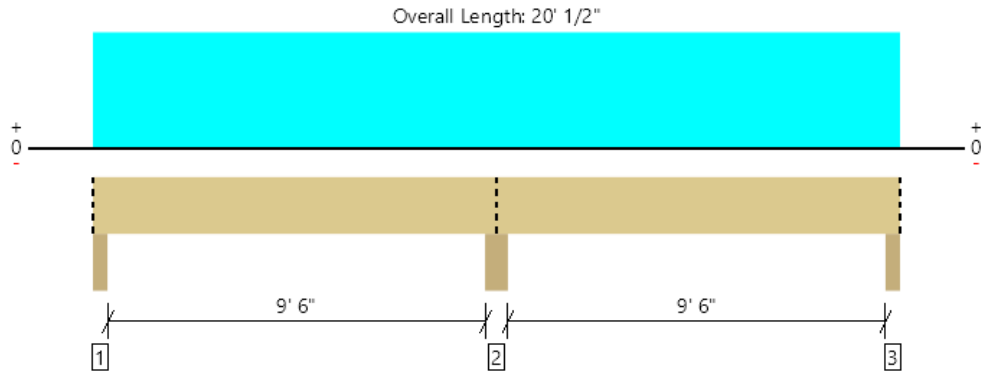
MAIN FLOOR, Floor: Drop Beam
1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2050 @ 10' 1/4"	12031 (5.50")	Passed (17%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	886 @ 10' 10 1/4"	3045	Passed (29%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	-2020 @ 10' 1/4"	2989	Passed (68%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.089 @ 15' 2 5/8"	0.328	Passed (L/999+)	--	1.0 D + 1.0 L (Alt Spans)
Total Load Defl. (in)	0.119 @ 4' 8 3/16"	0.493	Passed (L/996)	--	1.0 D + 1.0 L (Alt Spans)

System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- 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	Floor Live	Factored	
1 - Ledger - SPF	3.50"	3.50"	1.50"	231	478/-66	708	Blocking
2 - Column - SPF	5.50"	5.50"	1.50"	736	1314	2050	Blocking
3 - Ledger - SPF	3.50"	3.50"	1.50"	231	478/-66	708	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)	20' 1" o/c	
Bottom Edge (Lu)	20' 1" 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 20' 1/2"	N/A	6.4	--	
1 - Uniform (PSF)	0 to 20' 1/2" (Top)	2' 8"	20.0	40.0	Default Load

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